PLANNING COMMISSION - PC - REGULAR MEETING

WEDNESDAY, JUNE 4, 2025

Regular Meeting 6:00 p.m.

COUNCIL CHAMBERS 23873 CLINTON KEITH ROAD SUITE 106 WILDOMAR, CA 92595

Eric Filar - Chair
Brianna Bernard - Vice Chair
Rene Cambero - Commissioner
Dr. Charles Golden III - Commissioner
Nolan King - Commissioner

Abdu Lachgar - Senior Planner
Stephanie Gutierrez - Assistant City Attorney

The City of Wildomar will be a Safe and Active Community with Responsible Growth and Quality Infrastructure while keeping a Hometown Feel

NOTICE:
Planning Commission meetings may be live-streamed, photographed and/or videotaped. Participation at the meeting constitutes consent by members of the public to the City's and any third party's use in any media, without compensation or further notice, of audio, video, and/or pictures of meeting attendees.

CALL TO ORDER - REGULAR SESSION - 6:00 P.M.

ROLL CALL

FLAG SALUTE

PUBLIC COMMENTS
*This is the time when the Commission receives general public comments regarding any items or matters within the jurisdiction that **do not** appear on the agenda.*

APPROVAL OF THE AGENDA AS PRESENTED
The Planning Commission to approve the agenda as it is herein presented, or, if it is the desire of the Planning Commission, the agenda can be reordered, added to, or have items tabled at this time.

1. CONSENT CALENDAR
All matters listed under the Consent Calendar are considered routine and will be enacted by one roll call vote. There will be no separate discussion of these items unless members of the Commission, the Public, or Staff request to have specific items removed from the Consent Calendar for separate discussion and/or action.

1.1 Planning Commission Meeting Minutes - May 7, 2025 Meeting
Presented By: Abdu Lachgar , Planning Department

RECOMMENDATION:
Approve the May 7, 2025 meeting minutes as presented.

2. PUBLIC HEARINGS

2.1 Cherry Outpost Retail Center Project - TPM 38828 and CUP/Plot Plan No. 24-0055:

Presented By: Abdu Lachgar , Planning Department

RECOMMENDATION:

1. Adopt a Resolution entitled:

PC RESOLUTION NO. 2025-08
A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, ADOPTING A MITIGATED NEGATIVE DECLARATION / MITIGATION MONITORING AND REPORTING PROGRAM (SCH# 2024120689) FOR TENTATIVE PARCEL MAP NO. 38828, CONDITIONAL USE PERMIT NO. 24-0055, AND PLOT PLAN NO. 24-0055 (CHERRY OUTPOST) LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

2. Adopt a Resolution entitled:

PC RESOLUTION NO. 2025-09
A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, APPROVING TENTATIVE PARCEL MAP NO. 38828 TO SUBDIVIDE A 6.65 ACRE SITE INTO FOUR (4) PARCELS, SUBJECT TO CONDITIONS, WITHIN THE C-H ZONE TO ACCOMMODATE THE CHERRY OUTPOST RETAIL CENTER LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

3. Adopt a Resolution entitled:

PC RESOLUTION NO. 2025-10
A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA APPROVING CONDITIONAL USE PERMIT NO. 24-0055 AND PLOT PLAN NO. 24-0055 (INCLUDING THE CHERRY OUTPOST SIGN PROGRAM), SUBJECT TO CONDITIONS, TO DEVELOP THE CHERRY OUTPOST RETAIL CENTER WITHIN THE C-H ZONE LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

2.2 **Development Code Amendment No. 2025-01 (Cannabis Code Amendment): Planning Commission review of a proposed code amendment to Ordinance 187 adopting a CEQA exemption pursuant to Business and Professions Code section 26055(h) and approving a development code amendment amending various requirements of Chapter 17.240 of the WMC related to cannabis businesses.**

Presented By: Abdu Lachgar , Planning Department

RECOMMENDATION:

1. Determine that the City Council's approval of Development Code Amendment No. 2025-01 is exempt under the California Environmental Quality Act (CEQA) Guidelines pursuant to Business and Professions Code section 26055(h).

2. Adopt a resolution entitled:

PC RESOLUTION NO. 2025-06

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, RECOMMENDING CITY COUNCIL ADOPTION OF A CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EXEMPTION PURSUANT TO BUSINESS AND PROFESSIONS CODE SECTION 26055(H) AND CEQA GUIDELINE 15061(B)(3), AND APPROVING DEVELOPMENT CODE AMENDMENT NO. 2025-01 AMENDING THE WILDOMAR MUNICIPAL CODE RELATED TO CANNABIS BUSINESSES AND ADDING BACK CERTAIN PROVISIONS TO THE DEVELOPMENT CODE THAT WERE UNINTENTIONALLY OMITTED.

3. GENERAL BUSINESS

3.1 **Plot Plan No. 24-0054 (Stable Lanes Retail Center) Architecture & Sign Program Update**

Presented By: Abdu Lachgar , Planning Department

RECOMMENDATION:

1. Approve the updated architectural plans.
2. Approve the updated sign program.

3.2 **Introduction of New Draft Greenhouse Gas (GHG) Emissions Methodology for (CEQA) Compliance for Projects Within the City of Wildomar**

Presented By: Abdu Lachgar , Planning Department

RECOMMENDATION:

1. Determine this report is categorically exempt from the application of CEQA; and
2. Receive and file this report.

3.3 Request for Direction on the Placement of Metal Shipping Containers as Accessory Structures on Lots or Parcels Not Less Than 1/2 Acre in Size Within the Agricultural and Rural Residential Zones

Presented By: Abdu Lachgar , Planning Department

RECOMMENDATION:

1. Receive and file this report with no further action, or
2. Provide direction for staff to prepare an ordinance identifying solutions to impacts of the placement of metal shipping containers on certain areas of land within agricultural and rural residential zones for a duly noticed public hearing.

PLANNING COMMISSION COMMUNICATIONS

COMMUNITY DEVELOPMENT DIRECTOR REPORT

CITY ATTORNEY REPORT

FUTURE AGENDA ITEMS

ADJOURN THE MEETING

PARTICIPATION

MEETINGS

Regular Planning Commission Meetings are held on the 1st Wednesday of every month at 6:00 P.M. in the City Council Chambers, 23873 Clinton Keith Road Ste. 106 Wildomar, CA 92595.

VIEW THE MEETING

1. In Person | City Council Chambers 23873 Clinton Keith Road Ste. 106 Wildomar, CA 92595

2. Cable TV | Frontier Channel 36 or AT&T Channel 99

3. Watch Live | https://www.wildomar.gov/129/Agendas-Videos-Watch-Live | Click on the "Live Video Link"

PARTICIPATE IN THE MEETING

1. Fill out the speaker card located on the table near the entrance of the chambers.
2. Submit the speaker card to the Deputy Clerk in the basket located at the front of the chambers.
3. When the Deputy Clerk calls your name, please come up to the front podium.

During Public Comment not on the agenda and after each Agenda Item, the Chair will announce Public Comment. Public Comments are limited to (3) minutes or such other time as the Planning Commission may provide. Per the Brown Act, Commissioners are not allowed to respond to public comments not on the agenda. If you would like to be contacted, please leave your email or contact number on the public comment card.

ACCOMMODATIONS

In compliance with the Americans with Disabilities Act, if requested, the agenda and backup materials will be made available in appropriate alternative formats to persons with a disability, as required by Section 202 of the Americans With Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and the federal rules and regulations adopted in implementation thereof. Any person that requires a disability-related modification or accommodation, including auxiliary aids or services, in order to participate in the public meeting, may request such modification, accommodation, aid or service by contacting the City Clerk either in person or by phone at 951-677-7751, no later than 10:00 a.m. on the day preceding the scheduled meeting.

REPORTS

All agenda items and reports are available for review at City Hall, 23873 Clinton Keith Road and on the City's website at the following address: http://www.wildomar.gov.

AFFIDAVIT OF POSTING

I, Heidi Jemane, Deputy City Clerk, do certify that at least 72 hours prior to the meeting, a true and correct copy of this agenda was posted at Wildomar City Hall, 23873 Clinton Keith Road; U.S. Post Office, 21392 Palomar Street; Wildomar Library, 34303 Mission Trail Blvd; and on the City's website at www.wildomar.gov.

Heidi Jemane
Deputy City Clerk
Dated: May 29, 2025

CITY OF WILDOMAR
PC - REGULAR MEETING
CONSENT CALENDAR
Agenda Staff Report # 1.1
Meeting Date: June 4, 2025

SUBJECT: Planning Commission Meeting Minutes - May 7, 2025 Meeting

SUBMITTED BY: Abdu Lachgar

PREPARED BY: Abdu Lachgar

ACTION:
Approve the May 7, 2025 meeting minutes as presented.

ATTACHMENTS:
05-07-25pcm-draft.pdf

MINUTES
CITY OF WILDOMAR
PLANNING COMMISSION
WEDNESDAY, MAY 7, 2025
COUNCIL CHAMBERS
23873 CLINTON KEITH ROAD SUITE 106
WILDOMAR, CA, 92595

Regular Meeting 6:00 p.m.

CALL TO ORDER - REGULAR SESSION - 6:00 P.M.

Chair Filar called the meeting to order at 6:00pm.

ROLL CALL

Members in attendance: Eric Filar, Rene Cambero, Dr. Charles Golden III, and Nolan King

Members absent: Brianna Bernard

Vice Chair Bernard arrived at 6:10pm with prior notice.

Staff in attendance: Deputy City Clerk Jemane, IT Specialist Sung, Community Development Director Jones, City Attorney Jex, Senior Planner Lachgar, Public Works Director Farag and Associate Engineer Luna.

FLAG SALUTE

Commissioner Cambero led the flag salute.

PUBLIC COMMENTS

Resident Malcolm Lawrence provided public comment.

APPROVAL OF THE AGENDA AS PRESENTED

There were no changes to the agenda as presented.

1) CONSENT CALENDAR

Approved the consent calendar as presented.

1.1) Planning Commission Meeting Minutes - March 19, 2025 Special Meeting

Moved by Nolan King; seconded by Rene Cambero to approve the March 19, 2025 special meeting minutes as presented.

Motion Approved: 4 - 0

Voting For: Eric Filar, Rene Cambero, Dr. Charles Golden III, Nolan King
Voting Against: None
Abstain: None
Absent: Brianna Bernard

2) PUBLIC HEARINGS

There were no public hearings.

3) GENERAL BUSINESS

3.1) Capital Improvement Program/General Plan Consistency (FY 2025/26)

Associate Engineer Luna presented the staff report.

Don Saunders provided public comment.

Moved by Rene Cambero; seconded by Brianna Bernard to adopt a Resolution entitled:

PC RESOLUTION NO. 2025-07

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, DETERMINING THAT THE FISCAL YEAR 2025/26 CAPITAL IMPROVEMENT PROGRAM PROJECTS FOR THE FIVE FISCAL YEARS 2025/26 THROUGH 2029/30 PROGRAM ARE CONSISTENT WITH THE CITY OF WILDOMAR GENERAL PLAN

Motion Approved: 5 - 0

Voting For: Eric Filar, Brianna Bernard, Rene Cambero, Dr. Charles Golden III, Nolan King
Voting Against: None
Abstain: None
Absent: None

3.2) The Bluffs at Hidden Springs Specific Plan - PC Study Session

Senior Planner Lachgar presented the staff report.

Applicant Tom Clark presented and was available for questions.

Stephanie Romo and Don Saunders provided public comments.

The Planning Commission received and filed The Bluffs at Hidden Springs' specific plan.

PLANNING COMMISSION COMMUNICATIONS

There were no planning commission communications.

COMMUNITY DEVELOPMENT DIRECTOR REPORT

Community Development Director Jones reminded the commissioners of the June 10th Coffee with the City, where the Planning department will do a presentation.

Senior Planner Lachgar updated the commissioners on the new pre-approved ADU program.

Senior Planner Lachgar will be representing the City by collecting the Merit Award for Comprehensive Plan with the Inland Empire APA on Wednesday 14th.

CITY ATTORNEY REPORT

There were no city attorney reports.

FUTURE AGENDA ITEMS

Chair Filar plans to visit resident Malcolm Lawrence's property to get clarification on the container issue that was mentioned during public comments to items not on agenda, and provide feedback at the following June meeting.

ADJOURN THE MEETING

Chair Filar adjourned the meeting at 7:43pm.

Submitted by:



_____

Heidi Jemane
Deputy City Clerk

SUBJECT: Cherry Outpost Retail Center Project - TPM 38828 and CUP/Plot Plan No. 24-0055:

SUBMITTED BY: Abdu Lachgar

PREPARED BY: Abdu Lachgar

ACTION:
1. Adopt a Resolution entitled:

PC RESOLUTION NO. 2025-08
A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, ADOPTING A MITIGATED NEGATIVE DECLARATION / MITIGATION MONITORING AND REPORTING PROGRAM (SCH# 2024120689) FOR TENTATIVE PARCEL MAP NO. 38828, CONDITIONAL USE PERMIT NO. 24-0055, AND PLOT PLAN NO. 24-0055 (CHERRY OUTPOST) LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

2. Adopt a Resolution entitled:

PC RESOLUTION NO. 2025-09
A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, APPROVING TENTATIVE PARCEL MAP NO. 38828 TO SUBDIVIDE A 6.65 ACRE SITE INTO FOUR (4) PARCELS, SUBJECT TO CONDITIONS, WITHIN THE C-H ZONE TO ACCOMMODATE THE CHERRY OUTPOST RETAIL CENTER LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

3. Adopt a Resolution entitled:

PC RESOLUTION NO. 2025-10
A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA APPROVING CONDITIONAL USE PERMIT NO. 24-0055 AND PLOT PLAN NO. 24-0055 (INCLUDING THE CHERRY OUTPOST SIGN PROGRAM), SUBJECT TO CONDITIONS, TO DEVELOP THE CHERRY OUTPOST RETAIL CENTER WITHIN THE C-H ZONE LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

PROJECT DESCRIPTION:
The Applicant (J&T Management, Jack Kofdarali) is requesting Planning Commission consideration to develop the Cherry Outpost Retail Center project. The proposed project consists of the following applications for review and consideration by the Planning Commission.

1) Initial Study/Mitigated Negative Declaration: The project will require the adoption of an Initial Study/Mitigated Negative Declaration (SCH# 2024120689) and a Mitigation Monitoring and Reporting Program in accordance with Article 6, Section 15070 of CEQA.

2) Tentative Parcel Map No. 38828: A proposed commercial parcel map to subdivide the 6.65 acre site (APN: 366-290-007 & 366-290-008) into four (4) parcels to accommodate the Cherry Outpost Retail Center project, subject to conditions.

3) CUP/Plot Plan No. 24-0055: A proposed Conditional Use Permit to establish a 5,724 square-foot express car wash facility in the C-H zone and a proposed Plot Plan application to develop a commercial retail center, including landscaping and on-off-site improvements in accordance with the development standards of the C-H (Commercial Highway) zone, subject to conditions.

Project Location/Vicinity:
The project site encompasses approximately 6.65+ acres and is located at the NWC of Cherry St. & Bundy Canyon Road. The project site is comprised of two (2) legal parcels zoned C-H (Commercial Highway) and is currently vacant. There are single family uses both north and east of the site. The I-15 Freeway is located west of the site. The Bundy Canyon Plaza retail center is located south of the project site. The table in Attachment G summarizes the current uses, land use and zoning designations related to the project site and surrounding properties. The vicinity/location map is shown in Attachment G.

PROJECT ANALYSIS:
Tentative Parcel Map No. 38828:
The Applicant has proposed a tentative parcel map to subdivide the 6.65-acre site into four (4) parcels to accommodate the future sale of individual lots. This is a common practice for retail centers, and each parcel has been designed to allow one building on each parcel. The tentative parcel map is typically subject to the lot area requirements of the applicable zone; however, the C-H zone does not have a minimum lot size requirement. Thus, the seven parcels do meet the lot area standard.
In accordance with Government Code §66473.1, §66473.5 and §66474, and Title 16 (Subdivisions) of the Wildomar Municipal Code, the Planning Commission must make six (6) findings to approve TPM No. 38828. The required findings to support TPM No. 38828 are discussed/provided in PC Resolution No. 2025-09 (Attachment B).

Cherry Outpost Sign Program Analysis:
The applicant has submitted a master sign program for the proposed retail center for Planning Commission Consideration. The sign program meets all code requirements in Chapter 17.180 (Signs) of the WMC. The sign program is provided for Commission consideration in Attachment F. Staff's recommendation for approval of the sign program is included in PC Resolution No. 2025-10 (Attachment C).

Conditional Use Permit No. 24-0055 Analysis:
The Applicant is requesting approval of a CUP to establish a 5,724 square-foot express drive-thru car wash which will include multiple individual vacuum stalls with covers that include solar panels on top. The proposed hours of operation are 7 am to 10 pm. As such, the car wash is proposed to be designed to meet our commercial design guidelines and employ the latest recycle, water re-use and solar energy systems available. In accordance with Section

17.40.020 of the Wildomar Municipal Code, a CUP is required for car washes. Pursuant to Chapter 17.80 (Conditional Use Permits) of the Wildomar Municipal Code, the Planning Commission must make four (4) findings to approve the CUP. The required findings to support CUP No. 24-0055 are discussed/provided in PC Resolution No. 2025-10 (Attachment C).

Plot Plan No. 24-0055 Analysis:
In accordance with Section 17.40 (C-H) of the Wildomar Municipal Code (WMC), the Cherry Outpost Retail Center project is a permitted use subject to the approval of a Plot Plan (Section 17.85, WMC). The Plot Plan (i.e., development plans package) serves as the permit to develop the proposed retail center with four (4) buildings. The project site is about 6.65 acres+. The Applicant has secured one (1) lease for Tommy's car wash. The other uses are unidentified at this time. As noted in Section 17.40 of the WMC, the users noted below fall within the general category of commercial and retail uses. The proposed project would develop a commercial retail center consisting of:

1) a 4-story, 72-room hotel (45,571 square feet);
2) a gas station complex, including a 4,176-square-foot convenience store with an attached 3,200-square-foot drive-through restaurant, and a 2-position RV fueling area;
3) a stand-alone 4,425-square-foot fast food/drive-through restaurant; and
4) a 5,724-square-foot express car wash with related accessories.

Site Plan/Building Layout:
The site plan has been designed to meet the development standards of the C-H zone in accordance with Section 17.40 of the WMC. Staff has analyzed the proposed project site plan to ensure compliance with the development standards related to setbacks, building height, and parking. The development plans for the Cherry Outpost retail center are provided in Attachment D.

Off-Street Parking:
The proposed retail project complies with the parking standards outlined in Chapter 17.155 of the WMC. The retail project has a total size of 62,271 square feet, minus the car wash bay (6/1000 ratio for retail, 1 space per room (72) for hotel). The total required provided on the site plan is 151 spaces and the project is providing 176 spaces, thus, the parking requirement has been met. This amount includes all required handicap/accessible stalls as well as bicycle parking and EV spaces per Cal Green codes. Each parking stall has also been designed to meet the minimum stall dimensions, including drive aisles and back-up areas. Since the Applicant is able to sell the lots eventually, the project has been conditioned to record a reciprocal access and parking agreement. This ensures that visitors and patrons will be able park wherever they want on the site and have access between the parcels.

Landscaping Plan:
The Applicant has provided a detailed conceptual landscape plan for staff's review as part of the development review process. The landscape plan was designed to meet the requirements of the city's newly adopted Landscape Design Standards and Guidelines manual. The project achieves valuable water conservation through the use of water efficient landscaping. The landscape plans provide for a variety of landscape species (including drought tolerant turf) in varying sizes to accommodate the project. The landscape plans were reviewed by the City's Landscape Architect and based on this review; the conceptual landscape plans are consistent with City standards. During the construction plan check process, staff will perform a more

detailed landscape and irrigation plan review to determine that the proposed water usage meets the Landscape Design Standards and Guidelines manual. The proposed landscape plan is shown on Attachment D.

On-Site Vehicular Circulation and Access:
The primary vehicular access for visitors and employees will occur from Cherry Street. Given the proximity to the freeway, it was not feasible to provide direct access to Bundy Canyon Road. The site has also been conditioned to construct public improvements along both Cherry Street and Bundy Canyon Road. These improvements will provide safe pedestrian and vehicular circulation for the project, including emergency vehicle access. Refer to the Public Works conditions for specific detail on these public improvements (Attachment C, Exhibit 1).

Proposed Grading:
Based on review of the preliminary grading and site design, and the environmental analysis, the proposed grading plan is in compliance with city grading policies.

Proposed Architecture:
The architectural theme for the retail center site is characterized as "Farm Chic" which is one of the three design themes allowed on the city's Commercial Design Standards and Guidelines. Farm Chic is a contemporary interpretation of traditional rural forms adapted to a commercial setting. This style reflects Wildomar's agricultural and ranching history and regional context. As indicated in the accompanying precedent images and illustrative diagram, the style utilizes elements of recognizable farm and ranch forms such as barns, sheds, silos, tank houses and granary towers. Common materials such as metal, wood and stone are utilized. Board and batten siding and corrugated metal panels are used to give texture and variation to exterior walls. Roofs are typically medium-to-high-pitched. Large openings are patterned after the functional design of typical agricultural buildings. The proposed architecture is a high-quality design. The architectural plans for the Cherry Outpost retail center are provided in Attachment D. The Findings for support of the Plot Plan are provided in PC Resolution No. 2025-10 (Attachment B). Staff has provided exhibits of the site plan, architectural elevations, landscape plans and other materials in Attachment D – F.

Conclusion:
The Planning Commission has the authority to review the proposed plot plan. Staff's analysis of the findings in support of the plot plan is provided in the attached PC Resolutions (Attachment A-C). Based on review of the proposed site plan, grading plan, landscaping plan and architectural elevations, the Planning Department has determined that the Cherry Outpost Retail Center project does meet and exceed all applicable development standards. The project as proposed and conditioned is also consistent with the General Plan land use category of CR. Further, all environmental impacts created by the project have been mitigated to a level of non-significance, and each mitigation measure has been incorporated into the project conditions.

In accordance with Chapter 17.85 of the Wildomar Municipal Code (Title 17), the Planning Commission must make four (4) findings to approve Plot Plan No. 24-0055. The required findings to support the Plot Plan are discussed/provided in PC Resolution No. 2025-10 (Attachment C). Project development plans and sign program are provided for Commission review in Attachments D & F of the staff report packet.

ENVIRONMENTAL ANALYSIS:

CEQA/Initial Study/Mitigated Negative Declaration:
The Community Development Director in a preliminary review of the proposed project determined that there was substantial evidence that the Cherry Outpost Retail Center project may have one or more significant effects on the environment. Therefore, in accordance with the California Environmental Quality Act ("CEQA"), Public Resources Code §§ 21000 – 21189.3, and the CEQA Guidelines, 14 CCR §§ 15000-15387, the proposed project required the preparation of an Initial Study/Mitigated Negative Declaration (IS/MND). Based on the CEQA analysis, all potential environmental impacts created by the project (i.e., biological resources, cultural resources, geology/soils, air quality, and Tribal cultural resources) have been mitigated to a level of non-significance, and each of the mitigation measures from these impact areas have been incorporated into the project conditions matrix (refer to Attachment A & C, Exhibit 1, respectively).

Upon completion of the draft IS/MND and in accordance with CEQA Guidelines Section 15072, the Planning Department on December 18, 2024 provided a Notice of Availability (NOA) to the State Clearinghouse, Riverside County Clerk, Press Enterprise, a local newspaper of general circulation, and the City's local distribution list regarding the preparation and public review of the draft Initial Study/Mitigated Negative Declaration for the proposed Cherry Outpost Retail Center project. In accordance with CEQA Guidelines §15073 and §15105, the draft Initial Study/Mitigated Negative Declaration was released for the required for a 30-day public review period commencing on December 18, 2024 and concluding on January 27, 2025, and which the draft IS/MND was provided to the State Clearinghouse, Responsible Agencies, City's Local Distribution list and other interested parties requesting a copy of the IS/MND. In addition, as required by the City's Local CEQA Guidelines, the draft Initial Study/Mitigated Negative Declaration was uploaded to the City's Environmental Documents Center webpage during the same 30-day public review period, and a hard copy was made available at the Planning Department for public review.

During the 30-day public review period, the City received one (1) written comment letter commenting on the draft Initial Study/Mitigated Negative Declaration for the proposed Cherry Outpost Retail Center project. In accordance with the City's Local CEQA Guidelines, the Planning Department has prepared detailed responses to the one (1) public comment letter, and a copy of the city's responses were provided to each commenter 10 days prior to the June 4, 2025 Planning Commission meeting. In addition, a Mitigation Monitoring and Reporting Program (MMRP) was prepared in accordance with CEQA Guidelines to monitor compliance with the mitigation measures.

Staff's analysis of the findings in support of the adoption of the MND/MMRP is provided in PC Resolution No. 2025-08. A copy of the draft IS/MND, technical appendices, response to comments and mitigation monitoring & reporting program are provided for Commission consideration in Attachment A, Exhibits 1 -4.

AB 52 Compliance - Tribal Consultation:
AB 52 requires the lead agency to contact all culturally affiliated tribes that could be affected by a project within 14 days of receiving a development application. The Cherry Outpost Retail Center project was formally received August 31, 2023. In accordance with state law, tribal consultation letters were sent to four (4) local Indian tribes (i.e., Morongo, Soboba, Pechanga & Rincon) on October 23, 2023. Within the prescribed 30-day deadline, the city received two (2) consultation request letters from the Morongo and Rincon tribes. The city as the lead agency has an additional 30 days to set up consultation meetings with the responding tribes.

Based on the information presented in the Project Cultural Resources Investigation, the Project would not affect known or probable resources that are listed or eligible for listing in the California Register of Historical Resources; or resources listed in a local register of historical resources as defined in Public Resources Code section 5020.1(k). The Project Cultural Resources Investigation also substantiates that the Project would not adversely affect known or probable resources determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

The City has complied with the notification and procedural requirements under AB 52. The AB 52 consultation documentation is provided within the IS/MND (refer to Attachment A, Exhibit 1 - 4). Based on our AB 52 consultation process, the city and tribes agreed to several cultural mitigation measures to be imposed on the project (refer to Attachment C, Exhibit 1). These measures will ensure protection of, as yet unknown cultural resources that may be encountered in developing the project, as well as, protection of tribal cultural resources that may be discovered during the construction phases. Thus, the proposed Cherry Outpost Retail Center project will not result in any significant impacts to cultural resources and/or tribal cultural resources, thereby, complying with AB 52.

AB 52 states that the consultation concludes when either "1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal resource, or 2) a party, acting on good faith and after a reasonable effort, concludes that mutual agreement cannot be reached." Since the city and tribes have agreed to mitigation measures, the AB 52 consultation process was concluded.

Based on the analysis above and compliance with CEQA Guidelines, the Planning Department is recommending the Planning Commission adopt PC Resolution No. 2025-08 (Attachment A) adopting the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program. This resolution also includes the required IS/MND findings supporting staff's recommendation, as well as the findings. The IS/MND, Technical Studies, Response to Comments and MMRP is provided for Commission consideration (Attachment A, Ex. 1-4).

PUBLIC NOTICE:
In accordance with Government Code Section 65854 and Chapter 17.85 of the Wildomar Municipal Code, the Planning Department on May 21, 2025 mailed a public hearing notice to all property owners within a 600-foot radius of the project boundaries notifying said property owners of the June 4, 2025 public hearing for the Cherry Outpost project that would be considered by the Planning Commission. In accordance with Ordinance No. 135, the Planning Department on May 23, 2025 posted four (4) public hearing notice "sign boards" along the Clinton Keith Road and Hidden Springs Road street frontage notifying the general public of the June 4, 2025 public hearing for the Cherry Outpost project that would be considered by the Planning Commission. In accordance with Section 17.04.050 of the Wildomar Municipal Code, the Planning Department on May 24, 2025 published a legal notice in the "Press Enterprise", a local newspaper of general circulation notifying the general public of the June 4, 2025 public hearing for the Cherry Outpost project that would be considered by the Planning Commission.

ATTACHMENTS:
Attach A - IS-MND PC Reso No. 2025-08 6-4-25.pdf

Attach A-Ex1-Cherry Outpost IS-MND Document.pdf
Attach A-Ex2-Appendix 1_Development Plans.pdf
Attach A-Ex2-Appendix 2_AQ_GHG_OPT.pdf
Attach A-Ex2-Appendix 3_Bio_OPT.pdf
Attach A-Ex2-Appendix 4_Cultural Resources_OPT.pdf
Attach A-Ex2-Appendix 5_Geotech Report_OPT.pdf
Attach A-Ex2-Appendix 6_Paleo Report_OPT.pdf
Attach A-Ex2-Appendix 7_Phase_I_ESA_OPT.pdf
Attach A-Ex2-Appendix 8_Hydrology Report_OPT.pdf
Attach A-Ex2-Appendix 9_WQMP_OPT.pdf
Attach A-Ex2-Appendix 10_Acoustical Analysis_OPT.pdf
Attach A-Ex2-Appendix 11_Traffic Report_OPT.pdf
Attach A-Ex3-Cherry Outpost RTC Doc.pdf
Attach A-Ex4-Cherry Outpost MMRP-final [6-4-25].pdf
Attach B - PC Reso 2025-09 - TPM 38828 - 6-4-25.pdf
Attach C - PC Reso 2025-10 - CUP-PP 24-0055 - 6-4-25.pdf
Attach D-Cherry Outpost Dev Plans-final [6-4-25].pdf
Attach E-Cherry Outpost-TPM 38828 Exhibit [6-4-25].pdf
Attach F - Cherry Outpost Sign Program [6-4-25].pdf
Attach G - Vicinity Map & Adjacent Table.pdf
Attach H - Staff PPT 6-4-25.pdf

ATTACHMENT A

PC Resolution No. 2025-08

Initial Study/Mitigated Negative Declaration

PC RESOLUTION NO. 2025-08

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, ADOPTING A MITIGATED NEGATIVE DECLARATION / MITIGATION MONITORING AND REPORTING PROGRAM (SCH# 2024120689) FOR TENTATIVE PARCEL MAP NO. 38828, CONDITIONAL USE PERMIT NO. 24-0055, AND PLOT PLAN NO. 24-0055 (CHERRY OUTPOST) LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

WHEREAS, the Planning Department has received a development application from:

Applicant/Owner:	J&T Management, Jack Kofdarali
Project Location:	NWC of Cherry St. & Bundy Canyon Road
APN:	366-290-007 & 366-290-008
Project Area:	6.65± acres

WHEREAS, the proposed Cherry Outpost Retail Center project consists of the following applications for review and consideration by the Planning Commission:

1) Initial Study/Mitigated Negative Declaration: The project will require the adoption of an Initial Study/Mitigated Negative Declaration (SCH# 2024120689) and a Mitigation Monitoring and Reporting Program in accordance with Article 6, Section 15070 of CEQA.

2) Tentative Parcel Map No. 38828: A proposed commercial parcel map to subdivide the 6.65 acre site (APN: 366-290-007 & 366-290-008) into four (4) parcels to accommodate the Cherry Outpost Retail Center project, subject to conditions.

3) CUP/Plot Plan No. 24-0055: A proposed Conditional Use Permit to establish a 5,724 square-foot express car wash facility in the C-H zone and a proposed Plot Plan application to develop a commercial retail center, including landscaping and on-off-site improvements in accordance with the development standards of the C-H (Commercial Highway) zone, subject to conditions.

WHEREAS, the Planning Commission has the authority to take action on the Initial Study/Mitigated Negative Declaration/Mitigation Monitoring and Reporting Program for the Cherry Outpost Retail Center project; and

WHEREAS, the proposed Cherry Outpost Retail Center project is considered a "project" as defined by the California Environmental Quality Act, Public Resources Code § 21000 et seq. ("CEQA"); and

WHEREAS, the Planning Director determined that there was substantial evidence that the Cherry Outpost Retail Center project may have one or more significant effects on the environment and that preparation of a Mitigated Negative Declaration ("MND") was therefore warranted under Public Resources Code § 21080(c); and,

WHEREAS, in accordance with CEQA Guidelines Section 15072, the Planning Department on December 18, 2024 provided a Notice of Availability (NOA) to the State Clearinghouse, Riverside County Clerk, Press Enterprise, a local newspaper of general circulation, and the City's local distribution list regarding the preparation and public review of the draft Initial Study/Mitigated Negative Declaration for the proposed Cherry Outpost Retail Center project; and

WHEREAS, in accordance with CEQA Guidelines §15073 and §15105, the draft Initial Study/Mitigated Negative Declaration was released for the required for a 30-day public review period commencing on December 18, 2024 and concluding on January 27, 2025, and which the draft IS/MND was provided to the State Clearinghouse, Responsible Agencies, City's Local Distribution list and other interested parties requesting a copy of the IS/MND; and

WHEREAS, in accordance with the City's Local CEQA Guidelines, the draft Initial Study/Mitigated Negative Declaration was made available for public review from December 18, 2024 to January 27, 2025 online at the City's Environmental Documents Center webpage (http://www.cityofwildomar.org/environmental-documents.asp) and a hard copy was made available at the Planning Department; and

WHEREAS, during the 30-day public review period, the City received a total of one (1) written comment letter concerning the draft Initial Study/Mitigated Negative Declaration for the proposed Cherry Outpost Retail Center project; and

WHEREAS, in accordance with the City's Local CEQA Guidelines, the Planning Department has prepared responses to the one (1) public comment letter received during the public review period as part of the final IS/MND, including preparation of a Mitigation Monitoring and Reporting Program (MMRP) for the Cherry Outpost Retail Center project; and

WHEREAS, the final IS/MND with responses to each commenter was provided to the one (1) commenter at least 10 days prior to the June 4, 2025 Planning Commission meeting in accordance with the City's Local CEQA Guidelines; and

WHEREAS, the Cherry Outpost Retail Center project IS/MND consists of the following documents as Exhibits to this Resolution:

- Exhibit 1 - Cherry Outpost Retail Center project Initial Study/Mitigated Negative Declaration (SCH# 2024120689);

- Exhibit 2 - Cherry Outpost Retail Center project IS/MND Technical Appendices.
- Exhibit 3 - Cherry Outpost Retail Center Final IS/MND/Response to Comments package.
- Exhibit 4 - Cherry Outpost Retail Center project Mitigation Monitoring and Reporting Program (MMRP).

WHEREAS, the Planning Department on May 21, 2025 mailed a public hearing notice to all property owners within a 600-foot radius of the project boundary notifying said property owners of the June 4, 2025 Planning Commission hearing at which time the Planning Commission would consider adoption of the Cherry Outpost Retail Center IS/MND and MMRP; and

WHEREAS, in accordance with Ordinance No. 135, the Planning Department on May 23, 2025 posted four (4) public hearing notice "sign boards" along the Cherry St. & Bundy Canyon Road frontages notifying the general public of the June 4, 2025 Planning Commission meeting at which time the Planning Commission would consider adoption of the Cherry Outpost Retail Center IS/MND and MMRP; and

WHEREAS, the Planning Department on May 24, 2025 published a legal notice in the Press Enterprise, a local newspaper of general circulation, notifying the general public of the June 4, 2025 Planning Commission hearing at which time the Planning Commission would consider adoption of the Cherry Outpost Retail Center IS/MND and MMRP; and

WHEREAS, on June 4, 2025, the Planning Commission conducted the duly noticed public hearing at which time interested persons had an opportunity to testify in support of or, opposition to, the proposed Cherry Outpost Retail Center project IS/MND and MMRP, and at which time the Planning Commission received public testimony concerning the proposed project.

NOW THEREFORE, the Planning Commission of the City of Wildomar, does hereby resolve, determine and order as follows:

SECTION 1 CEQA FINDINGS.

The Planning Commission, in light of the whole record before it, including but not limited to, the draft IS/MND, Technical Appendices, Response to Comments/Final MND, and Mitigation Monitoring and Reporting Program (Exhibits 1 - 4) and all documents incorporated by reference therein, any comments received and responses provided, and other substantial evidence (within the meaning of Public Resources Code § 21080(e) and § 21082.2) within the record and/or provided at the public hearing, find and determine as follows:

A. Review Period: That the City has provided a 30-day public review period for the draft Initial Study/Mitigated Negative Declaration as required by CEQA Guidelines §15073 and §15105.

B. Compliance with Law: That the draft Initial Study/Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program were prepared, processed, and noticed in accordance with the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulations Section 15000 et seq.).

C. Independent Judgment: That the draft Initial Study/Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program reflect the independent judgment and analysis of the City.

D. Mitigation Monitoring and Reporting Program: That the Mitigation Monitoring and Reporting Program is designed to ensure compliance during project implementation in that changes to the project and/or mitigation measures have been incorporated into the project and are fully enforceable through permit conditions, agreements, or other measures as required by Public Resources Code Section 21081.6.

E. No Significant Effect: That revisions made to the project as agreed to by the applicant, and mitigation measures imposed as conditions of approval on the project, avoid or mitigate any potential significant effects on the environment identified in the Initial Study to a point below the threshold of significance. Furthermore, after taking into consideration the revisions to the project and the mitigation measures imposed, the Planning Commission finds that there is no substantial evidence, in light of the whole record, from which it could be fairly argued that the project may have a significant effect on the environment. Therefore, the Planning Commission concludes that the project will not have a significant effect on the environment with adoption of the proposed mitigation measures as outlined in the Mitigation Monitoring and Reporting Program.

SECTION 2. MULTIPLE SPECIES HABITAT CONSERVATION PLAN (MSHCP)

The Planning Commission finds the project is consistent with the MSHCP. The project is located outside of any MSHCP criteria area, and mitigation is provided through payment of the MSHCP Mitigation Fee.

SECTION 3. PLANNING COMMISSION ACTION.

Based on the foregoing findings, and on substantial evidence in the whole of the record, the Planning Commission hereby take the following actions:

1. Adoption of a Mitigated Negative Declaration/MMRP:
   The Planning Commission hereby adopts the Initial Study/Mitigated Negative Declaration (with technical appendices) and Mitigation Monitoring and Reporting Program (MMRP) for the Cherry Outpost Retail Center project (PA No. 24-0055) attached hereto this Resolution as Exhibits 1 - 4.

2. Filing a Notice of Determination (NOD):
   In compliance with Public Resources Code Section 21152 and CEQA Guidelines Section 15075, the Planning Commission hereby directs the Community Development Director to file a Notice of Determination (NOD) with the Riverside County Clerk within seven (7) working days of Planning Commission approval of the Cherry Outpost Retail Center project and adoption of the Initial Study/Mitigated Negative Declaration & Mitigation Monitoring and Reporting Program.

3. Location:
   The Planning Commission directs the Planning Director to keep the Initial Study/Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program for the Cherry Outpost Retail Center project (PA No. 24-0055), and all documents incorporated therein or forming the record of decision therefore, on file with the Wildomar Planning Department, located at 23873 Clinton Keith Road, Suite 201, Wildomar, CA 92595 and shall be made available for public review upon request in accordance with state law.

PASSED, APPROVED AND ADOPTED this 4th day of June, 2025, by the following vote:

AYES.

NOES:

ABSENT:

ABSTAINED:

_____
Eric Filar
Planning Commission Chair

ATTEST:

_____
Steven Jones
Community Development Director/Minutes Secretary

APPROVED AS TO FORM:

_____
Stephanie Gutierrez
Assistant City Attorney

EXHIBIT 1

Cherry Outpost Retail Center Project IS/MND

(Under Separate Cover)

EXHIBIT 2

Cherry Outpost Retail Center Project Technical Appendices
(Under Separate Cover)

EXHIBIT 3

Cherry Outpost Retail Center Project Final MND/Response to Comments

(Under Separate Cover)

EXHIBIT 4

Cherry Outpost Retail Center Project
Mitigation Monitoring and Reporting Program

(Under Separate Cover)



INITIAL STUDY &

MITIGATED NEGATIVE DECLARATION

Cherry Outpost Commercial Center (Planning Application No. 24-0056)

Lead Agency:

City of Wildomar
23873 Clinton Keith Road, Suite 110
Wildomar, CA 92595

Prepared by:

PlaceWorks
3 MacArthur Place Suite 1100
Santa Ana, CA 92707

December 2024

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APPENDICES

1. **Appendix 1 –** Cherry Outpost Development Plans, KTGY Architecture + Planning (October 3, 2024).
2. **Appendix 2** – Cherry Outpost Air Quality and Greenhouse Gas Emissions Technical Report, HELIX Environmental Planning (August 2024)
3. **Appendix 3** – General Biological Resources Assessment, HELIX Environmental Planning (August 2024)
4. **Appendix 4** – Cherry Outpost Cultural Resources Survey Report, HELIX Environmental Planning (December 2024)
5. **Appendix 5 –** Preliminary Geotechnical Investigation for Proposed Cherry Outpost, Geocon West, Inc. (January 6, 2023).
6. **Appendix 6 –** Paleontological Resources Report for Chery Outpost Project, Bargas Environmental Consulting. (July 2024)
7. **Appendix 7 –** Phase I Environmental Site Assessment (ESA), Herron Environmental (February 9, 2023)
8. **Appendix 8 –** Hydrology Report, Tait and Associates, Inc. (April 30, 2024)
9. **Appendix 9** – Project-Specific Water Quality Management Plan, Tait and Associates, Inc. (January 15, 2024)
10. **Appendix 10** – Cherry Outpost Project Acoustical Analysis Report (August 2024)
11. **Appendix 11** – Cherry Outpost Traffic Impact Analysis, Trames Solutions Inc. (December 2, 2024)

Note to Reader: The Initial Study and appendices are available on the City's Environmental Documents Center webpage at the following web address: (https://www.wildomar.gov/212/Environmental-Documents-Center).

The documents can also be viewed here**:**

City of Wildomar, Community Development Department
23873 Clinton Keith Road, Suite 110
Wildomar, CA 92595
Hours: Monday–Thursday, 8 a.m. – 5 p.m. (closed Fridays)

I. INTRODUCTION AND PROJECT DESCRIPTION

Project Summary

The proposed project would develop a commercial retail center consisting of:

1) a 4-story, 72-room hotel (45,571 square feet);

2) a gas station complex, including a 4,176-square-foot convenience store with an attached 3,200-square-foot drive-through restaurant, and a 2-position RV fueling area;

3) a stand-alone 4,425-square-foot fast food/drive-through restaurant; and

4) a 5,724-square-foot express car wash with related accessories.

The proposed project is on a 6.65-acre project site that is zoned Scenic Highway Commercial (C-P-S) and designated Commercial Retail (CR) with a Community Center Overlay. As part of the Proposed General Plan, the project site will be zoned General Commercial (C-G). The project site is at the northwest corner of Bundy Canyon Road and Cherry Street (Assessor Parcel Numbers [APNs] 366-290-007 and -008).

Purpose and Project Overview

This Initial Study evaluates the proposed project which is being processed through the following development applications:

- **Tentative Parcel Map:** In accordance with Section 16.24.110 (Subdivision Ordinance) of the Wildomar Municipal Code, the proposed tentative parcel map requires approval by the Planning Commission to subdivide the 6.65-acre site to accommodate the sale of individual parcels on the project site.
- **Conditional Use Permit (CUP):** In accordance with Chapter 17.248 (Alcoholic Beverage Sales) and Chapter 17.76 (C-P-S Scenic Highway Commercial Zone) of the Wildomar Municipal Code, the proposed project requires approval of a CUP to establish a gas station/mini-mart with concurrent beer and wine sales, and express car wash, respectively.
- **Plot Plan (PP):** In accordance with Chapter 17.216 of the Wildomar Municipal Code, the proposed project requires approval of a Plot Plan by the Planning Commission to develop the commercial retail center including site planning, architecture, landscaping, parking, etc. and on-site and off-site improvements consistent with the City's commercial objective design standards and guidelines.

The purpose of this Initial Study is to evaluate the potential environmental effects associated with the construction and occupancy of the proposed project and to provide mitigation where necessary to avoid, minimize, or lessen environmental effects.

II. EXISTING CONDITIONS

Project Site

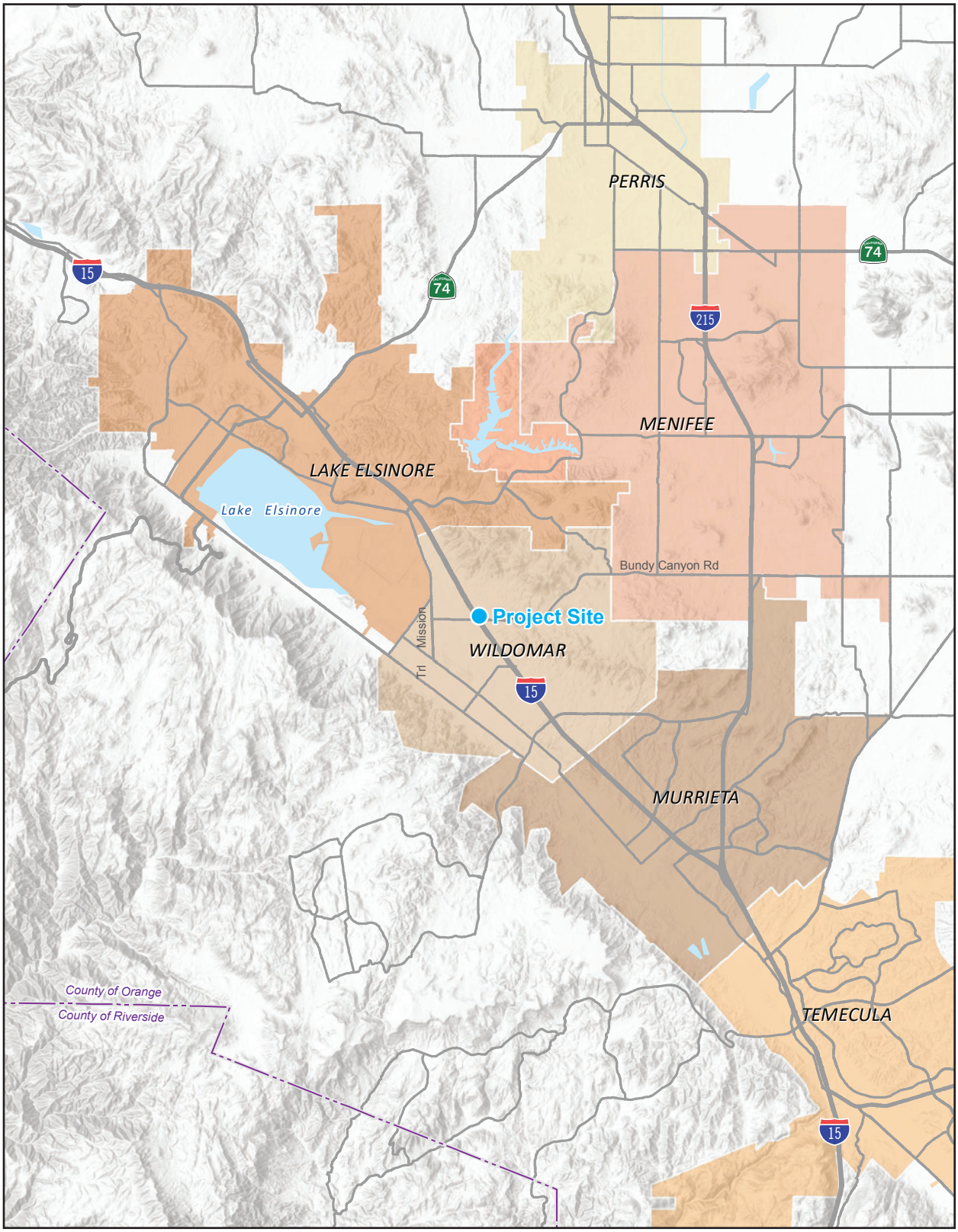
Project Location

The project site is at the northwest corner of Bundy Canyon Road and Cherry Street in the City of Wildomar, Riverside County, California. The project site consists of a triangular-shaped parcel that covers approximately 6.65 acres and is comprised of APNs 366-290-007 and -008. Regional and local vicinity maps of the project site are shown in **Figure 1**, Regional Location, and **Figure 2**, Local Vicinity, respectively. An aerial photograph of the site is shown in **Figure 3**, Aerial Photograph.

Surrounding Area

The project site is surrounded by residential uses and vacant land to the north and east, commercial uses and vacant land to the south, and Interstate 15 (I-15) to the west; commercial uses and vacant land are located west of I-15. The parcels to the north are zoned Rural Residential (R-R) and designated Medium Density Residential (MDR); the parcels to the east and south are zoned General Commercial (C-1/C-P) and designated Commercial Retail (CR) with a Community Center Overlay, and the parcels to the west of I-15 are zoned Scenic Highway Commercial (C-P-S) and designated Commercial Retail (CR) with a Community Center Overlay.

Figure 1 - Regional Location



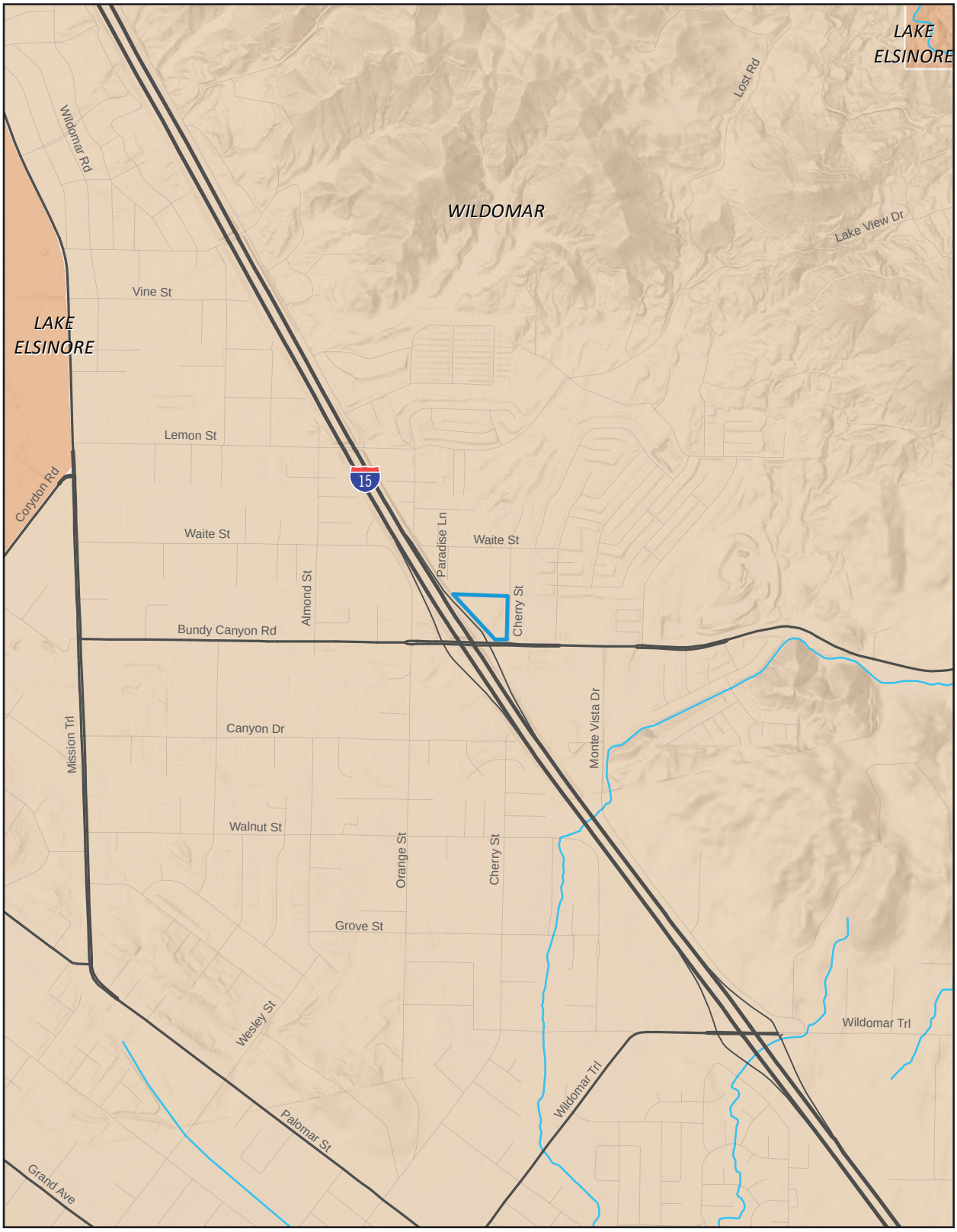
Note: Unincorporated county areas are shown in white.

Source: Generated using ArcMap 2023.

0 3
Scale (Miles)

PlaceWorks

Figure 2 - Local Vicinity



Project Boundary

Note: Unincorporated county areas are shown in white.

Source: Generated using ArcMap 2023.

0 2,000
Scale (Feet)

PlaceWorks

Figure 3 - Aerial Photograph



Project Boundary

0 200
Scale (Feet)

Source: Nearmap 2023.

PlaceWorks

Access

Regional access to the project site is provided by I-15 located adjacent to the project site's western boundary. Local access to the site would be provided on the eastern boundary of the site via two driveways onto Cherry Street.

Physical Setting

The project site consists of a vacant lot with exposed soil, several palm trees in the northern portion of the site, a building foundation on the western portion of the site, a eucalyptus grove in the southern portion of the site, and ruderal vegetation throughout the site (HELIX 2024b). While the site is vacant, the City considers this property urban due to the surrounding development, interstate, and commercial land use designation. The project site's existing conditions are shown in **Figure 3**, Aerial Photograph.

Conservation

The project site is not within a Western Riverside County Multiple Species Habitat Conservation Plan Criteria Cell (Riverside County 2023a).

Natural Hazards

The project site is not within an Alquist-Priolo Earthquake Zone, and no active faults traverse the site (Geocon 2023). The project site does not fall within the mapped Riverside County Fault Hazard Zone (Riverside County 2023b). The closest active fault to the site is the Glen Ivy North branch of the Elsinore fault zone located approximately 0.25 mile southwest of the project site (Geocon 2023). The project site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ) in a Local Responsibility Zone (LRA), but it is in a High Fire Hazard Severity Zone (HFHSZ) and VHFHSZ in a State Responsibility Zone (SRA) (CAL FIRE 2023).

Regulatory Setting

The City of Wildomar General Plan designates this site as Commercial Retail (CR) with a Community Center Overlay; the site is zoned Scenic Highway Commercial (C-P-S). The proposed project would require the approval of a Conditional Use Permit, Tentative Parcel Map, and Plot Plan. As part of the Proposed General Plan, the project site will be zoned General Commercial (C-G).

III. PROJECT DESCRIPTION

The proposed project would construct a new commercial development including a hotel, restaurants, gas station, car wash, RV fueling station, and convenience store, as shown in **Figure 4,** Conceptual Site Plan. Construction of the proposed project would take approximately nine months to complete. The total building area square footage would be 62,271 square feet.

Hotel

The 45,571-square-foot hotel of the proposed project would be on the northwestern portion of the site, as shown in **Figure 4,** Conceptual Site Plan. As shown in **Figure 5,** Conceptual Hotel Elevation, the exterior of the proposed hotel would be a sand-finished stucco, with wood-look aluminum, board and batten, brick, and stone finishes. Paint colors would include white, black, and dark and light gray. The proposed hotel would also include signage on the southern, eastern, western, and northern façades of the building. The height of the proposed hotel would be 62 feet to the roof.

Stand-Alone Restaurant

The proposed restaurant would be located on the western portion of the site, south of the proposed hotel, as shown in **Figure 4,** Conceptual Site Plan. The structure would be 4,425 square feet; the height of the structure would be 30 feet to the roof, as shown in **Figure 6,** Conceptual Stand-Alone Restaurant Elevation. The proposed structure would include stucco with wood-look aluminum, board and batten, brick, and stone finishes. Paint colors would include dark and light gray, and dark and light beige. While the tenant is unknown at this time, the conceptual site plan shows a drive-through with two stacking lanes and one service lane on the western edge of the building.

Car Wash

The proposed car wash is proposed on the southern portion of the site, as shown in Figure 4, Conceptual Site Plan. As shown in Figure 7, Conceptual Car Wash Elevation, the 5,724-square-foot car wash would be 28 feet high to the parapet. The exterior of the car wash would consist of metal and concrete panels, stone, and wainscotting with red, white, black, and dark and light gray paint finishes. As allowed by Section 9.48.070 A. 3. of the Wildomar Municipal Code, a continuous-events exception has been requested as part of the proposed project to exempt the noise created by the car wash; the exception only affects the car wash and does not affect other properties.

Gas Station

The gas station of the proposed project would be in the central portion of the project site, north of the car wash as shown in **Figure 4,** Conceptual Site Plan. The paint colors of the gas station would include white, blue, dark and light gray, and red. The height of the gas station canopy would be approximately 20 feet, as shown in **Figure 8,** Conceptual Gas Station Elevation.

RV Fueling Station

The proposed RV fueling station would be in the center portion of the project site, to the west of the gas station, as shown in **Figure 4,** Conceptual Site Plan. As shown in **Figure 9,** Conceptual RV Fueling Station Elevation, the RV fueling station would consist of a green painted metal canopy with white and gray steel columns. The height of the RV fueling station canopy would be approximately 35 feet.

Convenience Store and Drive-Through Restaurant

A 7,376-square-foot building would include a 3,200-square-foot drive-through restaurant and a 4,176-square-foot convenience store. The drive-through restaurant and convenience store would be located to the north of the RV fueling and gas stations, as shown in **Figure 4**, Conceptual Site Plan. The proposed structure would be a stucco finish with wood-look aluminum, board and batten, brick, and stone. Paint colors would include dark and light gray, dark and light beige, and red, as shown in **Figure 10,** Conceptual Convenience Store and Drive-Through Restaurant. The height of the structure would be 26 feet to the parapet.

Access and Parking

Access to the project site would be provided via two entrances/exits on the eastern boundary of the site, via Cherry Street (see **Figure 4**, Conceptual Site Plan).

The proposed project would include a total of 176 parking spaces. The project site would also include bicycle racks throughout the site, for a total of 20 bicycle spaces.

Once occupied, the proposed project is expected to generate a total of approximately 7,726 daily trips with 690 AM peak hour trips and 612 PM peak hour trips. The proposed development plans, including architectural renderings and elevations, are provided in **Appendix 1.**

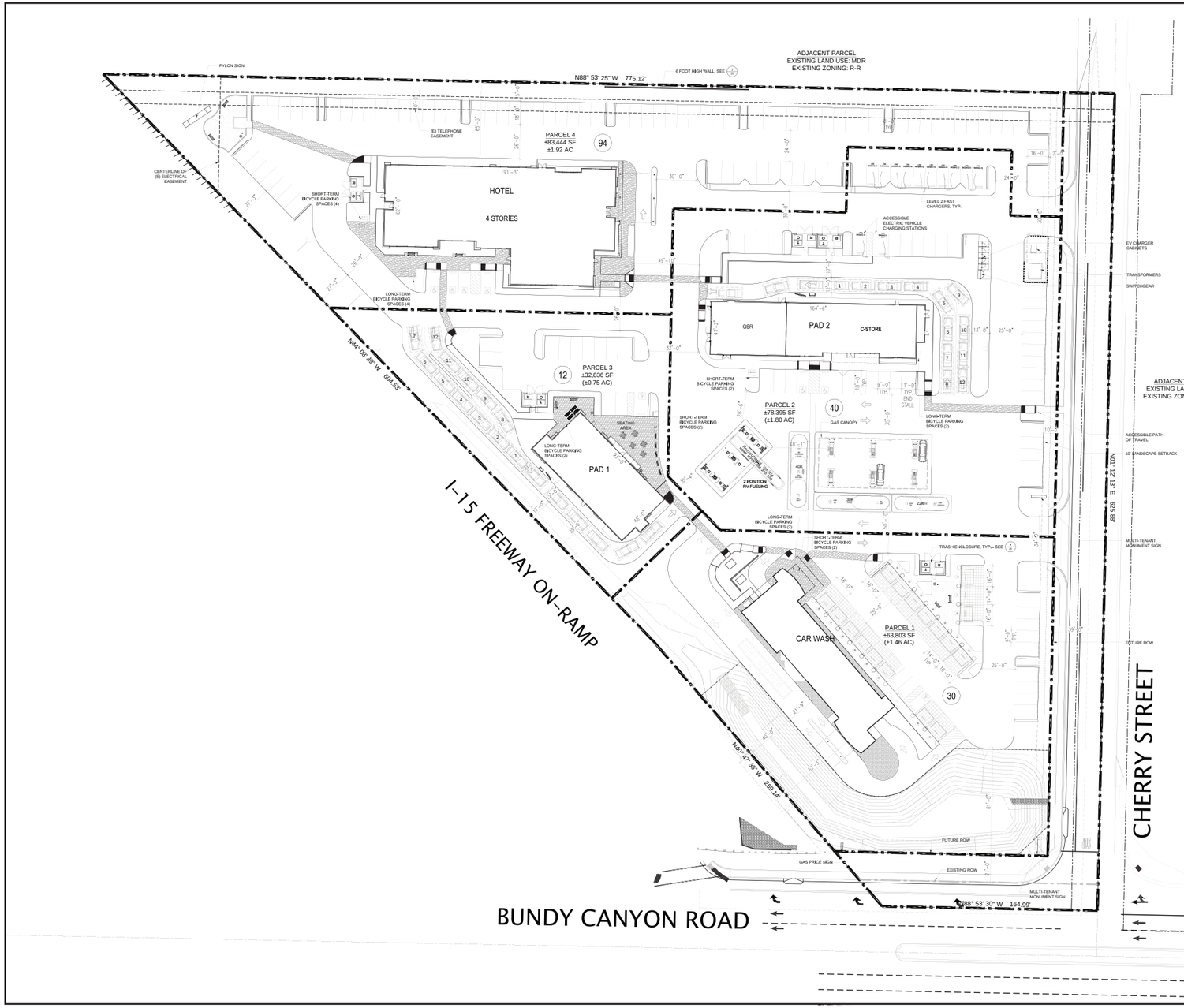
Landscaping

The proposed project would include approximately 54,414 square feet of landscaping and 19,925 square feet of bio-filtration areas. The tree species used onsite would be from the City's Approved Tree List, and the shrubs and groundcovers would be low-water use/drought-tolerant species. All landscaped areas onsite will receive automatic irrigation systems. **Figure 11,** Conceptual Landscape Plan shows the proposed landscape plan for the project site.

Water/Sewer

Water and sewer services would be provided by Elsinore Valley Municipal Water District, electrical power services by Southern California Edison, and natural gas services by Southern California Gas. Additional electric, gas, telephone, and cable services to the proposed development would be provided through the extension of existing infrastructure.

Figure 4 - Conceptual Site Plan



SITE SUMMARY

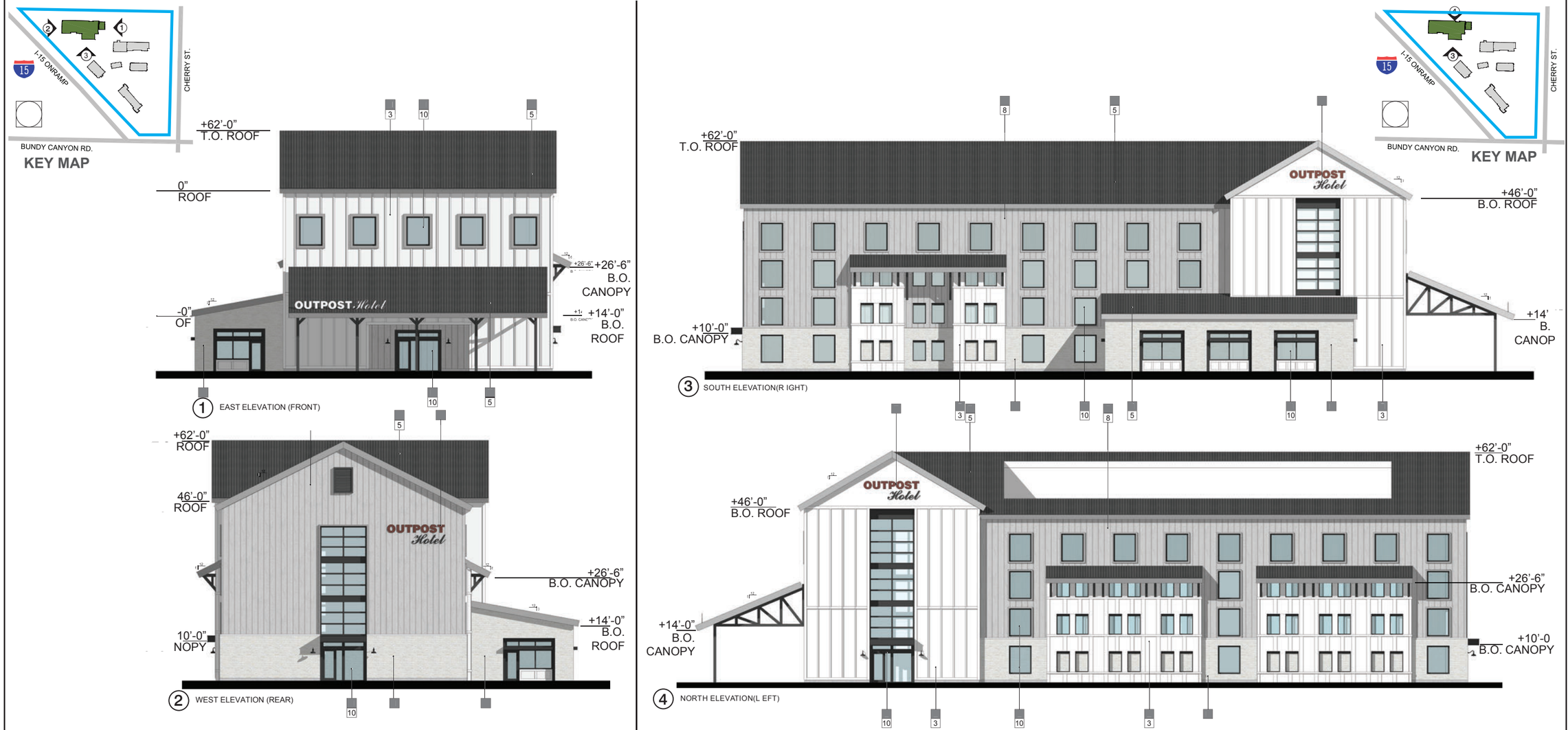
FUTURE NET LAND AREA:	±289,445 SF (±6.64 AC)
EXISTING LAND AREA :	±259,087 SF (±5.95 AC)
BUILDING AREA :	±62,271 SF
LAND/BLDG RATIO:	9.0/1[1]
COVERAGE:	10.0%[1]
PARKING PROVIDED:	176 STALLS
PARKING REQUIRED :	151 STALLS[2]
RETAIL PARKING RATIO:	6.2/1000[3]
BICYCLE PARKING REQUIRED	
SHORT TERM PARKING:	9 STALLS4
LONG TERM PARKING:	STALLS4
BICYCLE PARKING PROVIDED	
SHORT TERM PARKING:	10 STALLS
LONG TERM PARKING:	10 STALLS

Project Boundary

0 100
Scale (Feet)

Source: KTGY 2024.

Figure 5 - Conceptual Hotel Elevation



MATERIALS

A	STUCCO: OMEGA-20/30 SAND FINISH	G	WOOD-LOOK ALUMINUM : KNOTWOOD "BEACHWOOD"
B	STANDING SEAM METAL ROOF	H	BOARD AND BATTEN
C	METAL CANOPY	J	BRICK: BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
D	DOOR	K	SIGNAGE
E	STOREFRONT : ARCADIA-AC-2 "CLEAR"	L	HARDIE BOARD SIDING
F	ARCHITECTURAL TRIM/COPING	M	STONE

COLORS & FINISHES

1	PAINT : DUNN EDWARDS-DE6183 "HOME PLATE"	7	PAINT : DUNN EDWARDS-DE6385 "BLACK BEAN"	13	STONE: CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
2	PAINT : DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	PAINT : DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	STONE: CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
3	PAINT : DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	PAINT : DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	PAINT: DUNN EDWARDS-DET 697 "NOMAD"
4	PAINT : DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
5	PAINT : DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
6	PAINT : TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

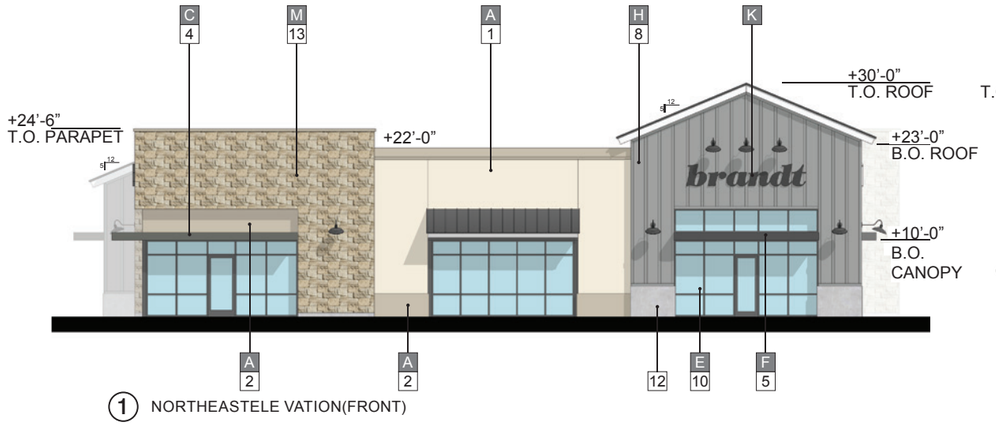
Note: 1. Signage is conceptual and will be under a separate permit.

Project Boundary

0 30
Scale (Feet)

Source: KTGY 2024.

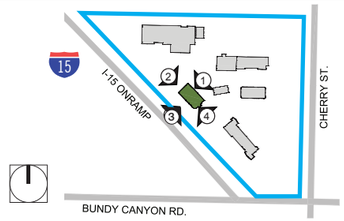
Figure 6 - Conceptual Stand-Alone Restaurant Elevation



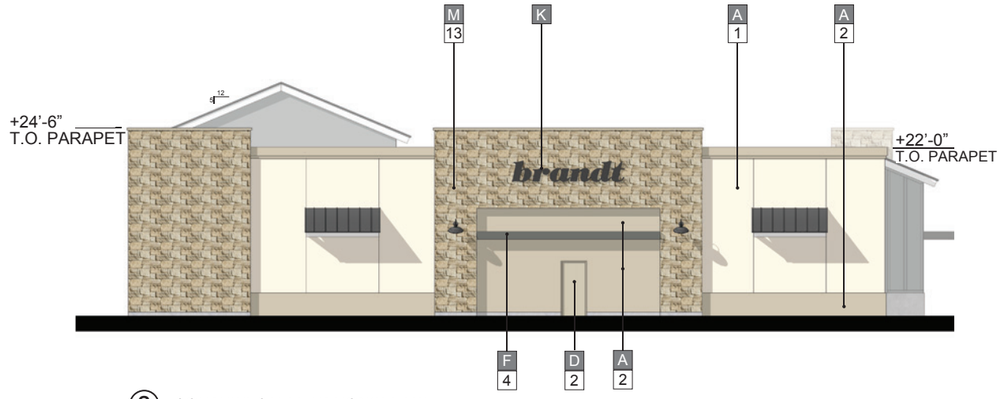
1 NORTHEASTELE VATION(FRONT)



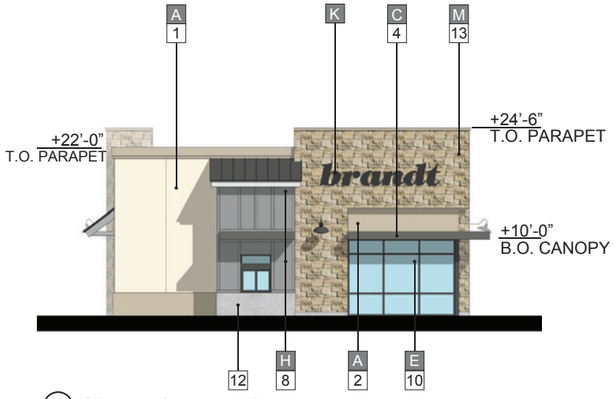
2 NORTHWESTELE VATION(R IGHT)



KEY MAP



3 SOUTHWESTELE VATION(R EAR)



4 SOUTHEASTELE VATION(L EFT)

Note: 1. Signage is conceptual and will be under a separate permit.

COLORS & FINISHES

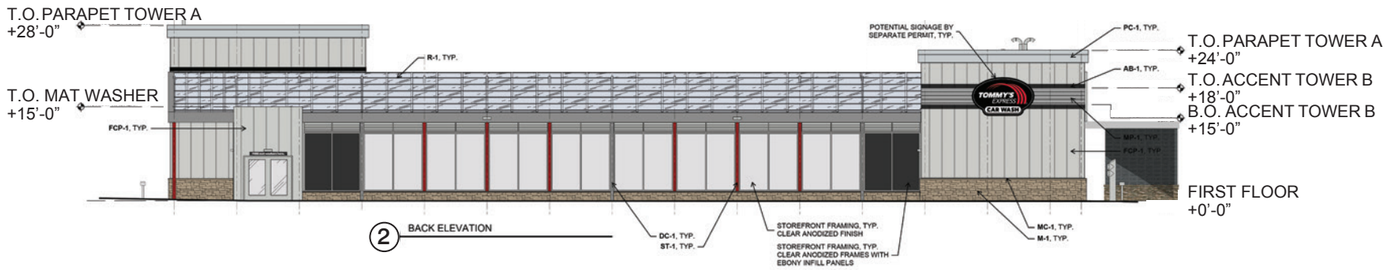
A	STUCCO: OMEGA-20/30 SAND FINISH	G	WOOD-LOOK ALUMINUM : KNOTWOOD "BEACHWOOD"	1	PAINT : DUNN EDWARDS-DE6183 "HOME PLATE"	7	PAINT : DUNN EDWARDS-DE6385 "BLACK BEAN"	13	STONE: CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
B	STANDING SEAM METAL ROOF	H	BOARD AND BATTEN	2	PAINT : DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	PAINT : DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	STONE: CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
C	METAL CANOPY	J	BRICK: BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"	3	PAINT : DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	PAINT : DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	PAINT: DUNN EDWARDS-DET 697 "NOMAD"
D	DOOR	K	SIGNAGE	4	PAINT : DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
E	STOREFRONT : ARCADIA-AC-2 "CLEAR"	L	HARDIE BOARD SIDING	5	PAINT : DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
F	ARCHITECTURAL TRIM/COPING	M	STONE	6	PAINT : TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

Project Boundary

0 20
Scale (Feet)

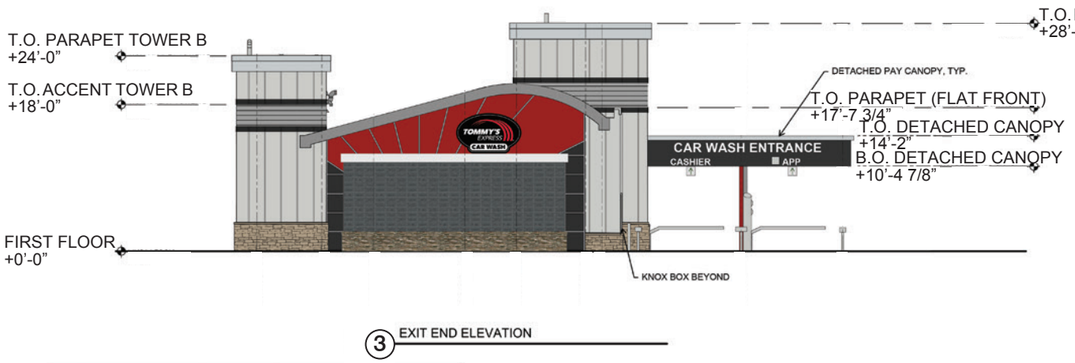
Source: KTGY 2024.

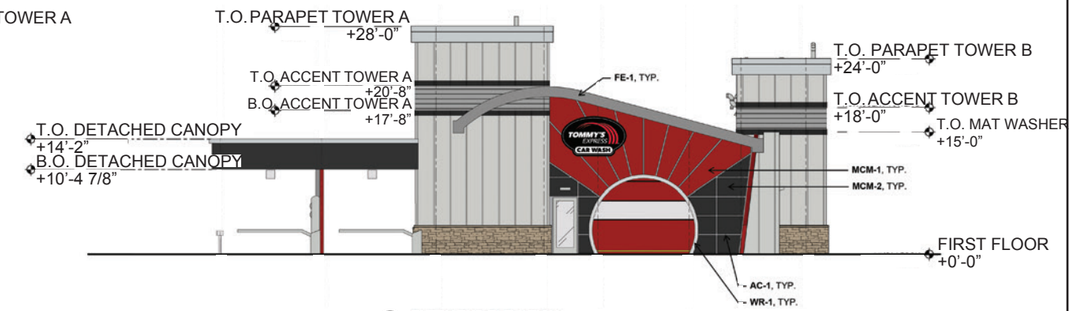
Figure 7 - Conceptual Car Wash Elevation

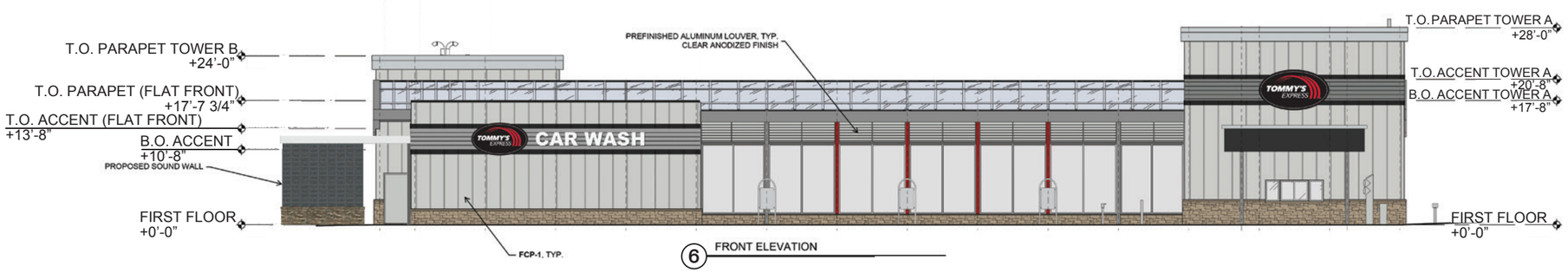


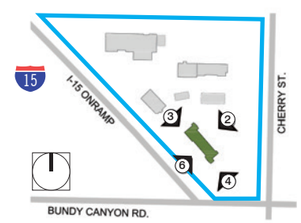
TAG	MATERIAL	MFR.	DESCRIPTION	MFR. COLOR
ST-1	STRUCTURAL STEEL	PROSPIANT	5-STAGE POWDER COATED	RAL 3001
MP-1	PREFINISHED PROFILED MCM, TOWER BANDING	ATAS	BELVEDERE 7.2" RIB PANEL	SILVERSMITH
FCP-1	FIBER CEMENT PANEL BOARD	JAMES HARDIE (OR EQUIV)	VERTICAL SIDING	SW7064 PASSIVE
M-1	CULTURED STONE VENEER, KNEE WALL	ELDORADO STONE	STACKED STONE	CASTAWAY (MORTAR COLOR TO MATCH)
MC-1	WAINSCOT SILLS CAP (FOR KNEE WALL)	ELDORADO STONE	SPLIT-EDGE WAINSCOT SILL	GREY SKY
AB-1	PREFINISHED MCM, TOWER BANDING	ATAS	FLAT SHEET AND COIL	BLACK

TAG	MATERIAL	MFR.	DESCRIPTION	MFR. COLOR
PC-1	PREFINISHED MCM, TOWER FASCIA	ARCONIC	REYNOBOND COMPOSITE PANEL	BRIGHT SILVER METALLIC
MCM-1	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	RAL 3001
MCM-2	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	EBONY
AC-1	PREFINISHED MCM, END WALL REVEALS	TUBELITE	200 SERIES CURTAINWALL	CLEAR ANODIZED
DC-1	PREFINISHED MCM, DOWNSPOUT COVERS	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
WR-1	PREFINISHED MCM, GARAGE DOOR WRAPS	CITADEL	ENVELOPE 2000 SYSTEM	CLEAR SATIN ANODIZED
FE-1	PREFINISHED MCM, ROOF FASCIA	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
R-1	ACRYLIC ROOF SYSTEM	ACRYLITE	HEATSTOP HIGH IMPACT MULTI-SKIN	WZ011 - COOL BLUE WHITE







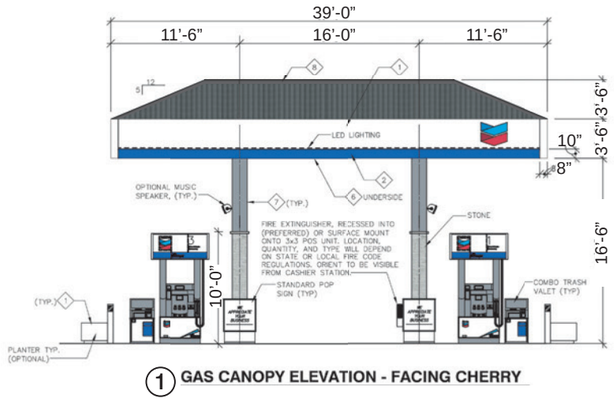


Project Boundary

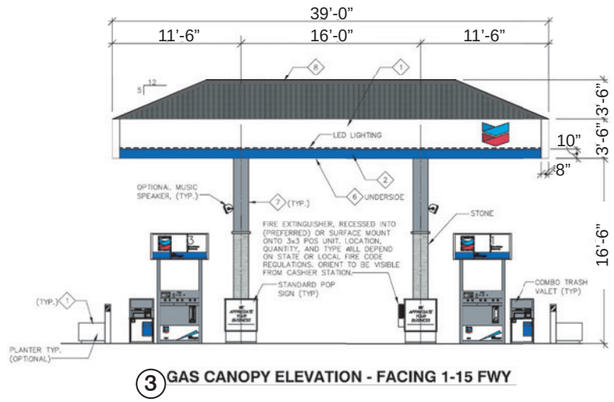
0 20
Scale (Feet)

Source: KTGY 2024.

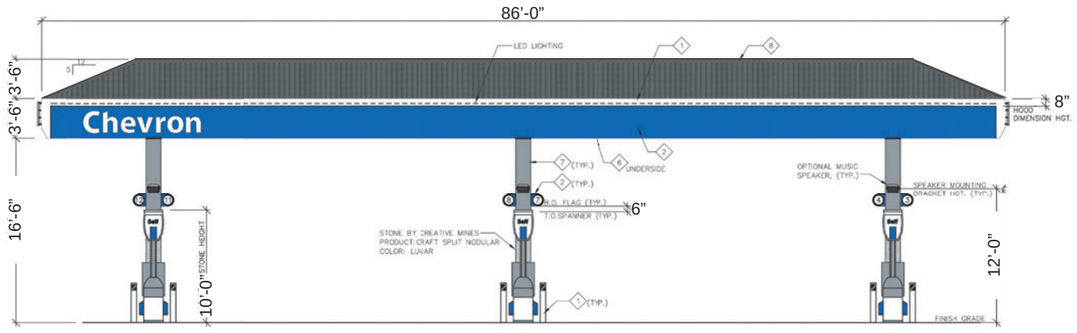
Figure 8 - Conceptual Gas Station Elevation



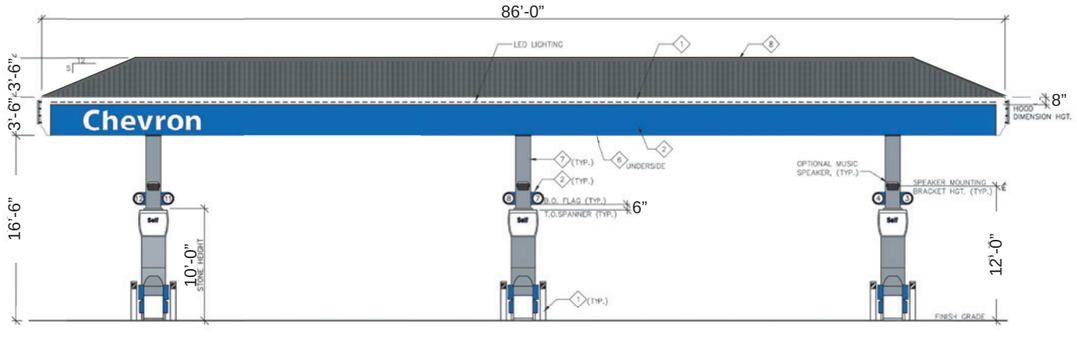
1 GAS CANOPY ELEVATION - FACING CHERRY



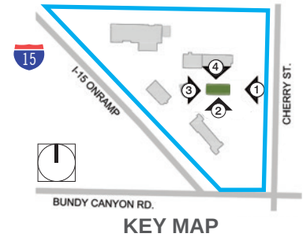
3 GAS CANOPY ELEVATION - FACING 1-15 FWY



2 GAS CANOPY ELEVATION - FACING BUNDY CANYON



4 GAS CANOPY ELEVATION - FACING C - STORE

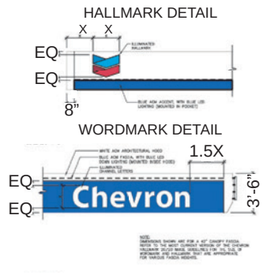


KEY MAP

GENERAL NOTES

1. Do not scale off this drawing.
2. This drawing is the property of the Chevron Property & Facilities Optimization (P&FO) & must not be used, copied or reproduced in whole or in part without prior written permission.
3. [B] Under-Canopy light fixture, LSI Encore, Low Profile, 320W Metal Halide

   [A] Under-Canopy light fixture, LSI Focus, 100W Metal Halide
4. Refer to Hallmark 20/20 Image Guidelines for additional information as to design and image.



COLOR LEGEND

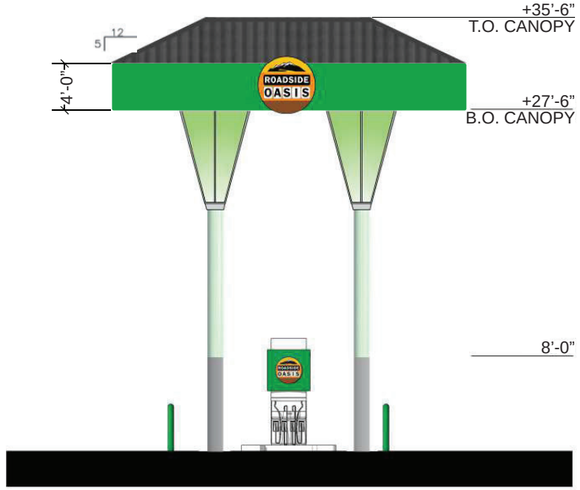
	COLOR	PMS MATCH	FILM (VINYL)
1	CVX WHITE (WH-835-S)	WHITE	ARLON WHITE #2
2	RETAIL OUTDOOR BLUE	PMS 293	N/A
3	CVX LIGHT GRAY (GY-450)	PMS 428	ARLON CUSTOM LIGHT GRAY
4	CVX DARK GRAY (GY-210)	PMS 431	ARLON CUSTOM DARK GRAY
5	CHEVRON RED	PMS 186	ARLON RED #3094E (TRANSLUCENT)
6	DECK WHITE	DECK WHITE	N/A
7	CVX SILVER FLAKE	PMS 877	ARLON CUSTOM SILVER
8	STANDING SEAM METAL ROOF	PAINT: DUNN EDWARDS – DEA002"BLACK"	
	ALL PAINT TO BE V.O.C. COMPLIANT URETHANE		

Project Boundary

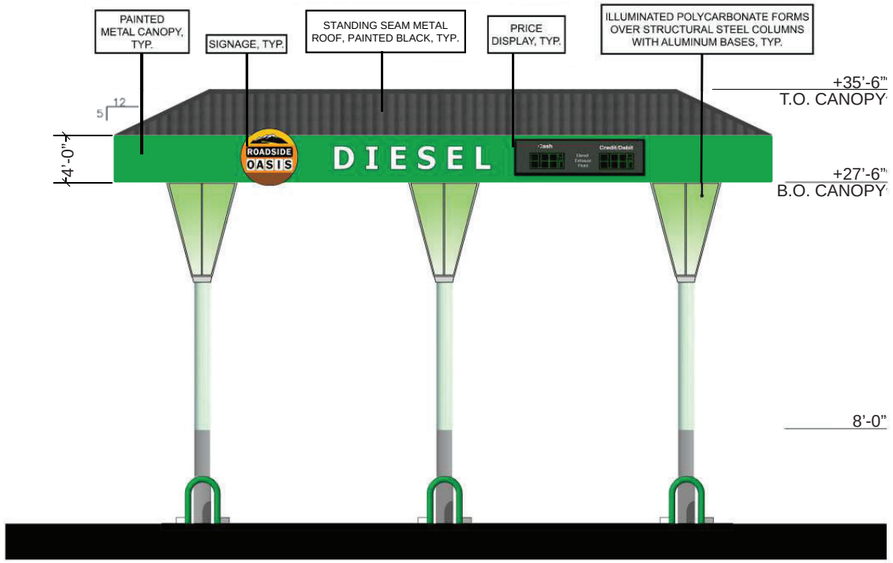
0 15
Scale (Feet)

Source: ADM 2022.

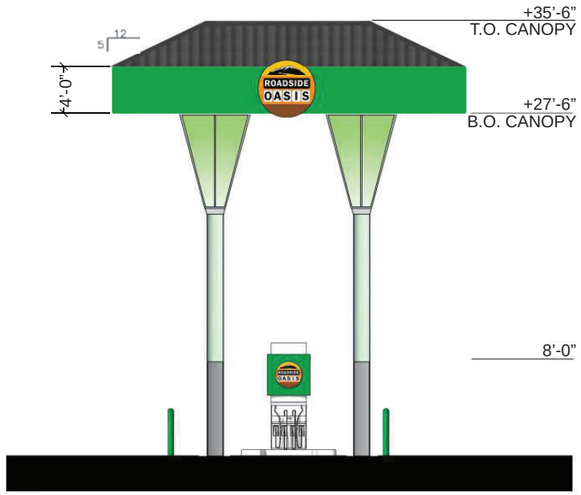
Figure 9 - Conceptual RV Fueling Station Elevation



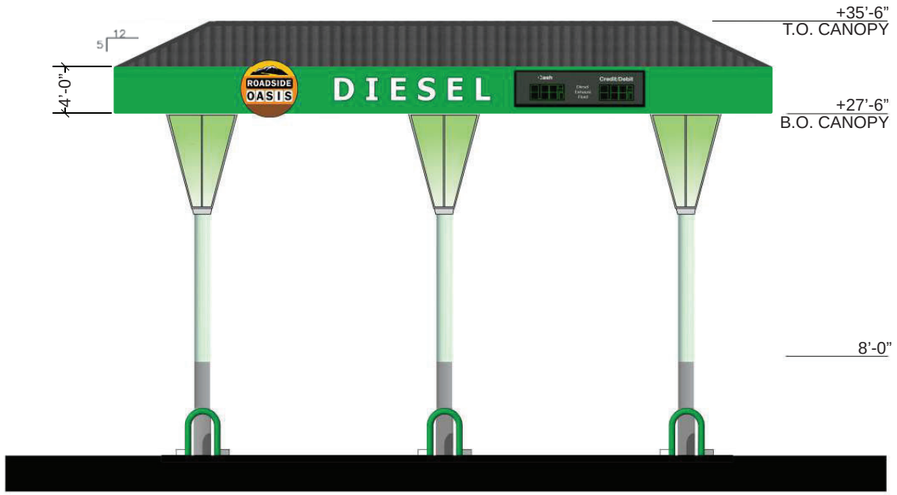
1 ELEVATION FACING CHERRY ST.



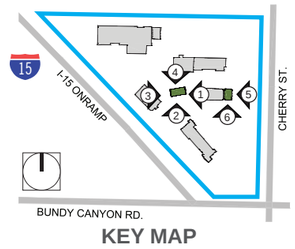
2 ELEVATION FACING BUNDY CANYON RD.



3 ELEVATION FACING INTERSTATE 15



4 ELEVATION FACING C-STORE



KEY MAP

Note: 1. Signage is conceptual and will be under a separate permit.

Project Boundary

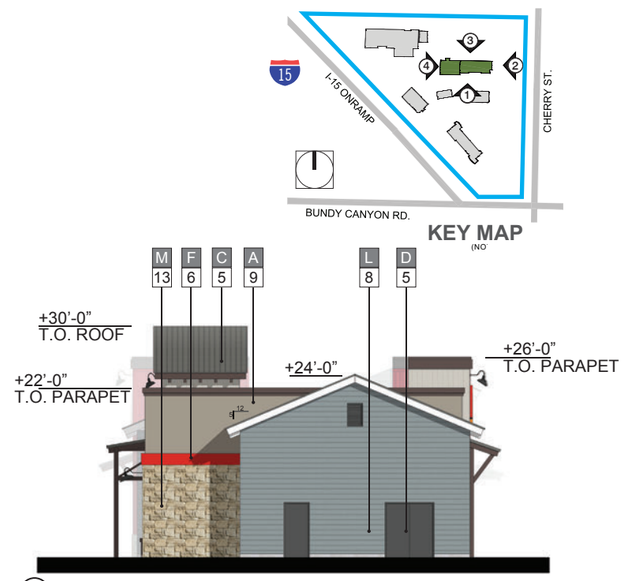
0 13
Scale (Feet)

Source: KTGY 2024.

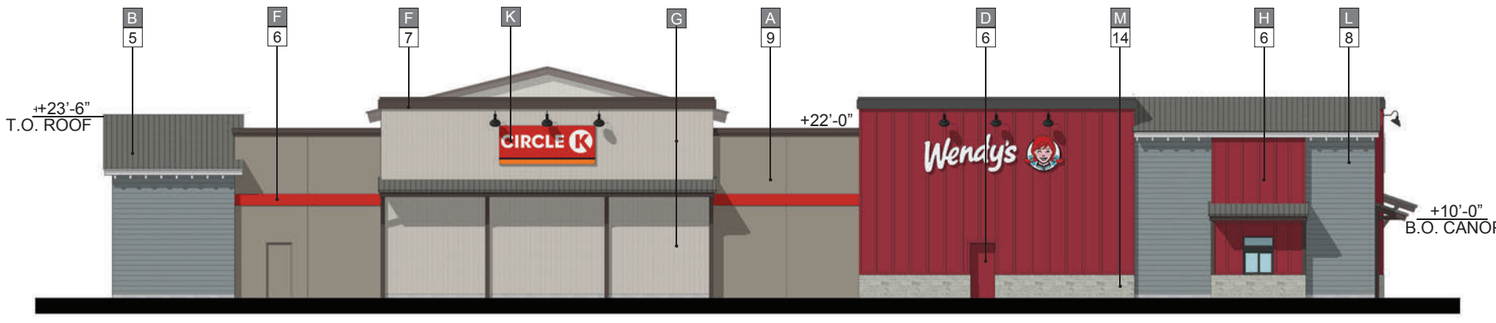
Figure 10 - Conceptual Convenience Store and Drive-Through Restaurant Elevation



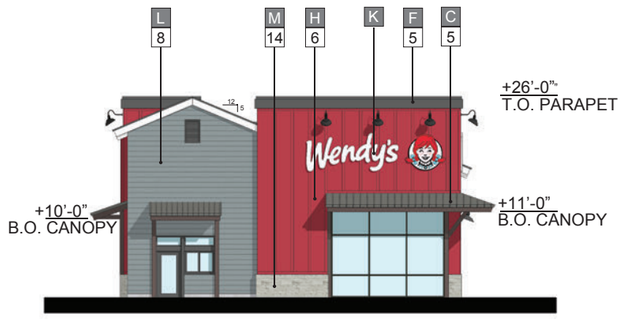
1 SOUTH ELEVATION(FRONT)



2 EASTELE VATION(R IGHT)



3 NORTH ELEVATION(R EAR)



4 WESTELE VATION(L EFT)

Note: 1. Signage is conceptual and will be under a separate permit.

MATERIALS

A	STUCCO: OMEGA-20/30 SAND FINISH	G	WOOD-LOOK ALUMINUM : KNOTWOOD "BEACHWOOD"	1	PAINT : DUNN EDWARDS-DE6183 "HOME PLATE"	7	PAINT : DUNN EDWARDS-DE6385 "BLACK BEAN"
B	STANDING SEAM METAL ROOF	H	BOARD AND BATTEN	2	PAINT : DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	PAINT : DUNN EDWARDS-DE6382 "FORMAL GRAY"
C	METAL CANOPY	J	BRICK: BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"	3	PAINT : DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	PAINT : DUNN EDWARDS-DET620 "BARNWOOD GRAY"
D	DOOR	K	SIGNAGE	4	PAINT : DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"
E	STOREFRONT : ARCADIA-AC-2 "CLEAR"	L	HARDIE BOARD SIDING	5	PAINT : DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"
F	ARCHITECTURAL TRIM/COPING	M	STONE	6	PAINT : TENANT BRAND COLOR	12	PRECAST CONCRETE BASE

COLORS & FINISHES

13	STONE: CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
14	STONE: CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
15	PAINT: DUNN EDWARDS-DET 697 "NOMAD"

Project Boundary

0 20
Scale (Feet)

Source: KTGY 2024.

Figure 11 - Conceptual Landscaping Plan



Source: KTGY 2024.

IV. EXECUTIVE SUMMARY

Through analysis provided in this initial study, it was determined that the proposed project has the potential to result in significant environmental impacts to Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Noise, Tribal Cultural Resources, and Wildfire. Mitigation measures have been identified that would reduce all impacts to less than significant levels. **Table ES-1,** Project Impact and Mitigation Summary, presents an at-a-glance summary of the identified significant impact issue areas and required mitigation measures.

Proposed Conditions of Approval

In addition to the proposed project, the City is likely to require several Conditions of Approval that may also have physical environmental impacts.

Off-Site Mobility Improvements

The following improvements will be made conditions of approval and are therefore evaluated as part of this Initial Study (IS)/Mitigated Negative Declaration (MND):

- **Intersection #2 – Orange Street and Bundy Canyon Road**
    - Modify striping for the northbound approach to provide a 1-left turn lane, 1-shared through, and 1 right lane with overlap phase.
    - Modify striping for the southbound approach to provide a 1-left turn lane, 1-through lane, and 1 right lane.
- **Intersection #3 – I-15 Southbound Ramps and Bundy Canyon**
    - Modify existing southbound shared through/right lane to shared left/through/right turn lane.
    - Provide a separate eastbound right turn lane.
    - Provide a separate southbound right turn lane.
- **Intersection #4 – I-15 Northbound Ramps and Bundy Canyon Road**
    - Provide separate westbound right turn lane.
- **Intersection #5 – Cherry Street and Bundy Canyon Road**
    - Full Access:
        - Install traffic signal.
        - Provide a separate southbound left turn lane.
        - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
        - Provide a southbound right turn overlap phase
        - This improvement may not be feasible due to the close proximity between the I-15/Budy Canyon and Sellers/Bundy Canyon traffic signals.
    - Alternative 1: Restrict intersection to right-in/right-out/left-in only configuration (no southbound left-turn movement).
        - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
    - Alternative 2: Restrict intersection to right-in/right-out only configuration (no median break, no southbound left and eastbound left turn movements).

    - Modify existing westbound right turn lane to provide a 3rd westbound thru lane with a defacto right turn lane.
- **Intersection #6 – Sellers Road and Bundy Canyon Road**
    - Construct 1 northbound left turn lane and 1 northbound shared through/right lane.
    - Construct 1 southbound left turn lane and 1 southbound shared through/right lane.
    - Provide 1 westbound left turn lanes.
- **Intersection #9 – Orange Street and Canyon Drive**
    - Provide a separate southbound right turn lane.
    - Provide a separate northbound left turn lane.
    - Provide a separate eastbound left turn lane.

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant
3. Air Quality			
c) Expose sensitive receptors to substantial pollutant concentrations?			
AQ-1 **Tier 4 Construction Equipment**. Prior to issuing construction permits, the project applicant or designated representative shall provide to the City a comprehensive inventory of all diesel-powered off-road construction equipment, equal to or greater than 50 horsepower, that will be used on the project site during any portion of construction. The inventory shall include the horsepower rating, engine production year, and certification of the specified Tier standard. The City shall verify that all construction equipment is USEPA Tier Final certified or has been retrofitted with CARB approved diesel particulate matter reduction systems resulting in PM_{10} emissions meeting USEPA Tier 4 Final standards. *Timing/Implementation:* *Prior to issuance of construction permits* *Enforcement/Monitoring:* *City of Wildomar Public Works and Engineering Department*			
AQ-2 **Fugitive Dust Best Management Practices**. Prior to issuing construction permits, the City shall verify that project construction contract or construction documentation specify the requirement to implement all fugitive dust Best Available Control Measures listed in Table 1 of the SCAQMD Rule 403, and the following control measures are enhanced to require watering exposed surface a minimum of three times per day: • Clearing and Grubbing Control Measure 02-1: Maintain stability of soil through prewatering of site prior to clearing and grubbing. In addition, during dry weather, water exposed surfaces a minimum of three times per day during clearing and grubbing activities. • Cut and Fill Control Measure 05-1: Pre-water soils prior to cut and fill activities (e.g., grading). In addition, during dry weather, water all exposed surfaces a minimum of three times per day during cut and fill activities. *Timing/Implementation:* *Prior to issuance of construction permits* *Enforcement/Monitoring:* *City of Wildomar Public Works and Engineering Department*			
4. Biological Resources			
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			
BIO-1 **Burrowing Owl:** In compliance with the MSHCP, a pre-construction survey shall be conducted within 30 days prior to ground-disturbing activities (i.e., earthwork, clearing, grubbing, watering, staging, etc.) occurring on the project site. If the pre-construction survey is negative and Burrowing Owl (BUOW) is confirmed absent, then ground-			

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

disturbing activities shall be allowed to commence, and no further measures would be required.

If BUOWs are observed during the pre-construction survey, take of active nests must be avoided, and the City must be immediately notified. The City will coordinate with the Wildlife Agencies (i.e., CDFW and USFWS) to determine whether a BUOW Protection and Relocation Plan is required prior to ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey must be conducted again to confirm BUOW has not colonized the project site since it was last disturbed. If BUOW is found, the same coordination described above would be required.

Timing/Implementation: Thirty (30) days prior to the initiation of ground-disturbing activities

Enforcement/Monitoring: City of Wildomar Community Development Department

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

BIO-2 **Nesting Birds:** To the extent feasible, construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 1 to August 31 for raptors.

1. If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory birds and raptors, a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities and provided to the City for review. The qualified biologist shall document the results of the pre-construction survey. If construction is inactive for more than seven days, an additional survey shall be conducted.

2. If the qualified biologist determines that no active migratory bird or raptor nests occur, the City shall be notified and the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no construction activities within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the qualified

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant
biologist and approved by the City. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds. Timing/Implementation: Seven (7) days prior to the initiation of *construction* activities *Enforcement/Monitoring: City of Wildomar Community Development Department*			
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant
Implement Mitigation Measure **BIO-1**			
5. Cultural Resources			
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			
Implement Mitigation Measures **TRI-1** through **TRI-8** (see Tribal Cultural Resources, below).			
c) Disturb any human remains, including those interred outside of dedicated cemeteries?			
CUL-1 **Human Remains.** If potential human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within the period specified by law (24 hours). Subsequently, the Native American Heritage Commission shall identify the "most likely descendant" (MLD). The MLD shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. No photographs are to be taken of any human remains and/or cremations except by the coroner, with written approval by the consulting tribe(s). *Timing/Implementation: During any ground-disturbing construction activities* *Enforcement/Monitoring: City of Wildomar Engineering Department and Planning Department* Implement Mitigation Measures **TRI-7** and **TRI-8.**			

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant
7. Geology and Soils			
a) i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			
GEO-1 The project applicant/developer shall incorporate the recommendations of the Geotechnical Report prepared by Geocon West, Inc. (**Appendix 5**), or as directed by the City Engineer, into project plans related to the proposed project. The project's building plans submitted to the City shall demonstrate that they incorporate all applicable recommendations of the Geotechnical Report and comply with all applicable requirements of the latest adopted version of the California Building Code. *Timing/Implementation:* *During building plan check, prior to any ground-disturbing construction activities* *Enforcement/Monitoring:* *City of Wildomar Community Development Department and Building and Safety Department*			
a) ii) Strong seismic ground shaking?			
Implement Mitigation Measure **GEO-1**			
b) Result in substantial soil erosion or the loss of topsoil?			
Implement Mitigation Measure **GEO-1**			
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?			
Implement Mitigation Measure **GEO-1**			
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			
GEO-2 Prior to issuance of a grading permit, the project applicant shall retain a Certified Paleontologist. As there is a moderate potential to encounter paleontological resources on the project site if excavations reach 10 to 13 feet, the project applicant shall retain a Certified Paleontologist to monitor all initial ground-disturbing activities that extend beyond depths of 5 feet. If the paleontologist, upon observing initial earthwork, determines there is low potential for discovery, no further action shall be required, and the paleontologist shall submit a memo to the City confirming findings of low potential. Should any paleontological resources (i.e., fossils) be uncovered during project construction activities, all work within a 50-foot radius of the discovery site shall be halted or diverted to other areas on the site and the City shall be immediately notified.			

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

The Certified Paleontologist shall evaluate the finds and recommend appropriate next steps to ensure that the resource is not adversely impacted, including but not limited to avoidance, preservation in place, excavation, documentation, curation, data recovery, fossil identification, laboratory preparation, or other appropriate measures.

Further ground disturbance shall not resume within a 50-foot radius of the discovery site until an agreement has been reached between the project applicant, the Certified Paleontologist, and the City as to the appropriate preservation or mitigation measures to ensure that the resource is not substantially adversely impacted.

Salvage and collection of significant fossils shall be done in accordance with the Society of Vertebrate Paleontology guidelines. Any paleontological resources salvaged shall be provided for curation at a local curation facility, or any other local museum or repository, such as the Western Science Center or World Museum of Natural History, willing and able to accept and house the resource to preserve for future scientific study.

Timing/Implementation: *During ground-disturbing construction activities*

Enforcement/Monitoring: *City of Wildomar Community Development Department and Building and Safety Department*

9. Hazards and Hazardous Materials

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

HAZ-1 Prior to the issuance of building permits, the project applicant/developer shall demonstrate, to the satisfaction of the City Building Official and the Riverside County Fire Chief, compliance with the 2022 California Building Code (or the most recent edition) (Part 2 of Title 24 of the California Code of Regulations) and the 2022 California Fire Code (or the most recent edition) (Part 9 of Title 24 of the California Code of Regulations), including those regulations pertaining to materials and construction methods intended to mitigate wildfire exposure as described in the 2022 California Building Code and California Residential Code (or most recent edition); specifically California Building Code Chapter 7A; California Residential Code Section R327; California Residential Code Section R337; California Referenced Standards Code Chapter 12-7A; and California Fire Code Chapter 49.

Timing/Implementation: *Prior to issuance of building permits*

Enforcement/Monitoring: *City of Wildomar Building Department and Riverside County Fire Department*

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

HAZ-2 Prior to the issuance of a certificate of occupancy, the applicant shall demonstrate, to the satisfaction of the City **Building** Official and the County Fire Chief, compliance with the vegetation management requirements prescribed in California Fire Code Section 4906 and California Government Code Section 51182.

Timing/Implementation: Prior to issuance of certificate of occupancy

Enforcement/Monitoring: City of Wildomar Building Department and Riverside County Fire Department

13. Noise

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

NOI-1 **Noise Reduction Features.** The proposed project shall demonstrate that noise is reduced at the residentially-zoned property north of the project site in compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB L_{MAX}, and at the drive-through restaurant's commercial property line in compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB L_{MAX}. The following measures shall be included as part of the final project design plans submitted to the City:

1. Construction of an enclosure at the car wash exit and an on-site sound barrier (wall) at the northern property line. The enclosure at the exit of the car wash shall consist of a 12-foot-tall sound wall parallel to the car wash exit and 28 feet in length at 25 feet from the exit of the car wash. At the southern side of the 28-foot-long wall, a 12-foot-long wall shall extend perpendicularly towards the car wash exit. A roof shall cover the 25-foot by 28-foot area between the car wash exit tunnel and these walls. A second noise wall shall be constructed at the northern property line of the project site. This noise wall shall be 6 feet in height and extend approximately 100 feet, breaking the line-of-sight between the car wash and the residential property line. All noise barriers (wall and roof) must be solid. They can be constructed of any combination of standard building materials, including masonry, wood, plastic, fiberglass, or steel, so long as there are no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked. All noise barriers shall have a Sound Transmission Class (STC) rating of at least 22.
2. The addition of a layer noise absorption material with a minimum Noise Reduction Coefficient of 0.80 shall be mounted along the interior surface of the car wash tunnel from the approximate centerline of the blow dryers in the tunnel to the tunnel exit continuing to the tunnel exit ceiling and support walls. The material shall provide a minimum of 80 percent coverage vertically and cover the wall from

1 foot above the floor to 1 foot below the ceiling. Horizontally (on the ceiling), the material shall be mounted from the ceiling to within 1-foot of the walls.

3. Installation of a variable frequency drive (VFD) that would operate car wash blowers at a frequency of 50 Hz.

4. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.

Timing/Implementation: *During Final Design Plan-Check*

Enforcement/Monitoring: *City of Wildomar Building Department*

NOI-2 **Demonstration of Interior Noise Standard**. Once specific building plan information is available, an exterior-to-interior analysis shall be performed for habitable hotel rooms. The exterior-to-interior analysis shall demonstrate to the City that interior noise levels do not exceed 45 CNEL. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels for the planned hotel rooms. If predicted noise levels are found to exceed 45 CNEL, the analysis shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in hotel rooms. Standard measures such as windows with glazing and appropriate STC ratings, as well as walls with appropriate STC ratings, shall be considered. Final plans shall demonstrate that interior noise levels do not exceed 45 CNEL for proposed hotel rooms.

Timing/Implementation: *Prior to Construction*

Enforcement/Monitoring: *City of Wildomar Building Department*

18. Tribal Cultural Resources

a) i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).

TRI-1 **Inadvertent Archeological Find.** If during ground disturbance activities, cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Cultural resources are defined as being multiple artifacts in close association with each other, but also include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance as

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

determined in consultation with the lead agency and Native American Tribe(s) that elected to consult under AB 52 ("Consulting Tribe(s)").

a. All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the tribal representative(s) and the Community Development Director to discuss the significance of the find.

b. At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s), developer, and the archaeologist, a decision shall be made, with the concurrence of the Community Development Director, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources.

c. Grading or further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal monitors if needed.

d. Treatment and avoidance of the newly discovered resources shall be consistent with the Treatment and Monitoring Agreements entered into with the Consulting Tribe(s) and the applicant. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources located in native soils and/or re-burial on the Project property so they are not subject to further disturbance in perpetuity as identified in Mitigation Measures TRI-2 and TRI-7.

e. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan (see Mitigation Measure TRI-6) shall be prepared by the project archeologist, in consultation with the Consulting Tribe(s), and shall be submitted to the City for their review and approval prior to implementation of the said plan.

f. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and tribal cultural resources. If the landowner and the Consulting Tribe(s) cannot agree on the significance or the mitigation for the archaeological or tribal cultural resources, these issues will be presented to the Community Development Director for decision. The City's Community Development Director shall make the determination based on the provisions of the California Environmental Quality Act with respect to archaeological and tribal cultural resources, recommendations of the project archeologist, and shall take into account the cultural and religious principles and practices of the Consulting Tribe(s). Notwithstanding any other rights available

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

under the law, the decision of the City Community Development Director shall be appealable to the City Planning Commission and/or City Council.

Timing/Implementation: *During any ground-disturbing or construction activities*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-2 **Cultural Resources Disposition.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a. One or more of the following treatments, in order of preference, as numbered below, shall be employed with the Consulting Tribe(s). Evidence of such shall be provided to the City of Wildomar Community Development Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources.

ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the reburial shall be included in the confidential Phase IV report (see Mitigation Measure TRI-6). The Phase IV Report shall be filed with the City under a confidential cover and not subject to Public Records Request.

iii. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets State Resources Department Office of Historic Preservation Guidelines for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees by the Applicant necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the landowner to the City. There shall be no destructive or invasive testing on sacred items, burial goods, and Native American human remains, as defined by the cultural and religious practices of the Most Likely Descendant.

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report.

Timing/Implementation: *During grading activities*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-3 **Archaeologist Retained.** Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified Registered Professional Archaeologist (RPA), to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources.

The Registered Professional Archaeologist and the Tribal monitor(s) required by Mitigation Measures TRI-4 and TRI-5 shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Registered Professional Archaeologist and the Tribal monitor(s), shall independently have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors.

The developer/permit holder shall submit a fully executed copy of the contract to the Community Development Department to ensure compliance with this condition of approval. Upon verification, the Community Development Department shall clear this condition.

In addition, the Registered Professional Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) pursuant to the definition in AB 52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB 52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archaeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

Timing/Implementation: *Prior to issuance of grading permit*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-4 **Native American Monitoring (Pechanga).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Pechanga Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.

Timing/Implementation: *During ground-disturbing activities*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-5 **Native American Monitoring (Soboba).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Soboba Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert,

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant

redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.

Timing/Implementation: *During ground-disturbing activities*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-6 **Archeology Report - Phase III and IV.** Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required for the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Community Development Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).

Timing/Implementation: *Prior to final inspection*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-7 **Non-Disclosure of Reburial Locations**. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code Section 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial.

Timing/Implementation: *During discovery of Native American human remains*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-8 **No-Build Easement or Similar Instrument.** In the event that Native American artifacts are found and buried within the project vicinity, a no-build easement, or similar legal instrument, shall be used to preclude future development from taking place on the reburial site(s).

Timing/Implementation: *Before Reburial of Native American Artifacts*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

Table ES-1 Project Impact and Mitigation Summary			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant
Implementation of Mitigation Measure **CUL-1**			
a) ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision(c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			
Implement Mitigation Measures **TRI-1** through **TRI-8** and **CUL-1.**			
20. Wildfire			
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			
Implement Mitigation Measures **HAZ-1** and **HAZ-2**			
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			
Level of Significance without Mitigation	Potentially Significant	**Resulting Level of Significance**	Less Than Significant
Implement Mitigation Measures **HAZ-**1 and **HAZ-2**			
Mandatory Findings of Significance			
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number of restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			
Implement Mitigation Measures **AQ-1, AQ-2, BIO-1, BIO-2, CUL-1, GEO-1, GEO-2, HAZ-1, HAZ-2, NOI-1, NOI-2, TRF-1**, and **TRI-1** through **TRI-8**.			
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).			
Implement Mitigation Measures **AQ-1, AQ-2, BIO-1, BIO-2, CUL-1, GEO-1, GEO-2, HAZ-1, HAZ-2, NOI-1, NOI-2,** and **TRI-1** through **TRI-8**.			
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			
Implement Mitigation Measures **AQ-1, AQ-2, GEO-1, GEO-2, HAZ-1, HAZ-2, NOI-1,** and **NOI-2**.			

V. ENVIRONMENTAL CHECKLIST FORM

A. BACKGROUND

1. Project Title:

Cherry Outpost Commercial Center (Planning Application No. 24-0056)

2. Lead Agency Name and Address:

City of Wildomar, 23873 Clinton Keith Road, Suite 110, Wildomar, CA 92595

3. Contact Person and Phone Number:

Matthew Bassi, Community Development Director; (951) 677-7751, ext. 213

4. Project Location:

The project site is at the northwest corner of Bundy Canyon Road and Cherry Street APNs 366-290-007 and -008.

5. Project Sponsor's Name and Address:

Jack Kofdarali, J&T Management, P.O. Box 1958, Corona, CA 928789

6. General Plan Designation:

Commercial Retail (CR) with a Community Center Overlay

7. Zoning:

Scenic Highway Commercial (C-P-S)

8. Description of Project:

The proposed project would develop a commercial retail center consisting of: 1) a 4-story, 72-room hotel (45,571 square feet); 2) a gas station complex, including a 4,176-square-foot convenience store with an attached 3,200-square-foot drive-through restaurant, and a 2-position RV fueling area; 3) a stand-alone 4,425-square-foot fast food/drive-through restaurant; and 4) a 5,724-square-foot express car wash with related accessories on a 6.65-acre project site.

The proposed development plans, including architectural renderings and elevations, are provided in **Appendix 1.**

9. Surrounding Land Uses and Setting

ADJACENT LAND USE, LAND USE DESIGNATION, AND ZONING			
Location	**Current Land Use**	**General Plan Land Use Designation**	**Zoning**
North	Residential uses and vacant land	Medium Density Residential (MDR)	Rural Residential (R-R)
South	Commercial uses and vacant land	Commercial Retail (CR) with a Community Center Overlay	General Commercial (C-1/C-P)
East	Residential uses and vacant land	Commercial Retail (CR) with a Community Center Overlay	General Commercial (C-1/C-P)
West	Interstate 15 (west of the I-15 are commercial uses and vacant land)	Commercial Retail (CR) with a Community Center Overlay	Scenic Highway Commercial (C-P-S)

10. Other Public Agencies Whose Approval May Be Required:

- Santa Ana Regional Water Quality Control Board
- Elsinore Valley Municipal Water District
- Riverside County Flood Control and Water Conservation District

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

The City of Wildomar sent notice to tribes on October 23, 2023, that have requested to be notified of projects pursuant to Assembly Bill (AB) 52 Native Americans: California Environmental Quality Act and Public Resources Code Section 21080.3.1. The City has completed consultations with Native American Tribes (please refer to section V.18 Tribal Cultural Resources of this Initial Study).

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project involving at least one impact that is "Less Than Significant Impact with Mitigation Incorporated" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology/Soils	☐ Greenhouse Gas Emissions	☒ Hazardous and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities and Service Systems	☒ Wildfire	☒ Mandatory Findings of Significance

C. DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because of the incorporated mitigation measures and revisions in the project have been made by or agreed to by the project proponent. **A MITIGATED NEGATIVE DECLARATION will be prepared.**

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

City Representative

Matthew Bassi — 12/03/24

Matthew C. Bassi, Community Development Director — Date

Applicant

Pursuant to Section 15070(b)(1) of the California Environmental Quality Act, as the project applicant, I agree to revisions of the project plans or proposals as described in this Initial Study/Mitigated Negative Declaration to avoid or reduce environmental impacts of my project to a less than significant level.

Hagop Kofdarali — 11/08/24

Jack Kofdarali (J&T Management), Applicant — Date

D. ENVIRONMENTAL ANALYSIS

1. Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			✓	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (*Public views are those that are experienced from publicly accessible vantage point*). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			✓	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			✓	

DISCUSSION

a) Less Than Significant Impact. The proposed project would result in the development of a hotel, gas station, RV fueling station, a car wash, restaurants, and convenience store. The tallest structure planned for the project site would be the 4-story hotel which would be approximately 62 feet tall. The elevation of the site varies from 1,406 feet above mean sea level (amsl) in the south to 1,437 feet amsl in the northeast corner. Scenic vistas in the project vicinity include mountain ridgelines to the north, east, south, and west of the project site ranging from approximately 4,000 feet amsl to 10,000 feet amsl. The site is vacant and surrounded by residential uses and vacant land to the north and east, commercial uses and vacant land to the south, and to the west is I-15 which bounds the site and further west are commercial uses and vacant land. The existing residential and commercial uses in the project area partially obstruct views of the ridgelines. Views of these ridgelines may be partially obstructed by construction of the proposed structures for the residential uses to the north and east of the project site. However, the proposed structures would not fully obstruct any scenic view or resource. Views of the surrounding ridgelines would not be obstructed from off-site viewpoints. Therefore, implementation of the proposed

project would not have a substantial adverse effect on a scenic vista, and this impact would be less than significant.

b) No Impact. There are no officially designated State Scenic Highways proximate to the project site. The nearest designated State Scenic Highway is the portion of State Route 74 (SR-74) that runs through the San Jacinto Mountains, which is approximately 26.25 miles northeast of the project site. I-15, which is adjacent to the project site's western boundary, is an eligible State Scenic Highway (Caltrans 2019). Additionally, the proposed project would not require the removal of any tree, rock outcropping, or historic building that has been recognized as a scenic resource. Therefore, there are no impacts to scenic resources within a State Scenic Highway.

c) Less Than Significant Impact. The project site is in an urbanized area, with vacant land and residential and commercial uses surrounding the site. The existing commercial development south of the project site contains a mix of white, red, beige, and yellow color palette. The proposed restaurants, hotel, car wash, gas station, and RV fueling station would have similar tones as the surrounding uses, and consist of dark and light beige, dark and light gray, red, white, blue, and black paint, as shown in **Figure 5** through **Figure 10**. The RV fueling station and gas station would be painted blue and green paint, which would be incompatible with the design of surrounding uses (please refer to **Figure 8** and **Figure 9**).

Furthermore, the proposed project is required to undergo review by the City Planning Commission to determine its consistency with other design styles in the area. The project is also reviewed under a design guidelines checklist which determines its consistency with the City's established design styles. The proposed project has been designed under the "Farm Chic" design guidelines, one of the City of Wildomar's commercial design styles. The Planning Commission will make the final decision on compatibility with the adopted design standards. If the project is consistent with the design standards, then it will not substantially degrade the existing visual character or quality of the site and its surroundings. The Commission will determine consistency and can establish conditions of approval to ensure compliance with the design standards. According to Chapter 17.76, C-P-S Scenic Highway Commercial Zone, of the Wildomar Municipal Code, building heights are restricted to 50 feet; as mentioned above, the tallest structure onsite would be 62 feet tall. According to Section 17.76.030(C), Development Standards, of the Municipal Code, no building can exceed 50 feet in height unless a greater height is approved per Section 17.172.230, Structure Height, of the Municipal Code. As part of the Proposed General Plan, the project site will be zoned General Commercial (C-G). According to Section 17.72.030, Development Standards, of Chapter 17.72, C-1 and C-P General Commercial Zones, no building can exceed 50 feet in height unless a greater height is approved per Section 17.172.230, Structure Height, of the Municipal Code. Upon compliance with the standards in the Municipal Code, the proposed hotel would not conflict with the applicable zoning governing scenic quality. This impact is less than significant.

d) Less Than Significant Impact. The proposed project would result in new and increased sources of nighttime lighting and illumination including building display and store lighting, signs, and lights associated with vehicular travel. Chapter 8.64, Light Pollution, of the Wildomar Municipal Code establishes limits on the types of fixtures and size of bulbs used in all aspects of development. The proposed project is required to comply with this ordinance, which is verified as part of the building permit application process and again prior to occupancy during building and site inspections of the site to ensure that the project's lighting would not create significant impacts. Consistent with the City's lighting standards (Wildomar

Municipal Code Section 8.64.090), all proposed exterior light fixtures must have full cutoff so that there is no light pollution created above the 90-degree plane of the light fixtures. The project would not adversely affect day or nighttime views in the area, and the project would not contribute to night sky pollution. Therefore, this impact is less than significant.

STANDARD CONDITIONS AND REQUIREMENTS

1. The project is required to comply with the provisions of Wildomar Municipal Code Chapter 8.64, Light Pollution.
2. The project must be consistent with the City of Wildomar Commercial Design Standards and Guidelines.

MITIGATION MEASURES

None required.

2. Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				✓
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				✓
d) Result in the loss of forest land or conversion of forest land to non-forest use?				✓
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				✓

DISCUSSION

a) No Impact. This site is not designated under the State Farmland Mapping and Monitoring Program (FMMP) as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor is the site adjacent to such designations. The site is designated "Other Land" and "Urban and Built-Up Land" which describe land uses that are vacant and nonagricultural land surrounded by development on all sides and developed land, respectively (CDC 2022). As seen in Figure 3, Aerial Photograph, the project site is surrounded by urbanized uses and vacant land. The land to the east is classed "Farmland of Local Importance," however, the project impacts would be contained within the project site. The project would not result in the conversion of agricultural lands, and therefore no impact would occur.

b) No Impact. The project site is not zoned for agricultural use by the City, nor are there any Williamson Act contracts on the project site (CDC 2023). Therefore, no impact would occur.

c) No Impact. The project site is not designated as forestland or timberland by the City, and there is no forestland or timberland adjacent to these sites. The project site is designated "Other Land" and "Urban and Built-Up Land." The project site is in an urbanized portion of the City and is surrounded by development. Therefore, no impact would occur.

d) No Impact. The project site does not contain forestland, nor is the project site zoned as forestland by the City. Implementation of the proposed project would not convert forestland to non-forest use or result in a loss of forestland. Therefore, no impact would occur.

e) No Impact. The project site does not contain forestland or farmland. The project site is in an urbanized area, as shown in **Figure 3,** Aerial Photograph. Development on the site would not result in the conversion of farmland to nonagricultural uses or forestland to non-forest uses. As such, no impacts would occur.

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

None required.

3. Air Quality

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			✓	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			✓	
c) Expose sensitive receptors to substantial pollutant concentrations?		✓		
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			✓	

An Air Quality and Greenhouse Gas Emissions Technical Report was prepared by HELIX Environmental Planning (HELIX 2024a), in August 2024 (see **Appendix 2**).

DISCUSSION

a) **Less Than Significant Impact.** The project site is in the South Coast Air Basin (SoCAB), which is under the jurisdiction of the South Coast Air Quality Management District (South Coast AQMD). The South Coast AQMD is required, pursuant to the federal Clean Air Act, to reduce emissions of criteria pollutants for which the basin is in nonattainment: ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). These are considered criteria pollutants because they are three of several prevalent air pollutants known to be hazardous to human health. An area designated as nonattainment for an air pollutant is an area that does not achieve national and/or state ambient air quality standards for that pollutant.

In order to reduce emissions of criteria pollutants for which the SoCAB is in nonattainment, the South Coast AQMD has adopted the 2022 Air Quality Management Plan (AQMP). The 2022 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2022 AQMP is a regional and multi-agency effort including the South Coast AQMD, the California Air Resources Board (CARB), the Southern California Association of Governments (SCAG), and the US Environmental Protection Agency (EPA). The 2022 AQMP pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts,

defined in consultation with local governments and with reference to local general plans. The project is subject to the South Coast AQMD's AQMP.

Criteria for determining consistency with the AQMP are defined by the following indicators:

- Consistency Criterion No. 1: The proposed project will not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.
- Consistency Criterion No. 2: The proposed project will not exceed the assumptions in the AQMP based on the years of project buildout.

Consistency Criterion 1

Consistency Criterion No. 1 refers to violations of the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). CAAQS and NAAQS violations for the SoCAB could occur if Localized Significance Thresholds (LSTs) or regional significance thresholds were exceeded at the project level. As indicated in the Air Quality Assessment, the proposed project would not generate short- or long-term emissions that could potentially cause an increase in the frequency or severity of existing air quality violations (see **Table 3-1,** Maximum Daily Construction Emissions, and **Table 3-2**, Maximum Daily Operation Emissions, below). Therefore, impacts would be less than significant.

Consistency Criterion 2

Growth projections from local general plans adopted by cities in the South Coast AQMD are provided to the SCAG which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in the City of Wildomar General Plan is considered to be consistent with the AQMP.

The City's General Plan designates the project site as Commercial Retail (CR) with a Community Center Overlay and the site is zoned Scenic Highway Commercial (C-P-S). As part of the Proposed General Plan, the project site will be zoned General Commercial (C-G). The proposed project would include a convenience store, drive-through restaurants, car wash, RV fueling/gas stations, and a hotel. The proposed uses are anticipated to serve the community and therefore, would reduce VMT. Implementation of the proposed project would not result in population or employment increases that would exceed growth projection assumptions in the AQMP (HELIX 2024a). Therefore, as the proposed project would be consistent with the City's existing land use designations, the proposed project is not anticipated to exceed the AQMP assumptions and would be consistent with the second criterion. Therefore, impacts would be less than significant.

b) Less Than Significant Impact. The project site is in the SoCAB. State and federal air quality standards are often exceeded in many parts of the basin. The SoCAB is nonattainment for O_3, PM_{10}, and $PM_{2.5}$ under the state standards, and nonattainment for O_3 and $PM_{2.5}$ under the federal standards. A discussion of the project's potential short-term construction-period and long-term operational-period air quality impacts are provided below.

Construction Emissions

Construction activities associated with the project would result in emissions of volatile organic compounds (VOCs), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. Emissions would result from site preparation, grading, building construction, paving, and architectural coating. Construction is anticipated to last nine months. As shown in **Table 3-1**, Maximum Daily Construction Emissions, emissions resulting from project construction would not exceed pollutant thresholds established by South Coast AQMD for emissions of any criteria pollutant or ozone precursor. Therefore, emissions generated during construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. Impacts would be less than significant.

Table 3-1 Maximum Daily Construction Emissions

Activity	Pollutant Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	3.7	33.8	33.9	0.1	21.4	11.5
Grading	2.2	19.7	21.8	<0.1	8.5	4.3
Building Construction[1]	1.8	16.1	21.6	<0.1	1.1	0.7
Paving[1]	1.2	9.3	11.5	<0.1	1.1	0.5
Architectural Coating	16.8	0.9	1.5	<0.1	0.1	0.0
Roadway Widening – Grubbing and Land Clearing	0.5	4.3	5.3	<0.1	0.9	0.3
Roadway Widening – Grading and Excavation	3.9	32.8	40.0	0.1	5.7	1.9
Roadway Widening – Drainage, Utilities, Sub-grade[1]	2.0	17.3	22.0	<0.1	2.6	0.9
Roadway Widening - Paving	0.9	7.6	12.8	<0.1	0.6	0.3
Maximum Daily Emissions[2]	**16.8**	**52.5**	**61.8**	**0.1**	**22.3**	**11.8**
South Coast AQMD Regional Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

[1] During these phases, maximum daily emissions of NO_x would occur during winter and maximum daily emissions of all other pollutants would occur during summer or would not be seasonally dependent.

[2] Maximum daily emissions of NO_x, CO, and SO_x would occur during concurrent grading of the project site and roadway widening area. Maximum daily emissions of PM_{10} and $PM_{2.5}$ would occur during concurrent site preparation and roadway grubbing/land clearing.

VOC = volatile organic compounds, NO_x = nitrogen oxides, CO = carbon monoxide, SO_x = sulfur oxides, PM_{10} = particulate matter 10 microns or less in diameter, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Source: HELIX 2024a (Appendix 2)

Operational Emissions

Operational activities associated with the proposed project would result in emissions of VOC, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from area sources and energy sources.

Mobile emissions were excluded from the estimation of project emissions since the proposed project is anticipated to reduce regional VMT.

As shown in **Table 3-2**, Maximum Daily Operation Emissions, the proposed project's daily emissions from on-going operations would not exceed the South Coast AQMD's regional threshold. Therefore, criteria pollutant emissions generated during operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. Impacts would be less than significant.

Table 3-2 Maximum Daily Operation Emissions

Source	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area Source	2.0	<0.1	2.8	<0.1	<0.1	<0.1
Energy Source	0.1	1.2	1.0	<0.1	0.1	0.1
Total Maximum Daily Emissions[1]	**2.1**	**1.2**	**3.8**	**<0.1**	**0.1**	**0.1**
South Coast AQMD Regional Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

[1]Totals may not sum due to rounding.
Source: HELIX 2024a (Appendix 2)

c) Less Than Significant With Mitigation Incorporated. LSTs are based on local background pollutant concentrations and vary with site size and the distance to sensitive receptors, and represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable NAAQS and CAAQS at the nearest location where an individual can be expected to remain for 24 hours.

Localized Construction Impacts

Table 3-3, Maximum Localized Daily Construction Emissions, identifies the maximum daily onsite construction emissions. As shown in the Table, PM_{10} and $PM_{2.5}$ emissions would exceed the applicable LSTs.

Table 3-3 Maximum Localized Daily Construction Emissions

Construction Activity	Emissions (lbs/day)			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	33.7	32.4	21.1	11.4
Grading	18.3	20.1	7.9	4.2
Building Construction	15.6	19.4	0.6	0.6
Paving	7.1	9.9	0.3	0.3
Architectural Coating	0.9	1.1	<0.1	<0.1
Roadway Widening – Grubbing and Land Clearing	4.2	4.5	0.8	0.3
Roadway Widening – Grading and Excavation	32.6	36.9	5.2	1.7

Table 3-3 Maximum Localized Daily Construction Emissions				
Construction Activity	**Emissions (lbs/day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Roadway Widening – Draining, Utilities, Sub-grade	17.2	19.9	2.3	0.8
Roadway Widening – Paving	7.5	11.7	0.3	0.3
Maximum Daily Emissions	**50.9**	**57.0**	**21.9**	**11.7**
South Coast AQMD Localized Threshold	*234*	*1,100*	*7*	*4*
Exceeds Threshold?	**NO**	**NO**	**YES**	**YES**
Source: HELIX 2024a (Appendix 2)				

The highest concentrations of PM_{10} and $PM_{2.5}$, calculated at the closest outdoor use space for the three closest residences to the project site, without mitigation or consideration of any dust best management practices (BMPs), are compared to the South Coast AQMD project-level concentration thresholds as shown in **Table 3-4,** Unmitigated Localized Particulate Matter Concentrations. Without mitigation measures, these impacts would be potentially significant.

Table 3-4 Unmitigated Localized Particulate Matter Concentrations			
Residence	**Calculated Concentration ($\mu g/m^3$)**	**South Coast AQMD Threshold ($\mu g/m^3$)**	**Exceed Threshold?**
PM_{10} 24-Hour Average			
33850 Paradise Lane	38.6	10.4	Yes
33805 Cherry Street	35.1	10.4	Yes
33890 Cherry Street	27.5	10.4	Yes
PM_{10} Annual Average			
33850 Paradise Lane	1.1	1.0	Yes
33805 Cherry Street	1.1	1.0	Yes
33890 Cherry Street	1.0	1.0	Yes
$PM_{2.5}$ 24-Hour Average			
33850 Paradise Lane	19.9	10.4	Yes
33805 Cherry Street	18.8	10.4	Yes
33890 Cherry Street	14.2	10.4	Yes
Source: HELIX 2024a (Appendix 2) $\mu g/m^3$ = micrograms per cubic meter			

As shown in **Table 3-4**, annual average PM_{10} and 24-hour average concentrations of PM_{10} and $PM_{2.5}$ would exceed the South Coast AQMD thresholds for ambient concentrations for all three analyzed residences. Impacts would be potentially significant. However, with the inclusion of Mitigation Measures **AQ-1** and **AQ-2,** which require the use of Tier 4 construction equipment and implementation of fugitive dust BMPs, emissions would not exceed the South Coast AQMD thresholds, as shown in **Table 3-5,** Mitigated Localized

Particulate Matter Concentrations. Therefore, impacts would be less than significant with mitigation incorporated.

Table 3-5 Mitigated Localized Particulate Matter Concentrations			
Residence	**Calculated Concentration (µg/m³)**	**South Coast AQMD Threshold (µg/m³)**	**Exceed Threshold?**
PM_{10} 24-Hour Average			
33850 Paradise Lane	9.9	10.4	No
33805 Cherry Street	9.1	10.4	No
33890 Cherry Street	7.0	10.4	No
PM_{10} Annual Average			
33850 Paradise Lane	0.3	1.0	No
33805 Cherry Street	0.3	1.0	No
33890 Cherry Street	0.2	1.0	No
$PM_{2.5}$ 24-Hour Average			
33850 Paradise Lane	5.0	10.4	No
33805 Cherry Street	4.7	10.4	No
33890 Cherry Street	3.6	10.4	No
Source: HELIX 2024a (Appendix 2) µg/m³ = micrograms per cubic meter			

Localized Operational Impacts

Table 3-6, Maximum Localized Daily Operational Emissions, shows the maximum onsite emissions from area and energy sources during project operation. As shown in the Table, NO_x, CO, PM_{10}, and $PM_{2.5}$ emissions would not exceed the South Coast AQMD LSTs. Therefore, impacts would be less than significant.

Table 3-6 Maximum Localized Daily Operational Emissions				
Construction Activity	**Emissions (lbs/day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	<0.1	2.8	<0.1	<0.1
Energy Sources	1.2	1.0	0.1	0.1
Total Maximum Daily Emissions	**1.2**	**3.8**	**0.1**	**0.1**
South Coast AQMD Localized Threshold	*371*	*1,965*	*4*	*2*
Exceeds Threshold?	**NO**	**NO**	**NO**	**NO**
Source: HELIX 2024a (Appendix 2)				

Carbon Monoxide Hotspots

CO attainment in the SoCAB by the South Coast AQMD was analyzed as part of the South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide. As part of the 1992 CO Plan, an analysis for CO "hot spots," adverse CO concentrations, was conducted for four intersections in Los

Angeles at the peak morning and afternoon time periods. This hot spot analysis did not predict any violation of CO standards. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day.

As further discussed in Section V.17, Transportation, the proposed project would generate a total of approximately 7,726 daily vehicle trips. The 1992 CO Plan showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard.

Table 3-7, Traffic Volume Comparison, provides a summary of the traffic volume contained in the South Coast AQMD's modeling and the traffic volumes for the project-affected intersections for comparison.

Table 3-7 Traffic Volume Comparison

Intersection	AM Peak Hour Intersection Volume	PM Peak Hour Intersection Volume
2003 AQMP		
Wilshire Ave at Veteran Ave	8,062	7,719
Sunset Ave at Highland Ave	6,614	7,374
La Cienega Blvd at Century Blvd	6,635	8,674
Long Beach Blvd at Imperial Hwy	4,212	5,514
Proposed Project		
Orange Street at Bundy Canyon Road	2,397	2,414
I-15 Southbound Ramps at Bundy Canyon Road	3,260	3,347
Cherry Street at Bundy Canyon Road	2,863	3,326
Orange Street at Canyon Drive	1,253	797

Source: HELIX 2024a (Appendix 2)

As shown in **Table 3-7**, the total traffic volumes at the project-affected intersections are less than the South Coast AQMD AQMP modeled intersections, therefore, carbon monoxide concentrations at the project-affected intersections would be less than those modeled for the AQMP. Therefore, impacts would be less than significant.

Toxic Air Contaminants (TAC)

CONSTRUCTION TAC IMPACTS

Implementation of the proposed project would result in the use of heavy-duty construction equipment, haul trucks, onsite generators, and construction worker vehicles which could generate the toxic air contaminant (TAC) diesel particulate matter (DPM). Generation of DPM from construction projects typically occurs in a localized area for a short-period of time.

The dose of TAC to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the extent of exposure a person has with the substance; a longer exposure period to a fixed quantity of emissions would result in higher health risks. Current models and methodologies for conducting cancer health risk assessments are associated with longer-term exposure periods (typically 30 years for individual residents based on

guidance from OEHHA) and are best suited for evaluation of long duration TAC emissions with predictable schedules and locations. These assessment models and methodologies do not correlate well with the temporary and highly variable nature of construction activities. Cancer potency factors are based on animal lifetime studies or worker studies where there is consistent long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime. Considering this information, the highly dispersive nature of DPM, and the fact that construction activities would occur at various locations and varying intensities throughout the project site, it is not anticipated that construction of the project would expose sensitive receptors to substantial DPM concentrations. Therefore, impacts would be less than significant.

OPERATIONAL TAC IMPACTS

The new RV fueling/gas stations would require authority to construct (ATC) and permit to operate (PTO) approval from the South Coast AQMD, which will review the facility design and location for compliance with South Coast AQMD standards for criteria pollutants and air quality. All tanks and dispensers would be equipped with the latest Phase I and Phase II Enhanced Vapor Recovery (EVR) air pollution control equipment technology per CARB regulations and associated Executive Orders. The Phase I EVR equipment controls the vapors in the return path from the tanks back to the tanker truck during offloading filling operations. Phase I EVR systems are 98 percent effective in controlling fugitive emissions from escaping into the environment. The Phase II EVR equipment, which also includes "in-station diagnostics," controls and monitors the vapors in the return path from the vehicles back to the tanks. Phase II EVR systems are 95 percent effective in controlling fugitive emissions from escaping into the environment. Therefore, operations expected to occur at the proposed project would not emit a significant quantity of toxic chemicals. In addition, CARB siting recommendations within the *Air Quality and Land Use Handbook* suggest sensitive receptors should not be placed within 50 feet of typical gas dispensing facilities. The fuel dispensers would be located near the center of the project site more than 50 feet from the project boundary.

Other long-term operational emissions include toxic substances such as cleaning agents in use on-site, compliance with State and federal handling regulations would ensure that emissions remain below a level of significance. The use of such substances such as cleaning agents is regulated by the 1990 Federal Clean Air Act Amendments as well as State-adopted regulations for the chemical composition of consumer products. As such, project-related TAC emission impacts during operation would be less than significant.

d) Less Than Significant Impact.

The potential for the proposed project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include: agricultural uses (livestock and farming), wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities.

The proposed project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed project may result from construction equipment and other construction activities, and trash storage areas associated with the proposed project's long-term operational activity. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in

nature and would cease upon completion of the respective phase of construction. Therefore, impacts are considered less than significant. It is expected that project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City's solid waste regulations. The proposed project would also be required to comply with South Coast AQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors associated with the proposed project construction and operational activities would be less than significant.

STANDARD CONDITIONS AND REQUIREMENTS

1. Compliance with SCAQMD Rules including 402, 403, and 1113.

MITIGATION MEASURES

AQ-1 **Tier 4 Construction Equipment**. Prior to issuing construction permits, the project applicant or designated representative shall provide to the City a comprehensive inventory of all diesel-powered off-road construction equipment, equal to or greater than 50 horsepower, that will be used on the project site during any portion of construction. The inventory shall include the horsepower rating, engine production year, and certification of the specified Tier standard. The City shall verify that all construction equipment is USEPA Tier Final certified or has been retrofitted with CARB approved diesel particulate matter reduction systems resulting in PM_{10} emissions meeting USEPA Tier 4 Final standards.

Timing/Implementation: *Prior to issuance of construction permits*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department*

AQ-2 **Fugitive Dust Best Management Practices**. Prior to issuing construction permits, the City shall verify that project construction contract or construction documentation specify the requirement to implement all fugitive dust Best Available Control Measures listed in Table 1 of the SCAQMD Rule 403, and the following control measures are enhanced to require watering exposed surface a minimum of three times per day:

- Clearing and Grubbing Control Measure 02-1: Maintain stability of soil through prewatering of site prior to clearing and grubbing. In addition, during dry weather, water exposed surfaces a minimum of three times per day during clearing and grubbing activities.
- Cut and Fill Control Measure 05-1: Pre-water soils prior to cut and fill activities (e.g., grading). In addition, during dry weather, water all exposed surfaces a minimum of three times per day during cut and fill activities.

Timing/Implementation: *Prior to issuance pf construction permits*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department*

4. Biological Resources

Issues: Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		✓		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				✓
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				✓
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		✓		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				✓
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?		✓		

HELIX Environmental Planning prepared a General Biological Resources Assessment in August 2024 for the project, which is included as **Appendix 3** (HELIX 2024b).

DISCUSSION

a) Less Than Significant With Mitigation Incorporated.

According to the General Biological Resources Assessment, 11 of the 13 plant species recorded within the Alberhill, Lake Elsinore, Lake Mathews, Romoland, Steele Peak, Sitton Peak, Wildomar, Murrieta, and Perris quadrangles were not considered to have potential to occur based on geographic range, elevation range, and/or lack of suitable habitat (HELIX 2024b). Two species (Parry's spineflower and San Diego ambrosia) were determined to have a low potential to occur on the project site based on low-quality habitat; these two species were not detected during a spring rare plant survey (HELIX 2024b).

Of the 41 sensitive animal species recorded within the nine quadrangles, 34 species were considered to have no potential to occur in the plan area due to the lack of suitable habitat. Therefore, no significant impacts to these sensitive wildlife species are anticipated by the proposed project. The remaining seven species were determined to have a low potential to occur on the project site based on the presence of low-quality habitat, limited acreage of habitat, and lack of recent observations within the immediate vicinity of the project site. California glossy snake, coast patch-nosed snake, and western mastiff bat are State Special Species of Concern and not a covered species under the MSHCP. These species have not been recorded within the vicinity (10- to 20-mile radius), indicating that regionally significant populations of these species are not present. California glossy snake and coast patch-nosed snake were not observed during field surveys. Therefore, the project site is not expected to support large populations of these species. Western mastiff bat may use the project site for foraging habitat given it uses a variety of habitats; although there is a potentially suitable foraging habitat for the western mastiff bat, there is no suitable roosting habitat on the project site. Therefore, impacts to these three species would be less than significant.

Coastal whiptail is a State Species of Special Concern, white-tailed kite is State Fully Protected Species, and Stephens' kangaroo rat is a State and Federally Threatened species. These three species are fully covered species under the MSHCP. Payment of the MSHCP and Stephens' kangaroo rat mitigation fees would reduce impacts to these species.

Additionally, all circulation-related improvements would occur in the existing right of way adjacent to or on existing streets. Therefore, construction and operation of the circulation improvements would not be expected to impact biological resources.

Burrowing owl is a state Candidate Species and MSHCP-conditionally covered species. Based on the results of the focused burrowing owl surveys, the project site does not support burrowing owls. Nonetheless, the proposed project would implement Mitigation Measure **BIO-1** which requires a preconstruction survey within 30 days of ground-disturbing activities and provides provisions if burrowing owls are detected onsite. With the implementation of Mitigation Measure **BIO-1**, impacts would be less than significant with mitigation incorporated.

b) No Impact. Riparian/riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergent vegetation, or emergent mosses and lichens, which occur close to, or which depend upon soil moisture from nearby freshwater sources, or areas with freshwater flow during all or a portion of the year. The General Biological Resources Assessment concluded the project site does not contain any

riparian/riverine areas. Additionally, there are no vegetation communities mapped onsite that are dominated by native plant species or are considered sensitive species pursuant to the California Department of Fish and Wildlife. Therefore, no impact would occur.

c) No Impact. According to the General Biological Resources Assessment, the project site does not contain any drainage features, wetlands, or other special aquatic sites under the jurisdiction of the California Department of Fish and Wildlife and United States Army Corps of Engineers/Regional Water Quality Control Board. Therefore, no wetlands are present on-site and no impacts would occur.

d) Less Than Significant Impact with Mitigation Incorporated. Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas, such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range. The project site is not part of a regional corridor, not identified by the MSHCP or South Coast Missing linkages as being part of a local or regional corridor/linkage, and does not serve as a nursery site (HELIX 2024b). However, development on the project site could disturb or destroy active migratory bird nests. Although suitable nesting bird habitat is limited, herbaceous ground cover and shrubs throughout the site could provide habitat for protected nesting bird species. Implementation of Mitigation Measure **BIO-2**¸ which provides provisions for nesting birds surveys and ensures compliance with the Migratory Bird Treaty Act, would reduce impacts to less than significant with mitigation incorporated.

e) No Impact. The Wildomar Municipal Code Section 12.08.050 regulates trees within the public right of way. The project site contains no trees within a public right-of-way. There are no other city policies or ordinances protecting biological resources. Therefore, no impact would occur.

f) Less Than Significant With Mitigation Incorporated. The project site is within the Elsinore Area Plan of the MSCHP, and is not located within or adjacent to an MSCHP Criteria Area. As there are no riparian/riverine areas or species onsite, the proposed project would not conflict with MSHCP Section 6.1.2, and therefore, a Determination of Biologically Equivalent Superior Preservation is not required. The project site is not within a Narrow Endemic Plant Species Survey Area and therefore, no focused surveys were required; the proposed project is consistent with Section 6.1.3 of the MSHCP. The project site is not adjacent to land targeted for conservation or existing MSHCP Conservation Areas. The nearest linkage to the project site is Proposed Linkage 8, which is approximately one mile east of the project site. Since the project site is not within or adjacent to MSHCP Conservation Areas, most of the MSHCP Urban/Wildland Interface Guidelines, would not apply with the exception of Drainage, Toxics, and Invasives, and Grading/Land Development. The project site does not support natural drainages and would incorporate measures to avoid discharge of untreated surface runoff. Applicable drainage measures that would be implemented by the proposed project would reduce impacts of chemicals and other toxins affecting wildlife and habitat. As the project site is not directly adjacent to MSHCP Conservation Areas, lighting, noise, and barrier standards are not applicable. The proposed project would not use invasive plants for erosion control or landscaping; the proposed project would be required to comply with the MSHCP and would not be permitted to use any of the plants listed in Table 6-2, Plants that Should Be Avoided Adjacent to the MSHCP Conservation Area, of the MSHCP. As the project site is not adjacent to a MSHCP

Conservation Area, manufactured slopes associated with the proposed project would not impact MSHCP Conservation Areas. As such, the proposed project would be consistent with MSHCP Section 6.1.4. The project site is not within a Criteria Area Species Survey Area or an amphibian/mammal survey area, and therefore, such additional studies are not needed. However, pursuant to Mitigation Measure **BIO-1**¸ a pre-construction burrowing owl survey would be required; the proposed project would be consistent with MSHCP Section 6.3.2. The project site is not adjacent to an MSCHP Conservation Area and therefore, fuel modification impacts would not extend into a conservation area. As indicated above, the proposed project would pay the MSHCP and Stephens' kangaroo rat fees, which is required by the City's Municipal Code. Therefore, the proposed project would be consistent with the MSHCP, and impacts would be less than significant with mitigation incorporated**.**

STANDARD CONDITIONS AND REQUIREMENTS

1. As required by Section 3.42.070 of the Wildomar Municipal Code, the project applicant/developer is required to submit fees to the City in accordance with the requirements of the Western Riverside County Multiple Species Habitat Conservation Plan Mitigation Fee.

1. As required by Section 3.43.070 of the Wildomar Municipal Code, the project applicant/developer is required to submit fees to the City in accordance with the requirements of the Stephens' Kangaroo Rat Habitat Conservation Plan Mitigation Fee Area.

MITIGATION MEASURES

BIO-1 **Burrowing Owl:** In compliance with the MSHCP, a pre-construction survey shall be conducted within 30 days prior to ground-disturbing activities (i.e., earthwork, clearing, grubbing, watering, staging, etc.) occurring on the project site. If the pre-construction survey is negative and Burrowing Owl (BUOW) is confirmed absent, then ground-disturbing activities shall be allowed to commence, and no further measures would be required.

If BUOWs are observed during the pre-construction survey, take of active nests must be avoided, and the City must be immediately notified. The City will coordinate with the Wildlife Agencies (i.e., CDFW and USFWS) to determine whether a BUOW Protection and Relocation Plan is required prior to ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey must be conducted again to confirm BUOW has not colonized the project site since it was last disturbed. If BUOW is found, the same coordination described above would be required.

Timing/Implementation: Thirty (30) days prior to the initiation of ground-disturbing activities

Enforcement/Monitoring: *City of Wildomar Community Development Department*

BIO-2 **Nesting Birds:** To the extent feasible, construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the general bird nesting season for migratory birds,

which is February 15 through August 31 for songbirds and January 1 to August 31 for raptors.

1. If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory birds and raptors, a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities and provided to the City for review. The qualified biologist shall document the results of the pre-construction survey. If construction is inactive for more than seven days, an additional survey shall be conducted.
2. If the qualified biologist determines that no active migratory bird or raptor nests occur, the City shall be notified and the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no construction activities within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the qualified biologist and approved by the City. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds.

Timing/Implementation: Seven (7) days prior to the initiation of construction activities

Enforcement/Monitoring: *City of Wildomar Community Development Department*

5. Cultural Resources

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?				✓
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		✓		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		✓		

The Cherry Outpost Cultural Resources Survey Report was prepared for the proposed project by HELIX Environmental Planning in December 2024 which is included as **Appendix 4** (HELIX 2024c).

DISCUSSION

a) No Impact. Cal. Code Regs. Title 14 Section 15064.5 defines historic resources as resources listed or determined to be eligible for listing by the State Historical Resources Commission, a local register of historical resources, or lead agency. Generally, a resource is considered to be "historically significant" if it meets one of the following criteria:

i. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

ii. Is associated with the lives of persons important in our past;

iii. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

iv. Has yielded, or may be likely to yield, information important in prehistory or history.

Archival research of historic maps and aerial photographs indicated that the project site included residential, agricultural, and transportation development. A pedestrian survey identified a historical archaeological site consisting of the foundations of a residence, concrete pond, associated structures, and vegetation. According to the Cultural Resources Survey Report, the site lacks integrity and is not eligible for listing on the California Register of Historic Resources or the National Register of Historic Places (HELIX 2024c). Therefore, no impacts to historic resources would occur as a result of project implementation.

b) Less Than Significant Impact with Mitigation Incorporated. Archaeological resources are prehistoric or historic evidence of past human activities, including structural ruins and buried resources.

The Cultural Resources Survey Report concluded that there are no known archaeological resources on the project site. However, no cultural resources field studies had previously been conducted within the project site (HELIX 2024c). Because of the general sensitivity of the Lake Elsinore area, and due to proposed construction and ground-disturbing activities such as grading and trenching, there is potential for buried archaeological resources to be discovered onsite. Additionally, all circulation-related improvements would occur in the existing right of way adjacent to or on existing streets that have previously been graded. While unlikely, archaeological resources could be uncovered as part of the ground-disturbing activities associated with these improvements. Implementation of Mitigation Measures **TRI-1** through **TRI-8** (see Section V. 18, Tribal Cultural Resources) would ensure that any archaeological resources discovered on the project site would be properly managed by having a qualified archaeologist monitor construction and grading activities, complying with provisions outlined in the Tribal Cultural Resources Treatment and Monitoring Agreement, and halting construction within 100 feet of discovered resources in the event that they are uncovered. Therefore, impacts would be less than significant with mitigation incorporated.

c) Less Than Significant Impact with Mitigation Incorporated. Construction activities associated with project implementation would require grading and excavation of the site below the surface. Pursuant to California Health and Safety Code Section 70520.5, in the event of an accidental discovery or recognition of any potential human remains on the site, no further excavation or disturbance of the site shall be permitted until the coroner of the county is contacted and has conducted an investigation into the circumstances, manner, and cause of any death, and recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes or has reason to believe the human remains to be those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission. The project would comply with existing law, and implement Mitigation Measures **CUL-1, TRI-7**, and **TRI-**8 (see Section V. 18, Tribal Cultural Resources) that would reduce impacts to with mitigation incorporated.

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

CUL-1 **Human Remains.** If potential human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within the period specified by law (24 hours). Subsequently, the Native American Heritage Commission shall identify the "most likely descendant" (MLD). The MLD shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources

Code Section 5097.98. No photographs are to be taken of any human remains and/or cremations except by the coroner, with written approval by the consulting tribe(s).

Timing/Implementation: *During any ground-disturbing construction activities*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

6. Energy

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			✓	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			✓	

a) Less Than Significant Impact.

Construction

During construction, the project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass.

Construction of the proposed project would require the use of construction equipment for grading, hauling, and building activities. Electricity use during construction would vary during different phases of construction—construction equipment during grading would be gas powered or diesel powered, and the later construction phases would require electricity-powered equipment, such as interior construction and architectural coatings. Construction also includes the vehicles of construction workers traveling to and from the project site and haul trucks for the export of materials from site clearing.

The surrounding area is already served by electricity provided by Southern California Edison (SCE) and natural gas infrastructure provided by the Southern California Gas Company (SoCalGas). The proposed project would connect to the existing gas lines to the project site.

The construction contractors would minimize idling of construction equipment during construction as required by state law. These required practices would limit wasteful and unnecessary electrical energy consumption. Furthermore, there are no unusual project characteristics that would necessitate the use of construction equipment that is less energy efficient than at comparable construction sites in other parts of the state. Therefore, the proposed short-term construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption. Impacts would be less than significant.

Transportation

Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. Construction

equipment during grading would be gas-powered or diesel-powered, and the later construction phases would require electricity-powered equipment. Construction techniques, equipment and materials are consistent with other construction in the City. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure. Impacts would not be significant.

Operation

Operational use of energy would include heating, cooling, and ventilation of buildings; water heating; operation of electrical systems, security, and control center functions; use of on-site equipment and appliances; and indoor, outdoor, and parking lot lighting. Additionally, the proposed project would result in a hotel and would not result in an excessive consumption of energy compared to other similar uses.

Electricity

The project is expected to use approximately 2,851,958 kilowatt-hours per year (kWh/year) to serve operational demands (HELIX 2024a). In 2020, the non-residential sector of the County of Riverside consumed approximately 8,015 million kWh of electricity. Therefore, the increase in electricity demand of approximately 0.04 percent from the proposed project is insignificant compared to the County's 2020 non-residential sector demand.

The increased demand is expected to be adequately served by the existing Southern California Edison (SCE) electrical facilities. SCE provided over 103,597 gigawatt-hours (GWh) of electricity to its customers in 2020 and total electricity demand in SCE's service area is forecast to increase by approximately 12,000 GWh between 2015 and 2026 (CEC 2020; CEC 2018). The increase in electricity demand of approximately 0.04 percent from the project would represent an insignificant percent increase compared to overall demand in SCE's service area. Therefore, projected electrical demand would not significantly impact SCE's level of service.

Prior to final building plan submittal, the project applicant/developer would provide project plans to SCE to prepare a Method-of-Service Study to determine exact location of electrical connections at the site and establish estimated electricity demand. Additionally, because the proposed project would be subject to the more stringent 2022 Title 24 standards which require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials, the project's electricity demand would not result in significant impacts. Therefore, impacts are less than significant.

Natural Gas

The project is expected to use approximately 4,557,647 kilo-British thermal units per year (KBTU/year) of natural gas during its operational phase (HELIX 2024a). In 2020, the non-residential sector of the County of Riverside consumed approximately 135 million therms of gas. Therefore, the increased natural gas demand of approximately 3.38 percent from the proposed project is insignificant compared to the County's 2020 non-residential sector demand.

The increased demand of approximately 3.38 percent is expected to be adequately served by the existing Southern California Gas facilities. The project would construct new facilities at the project site that would result in an increase in gas demand. The major use of natural gas on site would be from the hotel

(3,644,849 kBTU/year) and primarily building heating at the other facilities on-site. The proposed project would not result in a significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Renewable Energy

Pursuant to the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by Southern California Edison and Southern California Gas Company. Regarding the State's Renewable Energy Portfolio Standards, the proposed project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CALGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. Additionally, the development of the proposed project would not interfere with the achievement of the 60 percent Renewable Portfolio Standard set forth in SB 100 for 2030 or the 100 percent standard for 2045. These goals apply to SCE and other electricity retailers. As electricity retailers reach these goals, emissions from end user electricity use would decrease from current emission estimates. Therefore, impacts would be less than significant.

Vehicle Miles Traveled and Fuel Consumption

Transportation energy use depends on the type and number of trips, vehicle miles traveled (VMT), fuel efficiency of vehicles, and travel mode. Transportation energy used during operation of the project would come from delivery vehicles, maintenance vehicles, hotel guests, employees, and the general public/refueling vehicles that would primarily use diesel fuel and/or gasoline.

The proposed project would generate 7,726 trips per day. Trip generation and VMT generated by the proposed project are consistent with other similar commercial uses of similar scale and configuration, such as the Beyond Gas Station project approved by the City April 5, 2023. (SCH# 2023020343) Therefore, the proposed project would not propose uses or operations that would result in excessive and wasteful vehicle trips or vehicle energy consumption. Therefore, impacts would be less than significant.

b) Less Than Significant Impact. The City of Wildomar is within SCAG's 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals.

The RTP/SCS sets forth a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement) by reducing fuel consumption. The RTP/SCS is meant to provide individual jurisdictions with growth strategies that, when taken together, achieve the regional GHG emissions reduction targets. Specifically, the SCS distributes growth forecast data to transportation analysis zones for the purpose of modeling performance. As described in Section V.14, Population and Housing, the proposed project does not exceed the growth projections described in SCAG's RTP/SCS. The proposed project would not obstruct the implementation of the RTP/SCS.

The City of Wildomar does not have its own renewable energy plan or energy efficiency plan; however, the City does encourage the use of renewable energy via solar panels, recycling, etc. The proposed project would be subject to the most recent version of the California Energy Code, which sets standards that improve energy efficiency of newly construction buildings. Additionally, all contractors and waste haulers are required to comply with the Countywide Integrated Waste Management Plan, which requires a minimum diversion of 50 percent of waste/project materials from being disposed. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

None required.

7. Geology and Soils

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.		✓		
ii) Strong seismic ground shaking?		✓		
iii) Seismic-related ground failure, including liquefaction?				✓
iv) Landslides?				✓
b) Result in substantial soil erosion or the loss of topsoil?		✓		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?		✓		
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				✓
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				✓

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		✓		

Gecon West Inc. (Geocon) prepared a Preliminary Geotechnical Investigation Report prepared on January 6, 2023 (Geocon 2023) for the proposed project which is included as **Appendix 5**. Bargas Environmental Consulting (Bargas) prepared a Paleontological Resources Report prepared on July 2024 (Bargas 2024) for the proposed project which is included ad **Appendix 6**.

DISCUSSION

a) i) **Less Than Significant Impact with Mitigation Incorporated**. According to the Geotechnical Report, the site is not within an Alquist-Priolo Earthquake Fault Zone, and no known active faults traverse the site. However, the project site is within a seismically active region of Southern California. The nearest known active fault is Glen Ivy North branch of the Elsinore fault system, which is located approximately 0.25 mile southwest of the site (Geocon 2023). The project site is not located within the mapped Riverside County Fault Hazard zone (Geocon 2023). Compliance with seismic design criteria contained in the California Building Code (CBC) would minimize impacts to the extent feasible. Additionally, compliance with Mitigation Measure **GEO-1**, which states that the project applicant/developer shall incorporate all recommendations made in a final geotechnical report as approved by the City related to temporary excavations, grading, utility trench backfill, foundation and concrete slab-on-grade, concrete flatwork, conventional retaining walls, lateral loading, and preliminary pavement. Compliance with the CBC will be confirmed by the City as part of the building permit and inspection requirements. Therefore, impacts would be less than significant with mitigation incorporated.

ii) **Less Than Significant Impact with Mitigation Incorporated.** The project site is in a seismically active region. Strong ground shaking due to moderate to severe earthquakes can be expected at the site within the lifetime of the project. Structures onsite must be designed and constructed to resist the effects of seismic ground motions as outlined in the most recent version of the California Building Code (CBC) Section 1613. After implementation of Mitigation Measure **GEO-1,** which states that the project applicant/developer shall incorporate all recommendations made in a final geotechnical report, impacts would be less than significant with mitigation incorporated.

iii) **No Impact.** The project site is located within an area mapped as having a moderate potential for liquefaction (Geocon 2023). However, according to the geotechnical report, due to the presence of Pauba Sandstone at or near the surface, liquefaction is not considered a design consideration for this site. Therefore, no impacts would occur.

iv) **No Impact.** According to the geotechnical report, there is no evidence of slope instability within or adjacent to the project site, and no landslides have been mapped on or adjacent to the project

site. As such, landslide hazards to the site is not a design consideration. Therefore, no impact would occur.

b) Less Than Significant Impact with Mitigation Incorporated. The proposed project would include ground-disturbing activities that could subject surface soil to erosion. The City routinely requires the submittal of detailed erosion control plans with any grading plans to comply with the state water quality regulations. Since this project involves clearing, grading, or excavation that causes soil disturbance of one or more acres, it is subject to the provisions of the National Pollutant Discharge Elimination System (NPDES) State General Permit (Order No. R9-2013-0001, as amended). Furthermore, under the State Water Board's Construction General Permit, the project is required to prepare and comply with an approved Stormwater Pollution Prevention Plan (SWPPP) that provides a schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details and a time schedule.

Construction activities related to the proposed project would be subject to compliance with the CBC and would include best management practices (BMPs). Additionally, the SWPPP would consider the full range of erosion control BMPs, including any additional site-specific and seasonal conditions. BMPs may include but are not limited to covering of the disturbed or stockpiled soil, use of a dust-inhibiting material, landscaping, use of straw and jute to slow and channelize stormwater runoff, hydroseeding, and grading in a pattern than slows stormwater flow and reduces the potential for erosion. Compliance with BMPs is required by the federal and state Clean Water Acts.

The State Construction General Permit also requires that those implementing SWPPPs meet prerequisite qualifications that would demonstrate the skills, knowledge, and experience necessary to implement such plans. NPDES requirements would significantly reduce the potential for substantial erosion or topsoil loss to occur in association with new development. Additionally, as part of the approval process, prior to grading plan approval, the project applicant/developer would be required to comply with Wildomar Municipal Code Chapter 13.12, Stormwater Drainage System Protection, which establishes requirements for stormwater and non-stormwater quality discharge and control that require new development or redevelopment projects to control stormwater runoff by implementing appropriate BMPs to prevent the deterioration of water quality. Water quality features intended to reduce construction-related erosion impacts are required to be clearly denoted on the grading plans for implementation by the construction contractor. For a discussion of erosion and runoff impact post-construction, see Section V.10, Hydrology and Water Quality.

As indicated in the geotechnical report, the undocumented artificial fill, topsoil, alluvium, and upper few feet of Pauba Sandstone within the limits of grading should be removed to expose competent Pauba Sandstone bedrock, and areas of loose, dry, or compressible soils will require deeper excavation and processing prior to fill placement. Compliance with the recommendations of a final geotechnical report (see Mitigation Measure **GEO-1**) would reduce impacts to less than significant. Therefore, project impacts to erosion and topsoil would be less than significant with mitigation incorporated.

c) Less Than Significant Impact with Mitigation Incorporated. See discussion above in a.iii) and a.iv). The project site is not at risk for landslide, collapse, liquefaction, or lateral spreading due to the relatively level terrain of the site and surrounding developed properties. According to Figure 4, Subsidence Zone, of

the City of Wildomar Safety Element, the southwestern portion of the site is located within an area that is susceptible to subsidence. As groundwater was not encountered during exploratory excavations of approximately 26 feet below the ground surface, the potential for subsidence is low. The CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential impacts related to unstable soils. Compliance with CBC regulations and implementation of Mitigation Measure **GEO-1** would ensure adequate design and construction of building foundations to resist soil movement. Impacts would be less than significant with mitigation incorporated.

d) No Impact. The onsite surficial soils found onsite consist generally of silty sands and are considered to possess a "very low" expansive potential (Geocon 2023). Therefore, no impact would occur.

e) No Impact. The proposed project would connect to the Elsinore Valley Municipal Water District (EVMWD) sewer collection system and therefore the use of septic tanks or an alternative wastewater disposal system is not proposed. Therefore, no impact would occur.

f) Less Than Significant Impact with Mitigation Incorporated.

According to the Paleontological Report, no paleontological resources were documented within the project site boundaries, however, fossil localities were recovered approximately two miles northwest of the project site (Bargas 2024). The Holocene-age deposits present at the surface of the project site are typically considered to have a low potential for significant paleontological resources at and near the surface due to the relatively young age of the deposits. However, excavations that reach depths of approximately 10 to 13 feet and have the potential to encounter the moderate paleontological potential late Pleistocene sections of the young alluvial fan deposits could uncover paleontological resources. Given that the proposed project would require ground-disturbing activities and deep excavations for underground storage tanks, there is a potential to uncover paleontological resources. As such, implementation of Mitigation Measure **GEO-2,** which requires the applicant to retain a paleontologist to assess the potential for the presence of paleontological resources, would reduce impacts to less than significant with mitigation incorporated.

STANDARD CONDITIONS AND REQUIREMENTS

1. The project shall comply with the California Building Code and Wildomar Municipal Code Chapter 13.12, Stormwater Drainage System Protection.

MITIGATION MEASURES

GEO-1 The project applicant/developer shall incorporate the recommendations of the Geotechnical Investigation prepared by Geocon West Inc. (**Appendix 5**), or as directed by the City Engineer, into project plans related to the proposed project. The project's building plans submitted to the City shall demonstrate that they incorporate all applicable recommendations of the Geotechnical Report and comply with all applicable requirements of the latest adopted version of the California Building Code.

Timing/Implementation: *During building plan check, prior to any ground-disturbing construction activities*

Enforcement/Monitoring: *City of Wildomar Community Development Department and Building and Safety Department*

GEO-2 Prior to issuance of a grading permit, the project applicant shall retain a Certified Paleontologist. As there is a moderate potential to encounter paleontological resources on the project site if excavations reach 10 to 13 feet, the project applicant shall retain a Certified Paleontologist to monitor all initial ground-disturbing activities that extend beyond depths of 5 feet. If the paleontologist, upon observing initial earthwork, determines there is low potential for discovery, no further action shall be required, and the paleontologist shall submit a memo to the City confirming findings of low potential.

Should any paleontological resources (i.e., fossils) be uncovered during project construction activities, all work within a 50-foot radius of the discovery site shall be halted or diverted to other areas on the site and the City shall be immediately notified. The Certified Paleontologist shall evaluate the finds and recommend appropriate next steps to ensure that the resource is not adversely impacted, including but not limited to avoidance, preservation in place, excavation, documentation, curation, data recovery, fossil identification, laboratory preparation, or other appropriate measures.

Further ground disturbance shall not resume within a 50-foot radius of the discovery site until an agreement has been reached between the project applicant, the Certified Paleontologist, and the City as to the appropriate preservation or mitigation measures to ensure that the resource is not substantially adversely impacted.

Salvage and collection of significant fossils shall be done in accordance with the Society of Vertebrate Paleontology guidelines. Any paleontological resources salvaged shall be provided for curation at a local curation facility, or any other local museum or repository, such as the Western Science Center or World Museum of Natural History, willing and able to accept and house the resource to preserve for future scientific study.

Timing/Implementation: *During ground-disturbing construction activities*

Enforcement/Monitoring: *City of Wildomar Community Development Department and Building and Safety Department*

8. Greenhouse Gas Emissions

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			✓	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			✓	

An Air Quality and Greenhouse Gas Emissions Technical Report was prepared by HELIX Environmental Planning (HELIX 2024a), in August 2024 (see **Appendix 2**).

DISCUSSION

a) **Less Than Significant Impact**. According to **Table 8-1**, Construction Greenhouse Gas Emissions, total GHG emissions associated with construction of the proposed project are estimated at 741.8 MT CO_2e. For construction emissions, South Coast AQMD guidance recommends that the emissions be amortized (i.e., averaged) over 30 years and added to operational emissions. Averaged over 30 years, the proposed construction activities would contribute approximately 24.7 MT CO_2e emissions per year.

Table 8-1 Construction Greenhouse Gas Emissions

Year	Emissions (MT CO_2e)
2025	543.6
2026	198.2
Total[1]	**741.8**
Amortized Construction Emissions[2]	*24.7*

Source: HELIX 2024a

[1] Totals may not sum due to rounding.

[2] Construction emissions are amortized over 30 years in accordance with South Coast AQMD guidance.

MT = metric tons; CO_2e = carbon dioxide equivalent

The proposed project's operational GHG emissions were estimated for the first full year of project operation, 2027, using CalEEMOD. Mobile emissions were excluded from the estimation of project emissions since the project is anticipated to reduce regional VMT. The proposed project's annual GHG emissions, including amortized annual construction emissions, are shown in **Table 8-2**, Operational Greenhouse Gas Emissions, for comparison with the South Coast AQMD screening threshold of 3,000 MT CO_2e.

Table 8-2 Operational Greenhouse Gas Emissions	
Emission Sources	**2027 Emissions (MT CO_2e)**
Area	1.3
Energy	693.0
Refrigerants	157.7
Water	16.5
Waste	49.9
Construction (Annualized Over 30 Years)	24.7
Project Total[1]	**943.0**
South Coast AQMD	**3,000**
Exceed Threshold?	**No**
Source: HELIX 2024a [1] Totals may not sum due to rounding. MT = metric tons; CO_2e = carbon dioxide equivalent	

As shown in the Table above, the project emissions, including amortized construction emissions, would not exceed the South Coast AQMD threshold of 3,000 MT CO_2e per year. Therefore, construction and operational impacts would be less than significant.

b) Less Than Significant Impact.

Consistency with CARB's Scoping Plan

The CARB Scoping Plan, approved in 2008 and updated in 2014, 2017, and 2022, provides a framework for actions to reduce California's GHG emissions and requires CARB and other State agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to individual projects, nor is it intended to be used for project-level evaluations. Under the Scoping Plan, however, there are several statewide regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other State agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy use, high-Global Warming Potential (GWP) GHGs in consumer products) and changes to the vehicle fleet, among others. The proposed project would not conflict with implementation of the policies identified in the Scoping Plan. Impacts would be less than significant.

Consistency with SCAG's RTP/SCS

The SCAG RTP/SCS, Connect SoCal, provides long-range regional strategies for smart growth that would assist the region in attaining GHG emissions reductions goals. Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporate best practices for achieving the state-mandated reductions in GHG emissions at the regional level through reduced per capita VMT. SCAG's strategies identify how the SCAG region can achieve GHG reductions and promote smart growth. While consistency with these strategies supports implementation of the regional SCS and associated GHG emissions, Connect SoCal does not set forth specific measures to be implemented at the project level. Rather, a project's consistency with the identified smart growth principles and support for VMT reductions can be seen to support regional implementation of the RTP/SCS.

The proposed project does not propose new public transit facilities or housing options. Rather, the proposed project would provide commercial amenities near existing residential land uses. Construction of commercial uses near these residences would reduce VMT by shortening trip lengths (HELIX 2024a). In addition, the proposed project would implement GHG reduction measures identified in the WRCOG CAP, as described below. Therefore, the proposed project would not conflict with SCAG's RTP/SCS and impacts would be less than significant.

Consistency with WRCOG Regional Climate Action Plan

The WRCOG Regional CAP recommended a target of reducing subregional GHG emissions 15 percent below 2010 levels by 2020 and 49 percent below 2010 levels by 2035. The WRCOG Regional CAP does not include GHG reduction measures for a goal beyond 2020 and is therefore not directly applicable to the proposed project. Additionally, the City did not adopt the WRCOG Regional CAP and therefore, it has no regulatory effect on the proposed project. The CAP does not include thresholds for determining the significance of a project's GHG emissions, nor does it include a checklist or other methodology for determining consistency of a project with the goals and measures in the CAP. As measures to achieve the emissions reductions target for 2035 have not yet been identified, the proposed project's consistency with applicable measures required to achieve the 2020 reduction target is shown in **Table 8-3**, Project Consistency with the WRCOG Regional CAP. As shown in the Table, the proposed project would be consistent with the WRCOG Regional CAP; therefore, impacts would be less than significant.

Table 8-3 Project Consistency with the WRCOG Regional CAP

GHG Reduction Measures	Project Consistency
State and Regional Energy Measures	
Measure SR-2: 2013 California Building Energy Efficiency Standards (Title 24, Part 6) – Mandatory energy efficiency standards for buildings	**Consistent.** The California Building Energy Efficiency Standards have been updated with the 2022 version effective January 1, 2023. The project would comply with the applicable Title 24, Part 6 requirements, which are designed to result in energy efficient buildings.
State Solid Waste Measures	
Measure SR-13: Construction & Demolition Waste Diversion – Mandatory requirement to divert 50% of construction and demolition waste from the landfill waste stream.	**Consistent.** The project would be required to comply with CALGreen, which currently requires the diversion of 65 percent of non-hazardous construction and demolition waste from the landfill.
Local Energy Measures	
Measure E-3: Shade Trees – Strategically plant trees to reduce urban heat island effect.	**Consistent.** In accordance with Wildomar Municipal Code Section 17.188.070.E, the project would be required to shade 50 percent of the total parking area.
Local Transportation Measures	
Measure T-1: Bicycle Infrastructure Improvements – Expand on-street and off-street bicycle infrastructure, including bicycle lanes and bicycle trails.	**Consistent.** In accordance with Wildomar Municipal Code Section 17.188.060.B, 1 bicycle space for every 33 patron parking spaces and 1 bicycle space for every 25 employee parking spaces would be

Table 8-3 Project Consistency with the WRCOG Regional CAP	
GHG Reduction Measures	**Project Consistency**
Measure T-2: Bicycle Parking – Provide additional options for bicycle parking.	required. The project proposes to include 20 bicycle parking spaces, including a mixture of short- and long-term bicycle parking options.
Measure T-3: End of Trip Facilities – Encourage use of non-motorized transportation modes by providing appropriate facilities and amenities for commuters.	**Not Applicable.** The WRCOG CAP recommends requiring the installation of end trip facilities where more than 50,000 square feet of commercial space is proposed. The proposed commercial uses total less than 50,000 square feet and do not require implementation of end trip facilities.
Measure T-8: Density – Improve jobs-housing balance and reduce vehicle miles traveled by increasing household and employment densities.	**Consistent**. The project proposes commercial uses in proximity to residential uses and is anticipated to reduce VMT.
Measure T-9: Mixed-Use Development – Provide for a variety of development types and uses.	**Consistent.** The project proposes commercial uses in proximity to residential uses where there are limited commercial amenities.
Source: HELIX 2024a	

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

None required.

9. Hazards and Hazardous Materials

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			✓	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				✓
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				✓
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				✓
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			✓	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?		✓		

A Phase I Environmental Site Assessment (ESA) was prepared by Herron Environmental on February 9, 2023 (Herron 2023), which is included as **Appendix 7**.

DISCUSSION

a) Less Than Significant Impact. Construction activities at the project site would involve the use of hazardous materials such as fuel, asphalt, lubricants, toxic solvents, pesticides, and herbicides which would be transported to and from the site and be present temporarily during construction. These potentially hazardous materials would not be used in sufficient quantities to pose a significant hazard to public health and safety or the environment, and their use during construction would be short-term.

Operation of the project would involve the use of hazardous materials such as cleaners, solvents, paints, degreasers, pesticides, fertilizers, and other custodial products, as well as gasoline. The materials used and stored onsite would be clearly labeled and safely stored in compliance with state and federal requirements. A permit to operate an underground storage tank (UST) system is required per California Code of Regulations Title 23, Division 3, Chapter 16, California Health and Safety Code Section (25280-25299.8) and Riverside County Ordinance 617. These regulations mandate the testing and frequent inspections of the UST facilities. The project occupant(s) would be required to prepare a Spill Contingency Plan to be filed with the County of Riverside Hazardous Materials Department. All operations of the gas station/RV fueling station and related USTs would be required to comply with all federal, state, and local laws regulating the management and use of hazardous materials. With the exercise of normal safety practices, the proposed project would not create substantial hazards to the public or the environment. Therefore, a less than significant impact would occur.

The transport, use, storage, and disposal of hazardous materials would be required to comply with existing regulations established by several agencies, including the Department of Toxic Substances Control, the US Environmental Protection Agency (EPA), the US Department of Transportation, and the Occupational Safety and Health Administration. Moreover, any businesses that transport, generate, use, and/or dispose of hazardous materials in Wildomar are subject to existing local hazardous materials regulations, such as those implemented by the Riverside County Department of Environmental Health which is the Certified Unified Program Agency (CUPA) for Riverside County. This program is responsible for consolidating, coordinating, and making consistent the administrative requirements, permits, inspections, and enforcement activities of state standards regarding the transportation, use, and disposal of hazardous materials in Riverside County, including Wildomar. Compliance with federal, state, and local laws and regulations would result in a less than significant impact.

b) Less Than Significant Impact. As described in the response to V.9)a, above, construction and operation of the proposed project would involve the transport, storage, and use of hazardous materials on the site including common cleaning substances, building maintenance products, lubricants, paints, solvents, herbicides, pesticides, fertilizers, and most notably gasoline fuel for the gas station and RV fueling station.

An impact could occur if construction and operation of the proposed project create conditions where hazardous materials could easily contaminate surrounding soil, water, or air.

Construction projects typically maintain supplies onsite for containing and cleaning small spills of hazardous materials. However, construction activities would not involve a significant amount of hazardous materials, and their use would be temporary. Furthermore, project construction workers would

be trained on the proper use, storage, and disposal of hazardous materials. Also, construction activities would be conducted in accordance with the Storm Water Pollution Prevention Plan (SWPPP) as part of the NPDES permit, as detailed in Section V.10, Hydrology and Water Quality. The primary objective of the SWPPP is to identify, construct, implement, and maintain best management practices (BMPs) to reduce eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site. BMPs for hazardous materials include, but are not limited to, off-site refueling, placement of generators on impervious surfaces, establishing clean out areas for cement, etc. While the risk of exposure to hazardous materials cannot be eliminated, adherence to existing regulations would ensure compliance with safety standards related to the use and storage of hazardous materials and with the safety procedures mandated by applicable federal, state, and local laws and regulations.

Operation of the hotel and commercial uses would not warrant use of hazardous materials in quantities that could result in hazardous conditions. However, the operation of the proposed gas and RV fueling stations could result in hazardous materials due to the potential to have liquefied petroleum gas (LPG) tanks; operation of the gas and RV fueling station would require permits. All on-site activities during construction and operation would be required to adhere to federal, state, and local regulations for the management and disposal of hazardous materials, including but not limited to California Code of Regulations Title 23, Division 3, Chapter 16, California Health and Safety Code Section (25280-25299.8) and Riverside County Ordinance 617.

Therefore, use, and/or disposal of hazardous materials during construction and operation of the proposed project would be properly managed, and impacts would be less than significant.

c) No Impact There are no schools within a quarter mile of the site. The nearest school to the project site is Elsinore High School, approximately 0.35 mile southwest of the project site. Therefore, no impact would occur.

d) No Impact. The project site is not included on a list of hazardous materials databases compiled by the California Department of Toxic Substances Control (DTSC) or the State Water Resources Control Board (SWRCB) (DTSC 2023; SWRCB 2023). According to the Phase I ESA, the project site is not listed on any environmental databases for hazardous sites, and there are no Leaking Underground Storage Tank (LUST)/Spill sites on the project site. Therefore, no impacts would occur.

e) No Impact. The project site is not located within any public airport land use plan. The closest public airport is French Valley Airport, which is located approximately 8.7 miles southeast of the project site, and the closest private airstrip, the Skylark Airport (primarily used for skydiving), is approximately 1.3 miles west of the project site. Given the distance and because the project site is not in an airport land use plan area for any airports, there is no impact.

f) Less Than Significant Impact. Access to the project site would be provided via two entrances/exits: both would be on the eastern portion of the project site via Cherry Street. Construction would take place within the project site; no roadway closures are anticipated. If roadway closure(s) or reduction in access/capacity is necessary during construction (i.e., to connect to water, sewer, or utilities), the City requires that the applicant submit appropriate detour plans for review prior to the issuance of a building

permit. Adherence to these requirements would ensure that the project would not have a significant impact on emergency response and evacuation plans. Therefore, impacts would be less than significant.

g) Less Than Significant With Mitigation Incorporated. California Government Code Chapter 6.8 directs the California Department of Forestry and Fire Protection (CAL FIRE) to identify areas of very high fire hazard severity within Local Responsibility Areas (LRA). Mapping of the areas, referred to as Very High Fire Hazard Severity Zones (VHFHSZ), is based on data and models of potential fuels over a 30- to 50-year time horizon and their associated expected fire behavior and expected burn probabilities, which quantifies the likelihood and nature of vegetation fire exposure to buildings. LRA VHFHSZ maps were initially developed in the mid-1990s and are now being updated based on improved science, mapping techniques, and data. In 2008, the California Building Standards Commission adopted California Building Code Chapter 7A requiring new buildings in Very High Fire Hazard Severity Zones to use ignition-resistant construction methods and materials.

The eastern and western portions of the City of Wildomar have been designated Very High Fire Hazard Severity Zones. The project site is not within a VHFHSZ within the LRA, but the site is within a HFHSZ and VHFHSZ in an SRA (CALFIRE 2023). Development on the project site would be subject to compliance with the 2022 California Building Code (or the most current version) and the 2022 edition of the California Fire Code (or the most current version). The 2022 California Fire Code (CFC) (Part 9 of Title 24 of the California Code of Regulations) includes Section 4905.2, Construction Methods and Requirements within Established Limits. Fire Code Chapter 49 cites specific requirements for wildland-urban interface areas that include, but are not limited to, providing defensible space and hazardous vegetation and fuel management. Wildomar is covered under the Wildomar Emergency Operations Plan and the and the City's Local Hazard Mitigation Plan. These plans provide guidance to effectively respond to any emergency, including wildfires. In addition, all proposed construction is required to meet minimum standards for fire safety, and Mitigation Measures **HAZ-1** and **HAZ-2,** which require conformance with the California Building Code and Fire Code, would be implemented. Therefore, impacts are considered less than significant with mitigation incorporated.

STANDARD CONDITIONS AND REQUIREMENTS

1. City of Wildomar Municipal Code Chapter 8.28, Fire Code, requires compliance with the 2022 California Building Code (or most current version) and the 2022 edition of the California Fire Code (Part 9 of Title 24 of the California Code of Regulations).
2. City of Wildomar Municipal Code Chapter 8.28, Fire Code, requires adherence to California Fire Code Chapter 49, which cites specific requirements for wildland-urban interface areas.

MITIGATION MEASURES

HAZ-1 Prior to the issuance of building permits, the project applicant/developer shall demonstrate, to the satisfaction of the City Building Official and the Riverside County Fire Chief, compliance with the 2022 California Building Code (or the most recent edition) (Part 2 of Title 24 of the California Code of Regulations) and the 2022 California Fire Code (or the most recent edition) (Part 9 of Title 24 of the California Code of Regulations), including those regulations pertaining to materials and construction methods intended to

mitigate wildfire exposure as described in the 2022 California Building Code and California Residential Code (or most recent edition); specifically California Building Code Chapter 7A; California Residential Code Section R327; California Residential Code Section R337; California Referenced Standards Code Chapter 12-7A; and California Fire Code Chapter 49.

Timing/Implementation: *Prior to issuance of building permits*

Enforcement/Monitoring: *City of Wildomar Building Department and Riverside County Fire Department*

HAZ-2 Prior to the issuance of a certificate of occupancy, the applicant shall demonstrate, to the satisfaction of the City Building Official and the County Fire Chief, compliance with the vegetation management requirements prescribed in California Fire Code Section 4906 and California Government Code Section 51182.

Timing/Implementation: *Prior to issuance of certificate of occupancy*

Enforcement/Monitoring: *City of Wildomar Building Department and Riverside County Fire Department*

10. Hydrology and Water Quality

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			✓	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			✓	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			✓	
i) result in a substantial erosion or siltation on- or off-site;			✓	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			✓	
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or			✓	
iv) impede or redirect flood flows?				✓
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				✓
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✓

The following analysis is based on the Hydrology Report (Tait 2024a, **Appendix 8**) and the Project-Specific Water Quality Management Plan (WQMP) (Tait 2024b, **Appendix 9**) by Tait and Associates, Inc. dated April 30, 2024, and January 15, 2024, respectively.

DISCUSSION

a) Less Than Significant Impact.

Construction

As part of Section 402 of the Clean Water Act, the US Environmental Protection Agency has established regulations under the National Pollution Discharge Elimination System (NPDES) program to control direct stormwater discharges. The NPDES program regulates industrial pollutant discharges, which include construction activities. In California, the State Water Resources Control Board (SWRCB) administers the NPDES permitting program and is responsible for developing NPDES permitting requirements.

Wildomar Municipal Code Section 13.12.050 requires development to comply with a Municipal Separate Storm Sewer System (MS4) Permit from the Santa Ana Regional Water Quality Control Board. Section F.1 of the MS4 permit specifies requirements for new developments, and Section F.1.D details the requirements for standard stormwater mitigation plans (also known as water quality management plans). The MS4 permit imposes pollution prevention requirements on planned developments, construction sites, commercial and industrial businesses, municipal facilities and activities, and residential activities. Even though Wildomar is split by two watersheds (Santa Ana and Santa Margarita) that affect some of the properties in the City, the entire City is governed by the MS4 permit for the Santa Margarita region.

Requirements for waste discharges potentially affecting stormwater from construction sites of one acre or more are set forth in the SWRCB's Construction General Permit Order No. 2022-0057-DWQ, which became effective September 1, 2023. The site is larger than one acre and would be subject to the requirements of the Construction General Permit. Projects obtain coverage under the Construction General Permit by filing a Notice of Intent with the SWRCB prior to grading activities and preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) during construction. The primary objective of the SWPPP is to identify, construct, implement, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the project site, and to contain hazardous materials. BMPs categories include, but are not limited to, erosion control and wind erosion control, sediment control, tracking control, non-storm water management controls, and waste management controls. Implementation of BMPs and monitoring required under the SWPPP would reduce, minimize, reduce and or treat pollutants and prevent short-term intermittent impacts to water quality from construction activities to less than significant levels.

Operation

The primary constituents of concern during the project operational phase would be solids, oils, fuels, and greases from parking areas and driveways that could be carried offsite. The proposed project would maintain the existing drainage patterns, draining to the southeast corner of the site (Tait 2024a). Stormwater runoff from the project site would be directed towards bioretention areas for water quality treatment requirements, and stormwater would be directed by both sheet flow and drainage inlets (Tait 2024a). The project proposes a surface detention basin to detain runoff increase requirements set forth by the Riverside County Flood Control and Water Conservation District; the proposed detention basin has been designed with flow controls to mimic a 100-year 24-hour storm flow. The 100-year peak flow is 8.01 cubic feet/second (cfs) and the proposed 100-year peak flow would be 13.15 cfs, therefore, the proposed

project would be designed to exceed pre-development conditions (Tait 2024a). The proposed detention basin would serve a dual purpose of detention and treatment and would be allowed to infiltrate out of the basin over time. The WQMP identifies pollutants sources, such as storm drain inlets, food service areas, and trash storage areas, and identifies the bioretention BMP, regular housekeeping, and regular street sweeping as structural and operational BMPs (Tait 2024b). Other structural BMPs may include, but are not limited to, drainage stenciling and signage, avoiding the use of unprotected metals for roofing/gutters/trim, and designing landscape to minimize irritation and runoff. Operational source control BMPs for the proposed project may include, but are not limited to, education for new site owners, maintaining inlet markings, maintaining drains to prevent blockages, maintaining landscaping using minimal or no pesticides, inspect, and clean receptacles, and street and sidewalk sweeping. The BMPs would properly manage flow and prevent stormwater pollution by reducing the potential for contamination at the source. All BMPs specific to the proposed project will be approved by the City.

Additionally, onsite landscaping would assist with minimizing the amount of runoff from the site by providing permeable areas for water infiltration and decreasing runoff volume.

Moreover, the gas and RV fueling stations would be required to have impermeable floors that are a) graded at the minimum slope necessary to prevent ponding, and b) separated from the rest of the site by a grade break that prevents run-off of stormwater to the maximum extent practicable. Additionally, the gas and RV fueling areas would be covered with canopies that would extend a minimum of 10 feet the fueling pumps (Tait 2024b). BMPs for the gas station and RV fueling areas may include, but are not limited to, sweeping regularly to prevent accumulation of litter and debris.

In general, projects must control pollutants, pollutant loads, and runoff volume from the project site by controlling runoff through infiltration or bioretention. Projects must incorporate BMPs in accordance with the requirements of the municipal NPDES permit. The project would comply with water quality standards, and impacts are less than significant.

b) Less Than Significant Impact.

According to the Geotechnical Report, no groundwater or evidence of previous groundwater was encountered during any of the exploratory borings or trenches at a maximum depth of 26 feet (Geocon 2023). The proposed project lies within the Santa Ana River Watershed. The project site is within the Elsinore Valley Groundwater Basin and therefore would be served by the Elsinore Valley Municipal Water District (DWR 2023).

Groundwater recharge occurs when water seeps through soil to replenish underground aquifers. Groundwater recharge is a major practice in Southern California. The primary sources of groundwater recharge in basins are:

- Recharge from precipitation – Rainfall directly to the basin.
- Surface water infiltration – Recharge from infiltration of surface waters such as streams.
- Infiltration from land use – Direct surface recharge from application of water for irrigation.
- Infiltration from septic tanks – Infiltration in areas serviced by septic systems in the basin.

The Elsinore Valley Groundwater Basin, which is a major source of potable groundwater supply for Elsinore Valley Municipal Water District (EVMWD), has not been identified to be in a state of overdraft (DWR 2023). Furthermore, active groundwater management and conjunctive use programs have been implemented by EVMWD to ensure the balance of inflows and outflows of the Elsinore Valley Groundwater Basin (EVMWD 2021). Therefore, the proposed project would not impede sustainable groundwater management of the Basin, and impacts would be less than significant.

c)

i, ii) **Less Than Significant Impact**.

Please refer to issue b) in Section V.7, Geology and Soils, for further discussion of erosion. Surface water drainage would be controlled by regulations, such as the NPDES, State General Permit, and CBC, with the water directed toward existing streets, flood control channels, storm drains, and catch basins. The proposed drainage for the site would not channel runoff on exposed soils, would not direct flows over unvegetated soils, and would not otherwise increase the erosion or siltation potential of the site or any downstream areas. As discussed above, the proposed project is subject to NPDES requirements and the countywide MS4 permit. Additionally, the project applicant/developer is required to submit a SWPPP to reduce erosion and sedimentation of downstream watercourses during project construction. Furthermore, the applicant is required to prepare and submit a detailed erosion control plan for City approval prior to obtaining a grading permit. Implementation of an erosion plan would address any erosion issues associated with proposed grading and site preparation. Although future development would create new impervious surfaces on the property, the proposed bioretention basin and landscaped areas would be used for onsite water treatment.

The project proposes a surface detention basin to detain runoff increase requirements set forth by the Riverside County Flood Control and Water Conservation District; the proposed detention basin has been designed with flow controls to mimic existing 100-year 24-hour storm flow. The proposed detention basin would serve a dual purpose of detention and treatment and would be allowed to infiltrate out of the basin over time. The proposed project would maintain the existing drainage patterns, draining to the southeast corner of the site (Tait 2024a).

Project-specific BMPs for operational activities would also ensure that erosion and runoff impacts would be minimized. Therefore, the proposed project would not result in substantial erosion or siltation on- or off-site, or flooding on- or off-site. Therefore, impacts would be less than significant.

iii) **Less Than Significant Impact.** The proposed project is required to comply with Wildomar Municipal Code Section 13.12.050, which requires development to comply with an MS4 Permit from the Santa Ana Regional Water Quality Control Board. The proposed project would include a bioretention basin which would be designed to exceed the pre-development conditions, and therefore, the proposed project would not exceed the capacity of the existing stormwater system. Impacts would be less than significant.

iv). **No Impact.** The project site is designated by the Federal Emergency Management Agency (FEMA) as not within any flood risk zone (FEMA 2008). Moreover, the project site is not within a 100- or 500-year flood zone, as shown in Figure 5-0 of the Wildomar Safety Element (Wildomar 2021). Although the proposed project would increase impervious surfaces, the project site is not located within an area of flood risk, and the proposed bioretention basin would reduce impacts from on- or off-site flooding. Therefore, no impact would occur.

d) No Impact. As provided in V.10.c.iv, the project site is not within a flood hazard zone. The project site is not in an area that is subject to seiches, mudflows, or tsunamis due to the absence of any nearby bodies of water and mud/debris channels (Geocon 2023). Additionally, the County of Riverside identifies dam inundation hazard areas throughout the county. The dam inundation zones in the City are identified in Figure 6-0 of the Wildomar Safety Element. As shown in Figure 6-0, the project site is not in a dam inundation hazard zone (Wildomar 2021). In addition, the project is not in the vicinity of any levees (USACE 2016). Therefore, the project would not be exposed to seiches, mudflows, or tsunami hazards, and no impact would occur.

e) No Impact. As provided in Section V.10.b, above, the project site is within the Elsinore Valley Groundwater Basin and is therefore subject to the Elsinore Basin Groundwater Management Plan as the site would be served by the Elsinore Valley Municipal Water District (EVMWD). The proposed project would not conflict or obstruct implementation of EVMWD's Urban Water Management Plan (UWMP). Additionally, active groundwater management and conjunctive use programs have been implemented by EVMWD to ensure the balance of inflows and outflows of the Elsinore Basin (EVMWD 2021).

The project site is within the Santa Ana Watershed Management Area. The proposed project would comply with water quality requirements set forth in the Statewide General Construction Permit, the NPDES, and the City of Wildomar Municipal Code Section 13.12 (Stormwater Discharge System Protection). Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and no impacts would occur.

STANDARD CONDITIONS AND REQUIREMENTS

1. Wildomar Municipal Code Section 13.12.060 requires that new construction and renovation control stormwater runoff so as to prevent any deterioration of water quality that would impair subsequent or competing uses of the water. The City shall identify the BMPs that may be implemented in addition to those provided in the WQMP to prevent such deterioration, as part of the building plan check review process prior to construction.

MITIGATION MEASURES

None required.

11. Land Use and Planning

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				✓
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			✓	

DISCUSSION

a) No Impact. The project site is in an urbanized area characterized by a mix of land uses. The surrounding area includes residential, commercial, and undeveloped uses. The site is vacant and zoned Scenic Highway Commercial (C-P-S) and has a land use designation of Commercial Retail (CR) with a Community Center Overlay. As part of the Proposed General Plan, the project site will be zoned General Commercial (C-G). Implementation of the proposed project would be consistent with the existing uses in the surrounding area and would conform to the City's vision for development in this area. The proposed project would not disrupt or divide the physical arrangement of an established community; therefore, no impact would occur.

b) Less Than Significant Impact. The project site has a land use designation of Commercial Retail (CR) with a Community Center Overlay and is zoned Scenic Highway Commercial (C-P-S). The proposed project is consistent with the policies and development standards established under these designations and ordinances. The General Plan states that the CR designation is intended to allow for local and regional serving retail and service uses. As described in Chapter 17.76, C-P-S Scenic Highway Commercial Zone, of the Wildomar Municipal Code, the site's C-P-S zoning designation is intended to promote and attract commercial activities that would provide jobs to residents and strengthen the City's economic base. The C-P-S and C-1/C-P zones permit a variety of uses including gasoline service stations, car washes, restaurants, and hotels that would provide new jobs . Additionally, the CR designation allows for building intensities ranging from 0.20 to 0.35 floor-area ratio (FAR). The maximum FAR for the proposed project is 0.22, which is within the permitted FAR range. The development standards listed in Chapter 17.76, C-P-S Scenic Highway Commercial Zone, and Chapter 17.72, C-1 and C-P General Commercial Zones, of the Wildomar Municipal Code, restrict structures to a maximum height of 50 feet. The tallest structure, the hotel of the proposed project, would be 62 feet. Upon approval pursuant to Section 17.172.230 of the Municipal Code, an increase in building height, not exceeding 75 feet, would be allowed.

The proposed project would adhere to all additional development standards listed in Chapter 17.76, C-P-S Scenic Highway Commercial Zone, of the Wildomar Municipal Code, and other applicable standards of the Municipal Code. However, the proposed gas station which would sell alcohol for off-site consumption

and the car wash would require a CUP according to Section 17.76.010.B, Uses Permitted, of the Municipal Code, and Section 17.72.010.C, Uses Permitted, of the Municipal Code.

Additionally, the City is a signatory to the MSHCP and the project site is within the Stephens' Kangaroo Rat Plan Fee Area, as discussed in Impact VI.4.a, Biological Resources, of this Initial Study, and therefore, the proposed project is required to pay fees. Compliance with the MSHCP, applicable General Plan policies, and zoning ordinances would result in a less than significant impact.

STANDARD CONDITIONS AND REQUIREMENTS

1. Section 3.44.060 of the Wildomar Municipal Code requires that the applicant pay appropriate development impact fees prior to issuance of a certificate of occupancy for the development project.
2. As required by Section 3.43.070 of the Wildomar Municipal Code, the project applicant/developer is required to submit fees to the City in accordance with the requirements of the Stephens' Kangaroo Rat Habitat Conservation Plan Mitigation Fee Area.
3. Section 17.248.030 and Chapter 17.76 of the Wildomar Municipal Code require that the applicant apply for a conditional use permit for the concurrent sale of motor vehicle fuels and beer and wine for off-premises consumption, as well as car wash facilities, respectively.

MITIGATION MEASURES

None required.

12. Mineral Resources

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✓
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				✓

DISCUSSION

a) No Impact. There are no mines mapped on the project site (CDC 2016). The entire City, including the project site, is in an area designated as MRZ-3 (CDC 2014). The MRZ-3 zone includes areas where the available geologic information indicates that while mineral deposits are likely to exist, the significance of the deposit is undetermined. As a result, no impacts would occur.

b) No Impact. There are no known locally important mineral resource recovery sites identified on the project site in the Wildomar General Plan or in a specific plan or other land use plan. Construction of the proposed project would not create a substantial demand for aggregate resources. As a result, no impact would occur.

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

None required.

13. Noise

Issues, would the project result in:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		✓		
b) Generation of excessive groundborne vibration or groundborne noise levels?			✓	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				✓

An Acoustical Analysis was prepared by HELIX Environmental Planning. in August 2024 (HELIX 2024d) which is summarized herein and included as **Appendix 10**.

Ambient Noise Measurements

Two noise measurements were taken near the project site to document existing conditions in the vicinity. The 15-minute daytime noise measurements were taken between 4:20 p.m. and 4:54 p.m. The noise measurement locations are shown in Figure 5 of **Appendix 10**, the noise meters were placed at the following locations:

- M1: Represents the existing noise environment along I-15 at the eastern edge of the gas station south of the project site, approximately 180 feet south of Bundy Canyon Road centerline and 325 feet east of the eastern edge of I-15. The measured noise level was 70.6 dBA L_{eq}; the predominant noise source was I-15 and associated northbound offramp.
- M2: The second measurement was taken along Bundy Canyon Road, east of the project site and away from I-15, approximately 35 feet north of Bundy Canyon centerline. The measured noise level was 67.4 dBA L_{eq}; primary noise source was Bundy Canyon Road traffic and limited traffic on Canyon Ranch Road.

DISCUSSION

a) Less Than Significant with Mitigation Incorporated.

Construction Noise

The project site is within a quarter mile of occupied residential units; therefore, in accordance with the Wildomar Municipal Code Section 9.48.020.H, construction noise is exempt from noise level limits provided construction activities do not occur between 6:00 p.m. and 6:00 a.m. The magnitude of construction noise would depend on the type of construction activity, equipment, duration of each construction phase, distance between the noise source and receiver, and any intervening structures. Construction could occur as close as 50 feet from residences north and east of the project site. However, most construction would occur over 100 feet from these residences. Typical construction for the proposed development type was modeled at a distance of 100 feet and the results are provided in **Table 13-1,** Construction Equipment Noise Levels.

Table 13-1 Construction Equipment Noise Levels

Unit	Percent Operating Time	L_{Max} at 100 feet	dBA L_{eq} at 100 feet
Backhoe	40	71.5	67.6
Compactor (Ground)	20	77.2	70.2
Compressor (Air)	40	71.6	67.7
Concrete Mixer Truck	40	72.8	68.8
Crane	16	74.5	66.6
Dozer	40	75.6	71.7
Dump Truck	40	70.4	66.5
Excavator	40	74.7	70.7
Front End Loader	40	73.1	69.1
Generator	50	74.6	71.6
Grader	40	79.0	75.0
Paver	50	71.2	68.2
Pumps	50	74.9	71.9
Roller	20	74.0	67.0
Scraper	40	77.6	73.6
Tractor	40	78.0	74.0
Welder	40	68.0	64.0

Source: HELIX 2024d

L_{Max} = maximum noise level, dBA = A-weighted decibel; L_{eq} = time-averaged (1-hour) sound level

A grader and dozer were modeled together as two of the loudest pieces of equipment and the possibility of them working in close proximity. Together, a grader and dozer would generate a noise level of 76.7 dBA L_{eq} at 100 feet. Existing noise levels from I-15 and roadways in the project vicinity were calculated to be between 69.0 dBA L_{eq} and 74.8 dBA L_{eq} at the residences north and east of the project site. Therefore, construction noise levels would not increase ambient noise levels at these residences by 10 dBA and a substantial increase in noise levels would not occur.

Construction of the proposed project would occur during the hours exempt per Wildomar Municipal Code Section 9.48.020. Therefore, the proposed project would not conflict with City noise limits during construction. In addition, construction would not result in substantial increases in ambient noise levels at sensitive receptors and would occur temporarily during the approximately 9-month construction period. Impacts would be less than significant.

Operational

Onsite Operations

The properties east and south of the project site are designated Commercial Retail with noise level limits of 65 dBA L_{max} from 7:00 a.m. to 10 p.m., and 55 dBA L_{max} 10:00 p.m. to 7:00 a.m. After approval of the proposed parcel subdivision, on-site property lines would also be subject to the Commercial Retail noise limits. The properties north of the project site are designated Medium Density Residential, which have noise level limits of 55 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} 10:00 p.m. to 7:00 a.m.

The proposed project's primary onsite operational noise sources would include rooftop HVAC units, drive-through speakers, and car wash equipment. In order to identify the maximum noise level for comparison with the City noise limits, all sources were modeled in constant operation with the exception of vacuums, half of which would be able to be in use at one time. The car wash would only be open during the daytime hours while HVAC and drive-through speakers were assumed to be in use throughout the night. Noise receivers were placed at onsite and neighboring property lines at a height of five feet. **Table 13-2**, Unmitigated Operational Noise Levels at Surrounding Land Uses, shows the operational noise levels at the noise receiver sites (Figure 6 of **Appendix 10** shows the locations of the noise receiver sites).

Table 13-2 Unmitigated Operational Noise Levels at Surrounding Land Uses

Receiver	Land Use	City Exterior Noise Limit (Day/Night) (dBA L_{max})	Maximum Daytime Noise Level (dBA L_{max})	Maximum Nighttime Noise Level (dBA L_{max})	Direct Impact?[1]
R1	Medium Density Residential	55/45	**58.0**	41.4	**Yes**
R2	Medium Density Residential	55/45	53.8	41.0	No
C1	Retail Commercial	65/55	55.8	35.5	No
C2	Retail Commercial	65/55	58.5	24.5	No
C3	Retail Commercial	65/55	51.3	31.2	No
PL1	Retail Commercial	65/55	51.9	48.8	No
PL2	Retail Commercial	65/55	63.0	35.8	No
PL3	Retail Commercial	65/55	**67.9**	34.2	**Yes**
PL4	Retail Commercial	65/55	**73.2**	34.7	**Yes**

Source: HELIX 2024d

As shown in the Table, the proposed project would not conflict with any nighttime noise limits, however, the proposed project would exceed the City's daytime noise limit at the residential property line north of the site and at the onsite property lines north of the car wash parcel (quick-serve restaurant and gas station parcels). The daytime noise limit would not be exceeded at offsite commercial land uses or at the proposed hotel property line. Because noise levels would be exceeded, impacts would be potentially significant. However, with the implementation of Mitigation Measure **NOI-1**, which describes the noise reduction features to be incorporated into the project, noise levels at receivers R1 and PL3 would be reduced to 53.4 and 62.3 dBA L_{max}, respectively.

Operation of the car wash would result in noise levels exceeding the daytime Wildomar Municipal Code limits at the gas station and quick-serve restaurant property lines (PL4); however, a continuous-events exception has been requested as part of the proposed project which would exempt the proposed project from these noise limits at the property line. In accordance with Section 9.48.070.B, approval of an exception to the City's noise limits must not be detrimental to the health, safety, or general welfare of the community. Given that the proposed land uses at the property line are a gas station and quick-serve restaurant, which are not noise sensitive land uses, the proposed project would not result in adverse effects to people related to noise. With approval of a continuous-events exception by the City's Planning Commission, as well as implementation of Mitigation Measure **NOI-1**, operational noise would be less than significant with mitigation incorporated.

Exterior Noise Levels

According to the City's Noise Element, compatible exterior noise levels for hotels are as follows:

- Up to 65 CNEL: Normally Acceptable
- Between 60 CNEL and 70 CNEL: Conditionally Acceptable
- Between 70 CNEL and 80 CNEL: Normally Unacceptable
- Over 80 CNEL: Clearly Unacceptable

For the other commercial land uses, compatible exterior noise levels are as follows:

- Up to 70 CNEL: Normally Acceptable
- Between 67.5 CNEL and 77.5 CNEL: Conditionally Acceptable
- Above 75 CNEL: Clearly Unacceptable

The exterior traffic noise levels were modeled; receivers were placed at the facades facing I-15 for each of the proposed structures and a receiver was placed in the proposed outdoor seating areas. All receivers were placed at a height of 5 feet and their specific locations are shown in Figure 5 of **Appendix 10.** The calculated traffic noise levels at these receivers are provided in **Table 13-3**, Calculated Exterior Noise Levels.

Table 13-3 Calculated Exterior Noise Levels		
Receiver	**Description**	**Noise Level (CNEL)**
P1	Hotel	72.5
P2	Quick-Serve Restaurant & Convenience Store	68.2
P3	Quick-Serve Restaurant	73.9
P4	Restaurant Outdoor Seating	60.5
P5	Car Wash	73.2

Source: HELIX 2024d
CNEL = Community Noise Equivalent Level

As shown in the Table, for the commercial land uses, traffic noise levels were calculated to be between 60.5 CNEL and 73.9 CNEL. At the outdoor seating area, noise levels would be 60.5 CNEL, exterior noise levels would be considered normally acceptable for commercial uses. At the building facades facing I-15, noise levels would be within the conditionally acceptable range.

The General Plan specifies that where noise levels in the conditionally acceptable range are identified, new construction should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. The General Plan further states that conventional construction, with closed windows and fresh air supply systems or air conditioning, would normally suffice in this noise environment. The proposed commercial uses of quick-serve restaurants, a gas station, a convenience store, and a car wash are not noise-sensitive. Therefore, conventional construction is anticipated to achieve acceptable noise levels for the proposed commercial uses.

Interior Noise Levels

No interior noise standard applies to the proposed commercial land uses; however, the interior environment is anticipated to be acceptable for commercial uses. Hotels are subject to statewide standards for interior noise, which require habitable rooms to achieve interior noise levels of no greater than 45 CNEL.

Traditional architectural materials can be conservatively assumed to reduce interior noise levels by 15 dBA; therefore, as noise levels at the hotel façade exceed 60 CNEL, more detailed modeling of the interior noise environment is required to ensure the project is designed to reduce interior noise levels below 45 CNEL. Therefore, the proposed project would be required to implement Mitigation Measure **NOI-2**, which requires an exterior-to-interior acoustical analysis to demonstrate that interior noise levels would not exceed 45 CNEL with the use of applicable Sound Transmission Class (STC) rating materials. Hotels and motels are frequently built near freeways and airports subjecting them to loud exterior noise environments yet have quiet interior sleeping spaces through building design with above average STC rated materials. The City has every expectation that this project can achieve the 45 CNEL or below level through construction normal for motels and hotels. Therefore, impacts would be less than significant with mitigation incorporated.

Operational Offsite Transportation Noise

The proposed project would generate vehicular traffic in the area and have the potential to increase traffic noise levels at noise-sensitive land uses. The City does not specify a threshold related to offsite traffic

noise generation. A 3 dBA increase is typically considered perceptible. Therefore, the following analysis considers whether project-generated traffic would result in traffic noise increases of more than 3 CNEL at a noise-sensitive land use in the vicinity.

The proposed project is expected to generate a net increase of 7,726 ADT; noise receivers were placed at noise-sensitive land uses in the project area at a height of 5 feet. Specific receiver locations are shown on Figure 5 of **Appendix 10**. The traffic noise modeling did not include noise generated by I-15 or consider shielding provided by existing structures. The resulting noise levels at noise-sensitive land uses under the with and without project scenarios are provided in **Table 13-4**, Offsite Traffic Noise Levels.

Table 13-4 Offsite Traffic Noise Levels

Receiver	2025 Scenario (CNEL)	2025 with Project Scenario (CNEL)	Change with Project (CNEL)	Direct Impact?[1]
T1	61.7	62.0	+0.3	No
T2	58.9	60.2	+1.3	No
T3	61.8	63.8	+2.0	No
T4	63.6	64.5	+0.9	No
T5	71.6	71.8	+0.2	No
T6	62.1	62.6	+0.5	No
T7	66.0	66.6	+0.6	No
T8	59.6	60.4	+0.8	No
T9	63.2	63.6	+0.4	No

Source: HELIX 2024d

As shown in the Table, traffic noise levels at noise-level sensitive land uses in the project area would increase by up to 2.0 CNEL, an increase that is usually imperceptible without sophisticated measuring equipment. With this increase in traffic noise levels, noise-sensitive land uses would not be subject to perceptible increases in traffic noise with the addition of project traffic. Therefore, impacts would be less than significant.

b) Less Than Significant Impact.

Construction Vibration

The nearest vibration-sensitive land uses to the project site are the residences north and east of the site. Construction of the project, including improvements to Cherry Street, could occur approximately 50 feet from these residential structures. While most of the project construction would occur more than 50 feet from nearby residences, vibration impacts are conservatively assessed at 50 feet. Groundborne vibration levels resulting from construction activities within the project area were estimated using data provided by Caltrans and compared to applicable Caltrans and FTA thresholds. As the structural integrity of the nearby residences is unknown, this analysis considers the structural damage threshold for non-engineered timber and masonry buildings. Significant vibration impacts to structures would occur if vibration levels at residential structures exceed 0.2 in/sec PPV and a significant impact to human receptors would occur if vibration levels would exceed the severe human response threshold of 0.4 in/sec PPV from a continuous/frequent intermittent source.

A vibratory roller is anticipated to be the piece of construction equipment with the highest vibration potential required for project construction and has a reference PPV of 0.210 in/sec at 25 feet. At 50 feet, the distance from the nearest residences, the use of a vibratory roller is estimated to generate vibration levels of 0.098 in/sec PPV. This is below the structural damage threshold of 0.2 in/sec PPV and severe human response threshold of 0.4 in/sec PPV. Therefore, the project would not result in excessive temporary groundborne vibration or noise levels and impacts would be less than significant.

Operational Vibration

The project does not propose equipment that is anticipated to generate substantial groundborne vibration. Given the distance between operational equipment and nearby residential land uses, perceptible vibration levels are not anticipated to occur at residences surrounding the project site. Therefore, no impacts related to vibration during project operation would occur.

c) No Impact. The project is not located within an airport land use plan. There is no public airport or public use airport located within two miles of the project site; however, the nearest private airstrip is the Skylark Airport (primarily used for skydiving), approximately 1.3 miles west of the project site. The project site is outside of the airport influence area for this airport (HELIX 2024d). The Skylark Airport does not have an adopted airport land use compatibility plan, however, as it is not a commercial airport, the project site would not be subject to substantial air traffic that would result in excessive noise levels for people residing or working in the project area. In addition, the project site is outside of the noise contours and airport influence areas for larger airports in the region, given its distance from these airports, such as French Valley Airport approximately 8.7 miles southeast of the project site (see Impact V. 9.e). Therefore, the project would not be subject to excessive aircraft noise and no impact would occur.

STANDARD CONDITIONS AND REQUIREMENTS

1. As required by the City of Wildomar Municipal Code Sections 9.48.020 and 15.04.010, all construction and general maintenance activities shall be limited to the hours 7:00 AM and 6:00 PM from October through May (Monday–Saturday), and between 6:30 AM and 6:00 PM (Monday–Saturday) from June through September. No construction is permitted on Sundays or City-observed holidays unless approved by the City Building Official or City Engineer.

MITIGATION MEASURES

NOI-1 **Noise Reduction Features.** The proposed project shall demonstrate that noise is reduced at the residentially-zoned property north of the project site in compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB L_{MAX}, and at the drive-through restaurant's commercial property line in compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB L_{MAX}. The following measures shall be included as part of the final project design plans submitted to the City:

1. Construction of an enclosure at the car wash exit and an on-site sound barrier (wall) at the northern property line. The enclosure at the exit of the car wash shall consist of a 12-foot-tall sound wall parallel to the car wash exit and 28 feet in length at 25 feet from the exit of the car wash. At the southern side of the 28-foot-long wall, a 12-foot-long wall shall extend perpendicularly towards the car wash exit. A roof shall

cover the 25-foot by 28-foot area between the car wash exit tunnel and these walls. A second noise wall shall be constructed at the northern property line of the project site. This noise wall shall be 6 feet in height and extend approximately 100 feet, breaking the line-of-sight between the car wash and the residential property line. All noise barriers (wall and roof) must be solid. They can be constructed of any combination of standard building materials, including masonry, wood, plastic, fiberglass, or steel, so long as there are no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked. All noise barriers shall have a Sound Transmission Class (STC) rating of at least 22.

2. The addition of a layer noise absorption material with a minimum Noise Reduction Coefficient of 0.80 shall be mounted along the interior surface of the car wash tunnel from the approximate centerline of the blow dryers in the tunnel to the tunnel exit continuing to the tunnel exit ceiling and support walls. The material shall provide a minimum of 80 percent coverage vertically and cover the wall from 1 foot above the floor to 1 foot below the ceiling. Horizontally (on the ceiling), the material shall be mounted from the ceiling to within 1-foot of the walls.
3. Installation of a variable frequency drive (VFD) that would operate car wash blowers at a frequency of 50 Hz.
4. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.

Timing/Implementation: *During Final Design Plan-Check*

Enforcement/Monitoring: *City of Wildomar Building Department*

NOI-2 **Demonstration of Interior Noise Standard**. Once specific building plan information is available, an exterior-to-interior analysis shall be performed for habitable hotel rooms. The exterior-to-interior analysis shall demonstrate to the City that interior noise levels do not exceed 45 CNEL. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels for the planned hotel rooms. If predicted noise levels are found to exceed 45 CNEL, the analysis shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in hotel rooms. Standard measures such as windows with glazing and appropriate STC ratings, as well as walls with appropriate STC ratings, shall be considered. Final plans shall demonstrate that interior noise levels do not exceed 45 CNEL for proposed hotel rooms.

Timing/Implementation: *Prior to Construction*

Enforcement/Monitoring: *City of Wildomar Building Department*

14. Population and Housing

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			✓	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				✓

DISCUSSION

a) Less than Significant Impact. Construction of the proposed project would require contractors and laborers. Because of the size of the proposed project, the City expects that the supply of general construction labor would be available from the local and regional labor pool. The unemployment rate for Riverside County region is 5.3 percent (BLS 2023). The proposed project would not result in a long-term increase in employment from short-term construction activities.

The project's commercial uses are expected to generate up to 40[1] new jobs in the City (Natelson 2001). The proposed project employment generation is not expected to result in a significant relocation of employees to the region due to the size of the existing labor pool in the area. Additionally, when compared to the Southern California Association of Government's (SCAG) employment 2050 projection of 12,400 workers in the City, the proposed project's contribution to overall population increases due to employment is marginal (SCAG 2024). Therefore, the proposed project would not directly nor indirectly induce substantial unplanned growth in the City's population.

b) No Impact. The project site is vacant and does not contain any housing units. Therefore, the construction of the proposed project would not displace substantial numbers of existing people or housing units, which could necessitate the construction of replacement housing elsewhere. No impact would occur.

[1] The project's 16,700 square feet of commercial space was divided by 629 square feet/employee which represents the average square feet/employee in the "other retail" category for Riverside County, and this calculation equals approximately 27 employees.

The project's 45,571 square feet of hotel space was divided by 3,476 square feet/employee which represents the average square feet/employee in the "hotel/motel" category for Riverside County, and this calculation equals approximately 13 employees.

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

None required.

15. Public Services

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a) Fire protection?			✓	
b) Police protection?			✓	
c) Schools?			✓	
d) Parks?			✓	
e) Other public facilities?			✓	

DISCUSSION

a) Less Than Significant Impact. The Riverside County Fire Department (RCFD) provides fire protection and safety services to the City of Wildomar. RCFD Fire Station 61 on 32637 Gruwell Street in the City of Wildomar is approximately 1.6 miles to the southwest of the site. This station, as well as several other Riverside County and Murrieta Fire Department stations in the surrounding area would be able to provide fire protection services to the project site.

A standard Condition of Approval for the proposed project includes compliance with the requirements of the Riverside County Fire Department and the payment of standard City development impact fees, which include a fee for fire service impacts. The proposed project is not expected to result in activities that create unusual fire protection needs, therefore any such impacts are considered less than significant.

b) Less Than Significant Impact. Police protection services are provided in Wildomar by the Riverside County Sheriff's Department (RCSD). The nearest sheriff's station is located at 333 Limited Street in Lake Elsinore, approximately 4.30 miles northwest of the project site. Traffic enforcement is provided in this area of Riverside County by the California Highway Patrol, with additional support from local Riverside County Sheriff's Department personnel.

The Sheriff's Department strives to maintain a recommended servicing of 1.2 sworn law enforcement personnel for every 1,000 residents (Wildomar 2018). The proposed project would introduce new land uses to the vacant site but as discussed in Section V.14, Population and Housing, it is not anticipated to induce substantial population growth in the area; additionally, no residential uses are proposed. The

project uses would instead serve the projected growth, and therefore, would not be expected to substantially increase the demand for police protection services.

Pursuant to Chapter 3.44, Fees, of the Wildomar Municipal Code, the project applicant/developer is required to pay standard development impact fees, which include a fee for police service to offset potential demand for new structures or expanded facilities associated with development. Consideration of adding more law enforcement personnel is a City Council decision and is not a CEQA issue. As the physical impacts of police force expansion are part of the impact fees that are required to be paid prior to building permit, this impact is less than significant.

c) Less Than Significant Impact. The project site is in the Lake Elsinore Unified School District (LEUSD). As discussed in issue a) in section V.14, Population and Housing, the proposed project would not induce substantial growth to the City's population, and would not propose residential uses. The City provides a Notice of Impact Mitigation Requirement to applicants for a building permit, who then work with the school district to determine the precise amount of the fee. Once the fee has been paid in full, LEUSD prepares and provides a certificate to the City demonstrating payment of the fee. Payment of fees in compliance with Government Code Section 65996 fully mitigates all impacts to school facilities. Therefore, this impact is less than Significant.

d) Less Than Significant Impact. The City of Wildomar owns and manages four public parks with over 15 acres: Marna O'Brien Park, Regency Heritage Park, Windsong Park, and Malaga Park. Additionally, the City is proposing to develop a new park site of 11 acres, and recently approved development of a new 27-acre park. The City requires 3 acres of neighborhood and community parkland per 1,000 residents as per the City of Wildomar Municipal Code Section 16.20.020 Park and Recreation Fees and Dedications. The proposed project is not projected to add new residents as the proposed project would not construct residential uses. Per Section 16.20.020 of the Municipal Code, commercial uses are exempt from the payment of the City's development impact fees. All impacts would be less than significant.

e) Less Than Significant Impact. Development of the proposed project would not significantly increase demand for other public facilities, since any population growth associated with the proposed project would not exceed the City's growth projections and would have been accounted for in long-range public facilities master plans. The project applicant/developer would be required to pay any applicable impact fees which would contribute to offsetting this demand on local government services. Therefore, impacts would be less than significant.

STANDARD CONDITIONS AND REQUIREMENTS

1. The project applicant/developer is required to comply with the requirements of the Riverside County Fire Department and pay standard development impact fees for fire service impacts (Wildomar Municipal Code Chapter 3.44).
2. The project applicant/developer is required to pay standard development impact fees for police service impacts (Wildomar Municipal Code Chapter 3.44).
3. The City will require that the project applicant/developer work with the LEUSD to determine the precise amount for the Notice of School Impact Mitigation, and demonstrate payment of the fee prior to issuance of a building permit. (Wildomar Municipal Code Section 15.50.170)

4. The project applicant/developer is required to pay standard development impact fees for impacts to parks (Wildomar Municipal Code Chapter 3.44).

MITIGATION MEASURES

None required.

16. Recreation

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				✓
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				✓

DISCUSSION

a) No Impact. See response to Impact VI.15.d, Public Services, above. The proposed project would not result in a direct increase in population growth as the proposed project would not construct housing. Typically, residential uses result in a higher demand for recreational facilities compared to other uses. Therefore, no impact would occur.

b) No Impact. Implementation of the proposed project would not result in a direct increase in population growth as the proposed project would construct commercial uses onsite. Typically, residential uses result in a higher demand for recreational facilities compared to other uses. As the proposed project does not include new homes, the proposed project would not require the construction or expansion of recreational facilities. No impact would occur.

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

None required.

17. Transportation

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			✓	
b) Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?			✓	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			✓	
d) Result in inadequate emergency access?			✓	

The Cherry Outpost Traffic Impact Analysis (TIA) prepared by Trames Solutions, Inc. (Trames 2024) on December 2, 2024, is summarized herein and is included as **Appendix 11.**

Trip Generation

Trip generation represents the amount of traffic that is attracted and produced by a development based on the specific land uses planned for a given project. Trip generation rates for the proposed project are shown in **Table 17-1**, Project Trip Generation Rates, based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021). The land use categories provided in the table are the uses that best match those of the Project and are identified in the ITE Manual.

Table 17-1 Project Trip Generation Rates

Land Use[1]	Quantity[2]		AM Peak Hour Rates			PM Peak Hour Rates			Daily Rate
			In	Out	Total	In	Out	Total	
Hotel	72	RM	0.26	0.20	0.46	0.30	0.29	0.59	7.99
Convenience Store/Gas Station - GFA (4-5.5k)	14.0	VFP	13.52	13.52	27.04	11.38	11.38	22.76	257.13
Fast-Food Restaurant with Drive-Through	6.8	TSF	22.75	21.86	44.61	17.18	15.85	33.03	467.48
Car Wash[3]	130	Feet	0.38	0.28	0.66	0.63	0.63	1.25	11.87

Table 17-1 Project Trip Generation Rates								
Land Use[1]	Quantity[2]	AM Peak Hour Rates			PM Peak Hour Rates			Daily Rate
		In	Out	Total	In	Out	Total	
Source: Trames 2024 (Appendix 11)								
[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021)								
[2] RM = Room; VFP = Vehicle Fueling Position; TSF = Thousand Square Feet; Feet = Linear Feet of the Tunnel								
[3] NEC I-15/Clinton Keith Traffic Impact Analysis, January 2023, TJW Engineers, Inc.								

The project trip generation forecast in **Table 17-2**, Project Trip Generation Summary, also includes pass-by trip adjustments. The land uses are comprised of primary and "pass-by" traffic. Primary traffic refers to trips that are intending to go to the project site as their primary destination. Pass-by trips are not new trips but those that are already on the roadway system but are anticipated to "pass-by" the project site on their way to a primary destination. The proposed project is located near the I-15 freeway. Therefore, in order to be consistent with the Caltrans guidelines, a 15-percent pass-by rate has been assumed for the convenience store and fast-food uses. For the car wash use, the City has provided specific pass-by percentages based on an empirical study at a similar facility (Trames 2024).

Table 17-2 Project Trip Generation Summary								
Land Use	Quantity[1]	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Hotel	72 RM	19	14	33	22	21	43	575
Convenience Store/Gas Station - GFA (4-5.5k)	14 VFP	189	189	378	159	159	318	3,600
Pass-by (15%)		*-28*	*-28*	*-56*	*-24*	*-24*	*-48*	*-540*
Fast-Food Restaurant with Drive-Through	6.8 TSF	155	149	304	117	108	225	3,179
Pass-by (15%)		*-23*	*-22*	*-46*	*-17*	*-17*	*-34*	*-477*
Car Wash	130 Feet	49	36	85	82	82	164	1,543
Pass By (AM 10%, PM 34%, ADT 10%)		*-4*	*-4*	*-8*	*-28*	*-28*	*-56*	*-154*
Total Net Trips		**357**	**333**	**690**	**311**	**301**	**612**	**7,726**
Source: Trames 2024 (Appendix 11)								
[1] RM = Room; VFP = Vehicle Fueling Position; TSF = Thousand Square Feet; Feet = Linear Feet of the Tunnel								

The percentages of pass by trips for each land use category are shown in **Table 17-2** and were approved by the City Traffic Engineer in the Scoping Agreement (included as Appendix A of **Appendix 11**). As shown in **Table 17-2**, Project Trip Generation Summary, the proposed project is anticipated to generate a total of approximately 7,726 trips per day with 690 AM peak hour trips and 612 PM peak hour trips.

a) Less Than Significant Impact. As shown in **Table 17-2**, the proposed project is anticipated to generate a net total of approximately 7,726 trips per day with 690 AM peak hour trips and 612 PM peak hour trips.

Public Transit, Pedestrian, and Bicycle Plans

The nearest Riverside Transit Agency (RTA) Route is route 8 which currently serves Mission Trail, located 1 mile southwest of the project site. There are currently no RTA routes serving the project area (Trames 2024). Since the project site is not located directly along RTA Route 8, the proposed project would not propose changes to the route or its operations.

Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs to adequately serve all residents of member communities. The Riverside County Transportation Commission and the City of Wildomar recognize the benefits of placing transit services in proximity to employment uses as a congestion management strategy and include goals and policies that encourage this coordination within their Long-Range Transportation Study and General Plan, respectively (RCTC 2019, Wildomar 2003).

The proposed project includes the installation of onsite bicycle racks and onsite sidewalks, as well as sidewalks along Cherry Street and Bundy Canyon Road. The construction and operation phases of the project would be contained within the project site and subsequently would not interfere with the use of sidewalks, bike lanes, or public transit.

The proposed project would be consistent with the General Plan's goals and policies, and the proposed project is not found to result in conflicts with adopted policies, plans, or programs, nor is it expected to negatively affect the performance or safety of existing or planned pedestrian, bicycle, or transit facilities. Any additional proposed changes to bicycle and pedestrian facilities would be consistent with City development standards and would be checked for compliance as part of the City's review process. Therefore, the proposed project would not conflict with any policies, plans, or programs related to public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Impacts would be less than significant.

Roadways and Intersections

Automobile delay, as described by Level of Service (LOS) or other measurements of vehicular capacity or traffic congestion, is no longer considered a significant impact under CEQA. However, the City uses LOS to determine the appropriate size of roadways and the need for intersection improvements. If the proposed project is projected to exceed the City's LOS standard, conditions of approval may be placed on the project to address the traffic impact. As CEQA must evaluate the whole of the project, physical impacts to the environment such as changes to roadways and/or intersection from either a mitigation measure or condition of approval must also be evaluated (see **Appendix 11** for a description of the LOS analysis).

The City will require that the following roadway improvements be made as Conditions of Approval for the proposed project, and that the proposed project will either construct or pay its fair-share to implement the following improvements:

- **Intersection #2 – Orange Street and Bundy Canyon Road**

    - Modify striping for the northbound approach to provide a 1-left turn lane, 1-shared through, and 1 right lane with overlap phase.
    - Modify striping for the southbound approach to provide a 1-left turn lane, 1-through lane, and 1 right lane.
- **Intersection #3 – I-15 Southbound Ramps and Bundy Canyon**
    - Modify existing southbound shared through/right lane to shared left/through/right turn lane.
    - Provide a separate eastbound right turn lane.
    - Provide a separate southbound right turn lane.
- **Intersection #4 – I-15 Northbound Ramps and Bundy Canyon Road**
    - Provide separate westbound right turn lane.
- **Intersection #5 – Cherry Street and Bundy Canyon Road**
    - Full Access:
        - Install traffic signal.
        - Provide a separate southbound left turn lane.
        - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
        - Provide a southbound right turn overlap phase
        - This improvement may not be feasible due to the close proximity between the I-15/Budy Canyon and Sellers/Bundy Canyon traffic signals.
    - Alternative 1: Restrict intersection to right-in/right-out/left-in only configuration (no southbound left-turn movement).
        - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
    - Alternative 2: Restrict intersection to right-in/right-out only configuration (no median break, no southbound left and eastbound left turn movements).
    - Modify existing westbound right turn lane to provide a 3rd westbound thru lane with a defacto right turn lane.
- **Intersection #6 – Sellers Road and Bundy Canyon Road**
    - Construct 1 northbound left turn lane and 1 northbound shared through/right lane.
    - Construct 1 southbound left turn lane and 1 southbound shared through/right lane.
    - Provide 1 westbound left turn lanes.
- **Intersection #9 – Orange Street and Canyon Drive**
    - Provide a separate southbound right turn lane.
    - Provide a separate northbound left turn lane.
    - Provide a separate eastbound left turn lane.

All improvements would occur in the existing public right of way adjacent to or on existing streets. Therefore, construction and operation of the proposed improvements would occur in areas previously disturbed by construction of the existing roadways. While unlikely, cultural resources could be uncovered as part of the ground-disturbing activities associated with these improvements. Mitigation measures **TRI-1** through **TRI-8** will address any finds during construction. All other impacts would be construction related and addressed by the appropriate mitigation measures in this initial study for construction impacts, such as mitigation measure **GEO-2** which requires work to be halted within a 50-

foot radius of any paleontological finds. Impacts associated with transportation would be less than significant.

b) Less Than Significant Impact. According to CEQA Guidelines Section 15064.3 subdivision (b), vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact. The City's Vehicle Miles Travelled (VMT) CEQA Threshold Policy Guidelines allows commercial projects with locally serving retail 50,000 square feet or less to screen from requiring a VMT analysis. This guideline follows the Office of Planning and Research's (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA.

The proposed project would develop a commercial retail center (not including the proposed hotel) that would consist of less than 50,000 square feet and is therefore screened out of further analysis. Additionally, the proposed hotel would be considered local-serving as there would be no conference/wedding facilities or restaurants to attract visitors from outside the local area (Trames 2024). The Office of Planning and Research indicates that by adding retail opportunities and improving destination proximity, local-serving retail developments tend to shorten trips and reduce VMT. Additionally, by siting the proposed hotel along Bundy Canyon Road, this could reduce VMT further, as the nearest hotels to the project area are in the Cities of Lake Elsinore and Murrieta, approximately 3 miles south and 6 miles north, respectively. As this would be the second hotel proposed in the City, it is assumed that people visiting Wildomar would likely stay at a hotel within the City (such as the proposed project), as opposed to a hotel outside of the City, which would reduce VMT. Therefore, the proposed hotel would be consistent with the goals of SB 743 by potentially reducing the VMT along I-15 and can be considered to have a less than significant impact.

c) Less Than Significant Impact. The project proposes to construct two driveways on Cherry Street which would provide egress and ingress to the site. Additionally, the TIA indicates that the following onsite improvements would be implemented:

- Provide stop sign control at the project driveways.
- Onsite traffic signing and striping shall be implemented in conjunction with detailed construction plans for the project.
- Verify that minimum sight distance is provided at the project driveways to meet City standards.

The City of Wildomar implements development standards designed to ensure standard engineering practices are used for all improvements. These features of the proposed project would be reviewed by the City Engineer for compliance with City standards as part of the City's review process. Additionally, the implementation of the recommended roadway improvements and adherence to all applicable standards would ensure that roadway hazards are reduced, and impacts are less than significant.

d) Less Than Significant Impact. The proposed project would provide two driveways along Cherry Street. Access to the project site would be reviewed by the City and the CAL FIRE/Riverside County Fire Department to ensure there is sufficient emergency access provided at the site as required by the City of Wildomar Municipal Code 8.28, Fire Code, for compliance with the California Fire Code. Therefore, impacts would be less than significant.

STANDARD CONDITIONS AND REQUIREMENTS

1. Prior to issuance of any building permit on the project site, the project applicant/developer shall pay all development impact fees (Wildomar Municipal Code Chapter 3.44).
2. Prior to issuance of any building permit on the project site, the project applicant/developer shall demonstrate payment of the Western Riverside Transportation Uniform Mitigation Fee (Wildomar Municipal Code Chapter 3.40).
3. The applicant shall coordinate with Caltrans and submit applicable reports/studies as part of Caltrans' encroachment permit process.
4. As Conditions of Approval, the City will also require the project to construct or pay its fair-share to implement the following improvements:

- **Intersection #2 – Orange Street and Bundy Canyon Road**
  - Modify striping for the northbound approach to provide a 1-left turn lane, 1-shared through, and 1 right lane with overlap phase.
  - Modify striping for the southbound approach to provide a 1-left turn lane, 1-through lane, and 1 right lane.
- **Intersection #3 – I-15 Southbound Ramps and Bundy Canyon**
  - Modify existing southbound shared through/right lane to shared left/through/right turn lane.
  - Provide a separate eastbound right turn lane.
  - Provide a separate southbound right turn lane.
- **Intersection #4 – I-15 Northbound Ramps and Bundy Canyon Road**
  - Provide separate westbound right turn lane.
- **Intersection #5 – Cherry Street and Bundy Canyon Road**
  - Full Access:
    - Install traffic signal.
    - Provide a separate southbound left turn lane.
    - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
    - Provide a southbound right turn overlap phase
    - This improvement may not be feasible due to the close proximity between the I-15/Budy Canyon and Sellers/Bundy Canyon traffic signals.
  - Alternative 1: Restrict intersection to right-in/right-out/left-in only configuration (no southbound left-turn movement).
    - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
  - Alternative 2: Restrict intersection to right-in/right-out only configuration (no median break, no southbound left and eastbound left turn movements).
  - Modify existing westbound right turn lane to provide a 3rd westbound thru lane with a defacto right turn lane.
- **Intersection #6 – Sellers Road and Bundy Canyon Road**
  - Construct 1 northbound left turn lane and 1 northbound shared through/right lane.
  - Construct 1 southbound left turn lane and 1 southbound shared through/right lane.

- Provide 1 westbound left turn lanes.

- **Intersection #9 – Orange Street and Canyon Drive**
  - Provide a separate southbound right turn lane.
  - Provide a separate northbound left turn lane.
  - Provide a separate eastbound left turn lane.

5. As required by Municipal Code section 8.28, Fire Code, review of the project design by the City and CAL FIRE / Riverside County Fire Department is required to ensure adequate emergency access.

MITIGATION MEASURES

None Required.

18. Tribal Cultural Resources

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		✓		
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		✓		

DISCUSSION

a

i, ii) Less Than Significant Impact with Mitigation Incorporated. Archival research indicated that the project site was subjected to residential, agricultural, and transportation development. A pedestrian survey revealed a historical archaeological site consisting of the foundations of a residence, concrete pad, and vegetation. However, according to the Cultural Resources Survey Report, the site lacks integrity and is not considered eligible for listing on the California Register of Historic Resources or the National Register of Historic Places (see Section V.5, above). No Tribal Cultural Resources were identified within the project site.

The Sacred lands File research conducted by the Native American Heritage Commission (NAHC) for the property indicated that no known sacred lands or Native American cultural resources are within the project area, but that the area is sensitive for cultural resources (HELIX 2024c).

Assembly Bill (AB) 52 established a formal consultation process for California tribes within the CEQA process. AB 52 specifies that any project that may affect or cause a substantial adverse

change in the significance of a tribal cultural resource would require a lead agency to "begin consultation with a California Native American tribe that is traditional and culturally affiliated with the geographic area of the proposed project." Section 21074 of AB 52 also defines tribal cultural resources as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and that are either listed on, or eligible for, the California Register of Historical Resources or a local historic register, or the lead agency chooses to treat the resource as a significant resource.

The City notified tribes that requested to be alerted of new projects on October 23, 2023, which included the Morongo Band of Mission Indians, Pechanga Band of Mission Indians, Rincon Band of Luiseño Indians, and Soboba Band of Mission Indians.

On November 6, 2023, and on November 13, 2023, the Pechanga Band of Mission Indians and Soboba Band of Mission Indians requested formal consultation, respectively. The City met with the Pechanga Band of Mission Indians on November 16, 2023, and the Soboba Band of Mission Indians on November 20, 2023, to discuss the proposed project. Given the project area's cultural sensitivity, both tribes requested that reburial sites be identified. The proposed reburial sites were sent to the tribes, and the City followed up with the tribes. The identification of reburial sites is standard practice for projects in the City that are known to have high sensitivity for tribal cultural resources. The potential reburial sites are shared with the tribes and kept confidential in case they must be used. On November 7, 2023, the Rincon Band of Luiseno Indians indicated that the tribe is traditionally and culturally affiliated to the project area. Upon reviewing the cultural resources report, the Tribe indicated that they do not have further questions and concluded consultation on December 20, 2023; the Tribe requested to be notified of any changes to the project.

On December 20, 2023, the Morongo Band of Mission Indians requested project information, but did not initiate or conclude consultation. On April 10, 2024, the City consulted with the Tribe; the Tribe indicated that they want to be a part of the CRMP process and emphasized that no photography of human remains and/or cremations are allowed except by the coroner with written approval from the consulting tribe(s). The Tribe requested that the importance of not taking photographs should be addressed in the CRMP and the Worker Sensitivity Training.

The City works closely with the tribes and consults on all projects before the City. The Pechanga Band of Mission Indians provided cultural and tribal mitigation measure language which the Soboba Band of Mission Indians agreed upon. These mitigation measures have been incorporated into this IS/MND. With the inclusion of mitigation measures **TRI-1** through **TRI-8** and **CUL-1**, impacts to tribal cultural resources would be mitigated to a less than significant impact with mitigation incorporated.

STANDARD CONDITIONS AND REQUIREMENTS

None required.

MITIGATION MEASURES

Refer to mitigation measure **CUL-1** in section V.5 of this document.

TRI-1 **Inadvertent Archeological Find.** If during ground disturbance activities, cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Cultural resources are defined as being multiple artifacts in close association with each other, but also include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance as determined in consultation with the lead agency and Native American Tribe(s) that elected to consult under AB 52 ("Consulting Tribe(s)").

a. All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the tribal representative(s) and the Community Development Director to discuss the significance of the find.

b. At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s), developer, and the archaeologist, a decision shall be made, with the concurrence of the Community Development Director, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources.

c. Grading or further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal monitors if needed.

d. Treatment and avoidance of the newly discovered resources shall be consistent with the Treatment and Monitoring Agreements entered into with the Consulting Tribe(s) and the applicant. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources located in native soils and/or re-burial on the Project property so they are not subject to further disturbance in perpetuity as identified in Mitigation Measures TRI-2 and TRI-7.

e. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan (see Mitigation Measure TRI-6) shall be prepared by the project archeologist, in consultation with the Consulting Tribe(s), and shall be submitted to the City for their review and approval prior to implementation of the said plan.

f. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and tribal cultural resources. If the landowner and the Consulting Tribe(s) cannot agree on the significance or the mitigation for the archaeological or tribal cultural resources, these issues will be presented to the Community Development Director for decision. The City's Community Development Director shall make the determination based on the provisions of the California Environmental Quality Act with respect to archaeological and tribal cultural resources, recommendations of the project archeologist, and shall

take into account the cultural and religious principles and practices of the Consulting Tribe(s). Notwithstanding any other rights available under the law, the decision of the City Community Development Director shall be appealable to the City Planning Commission and/or City Council.

Timing/Implementation: During any ground-disturbing or construction activities

Enforcement/Monitoring: City of Wildomar Public Works and Engineering Department and Community Development Department

TRI-2 **Cultural Resources Disposition.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a. One or more of the following treatments, in order of preference, as numbered below, shall be employed with the Consulting Tribe(s). Evidence of such shall be provided to the City of Wildomar Community Development Department:

   i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources.

   ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the reburial shall be included in the confidential Phase IV report (see Mitigation Measure TRI-6). The Phase IV Report shall be filed with the City under a confidential cover and not subject to Public Records Request.

   iii. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets State Resources Department Office of Historic Preservation Guidelines for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees by the Applicant necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the landowner to the City. There shall be no destructive or invasive testing on sacred items, burial goods, and Native American human remains, as defined by the cultural and religious practices of the Most Likely Descendant. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report.

Timing/Implementation: During grading activities

Enforcement/Monitoring: City of Wildomar Public Works and Engineering Department and Community Development Department

TRI-3 **Archaeologist Retained.** Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified Registered Professional Archaeologist (RPA), to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources.

The Registered Professional Archaeologist and the Tribal monitor(s) required by Mitigation Measures TRI-4 and TRI-5 shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Registered Professional Archaeologist and the Tribal monitor(s), shall independently have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors.

The developer/permit holder shall submit a fully executed copy of the contract to the Community Development Department to ensure compliance with this condition of approval. Upon verification, the Community Development Department shall clear this condition.

In addition, the Registered Professional Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) pursuant to the definition in AB 52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB 52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archaeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following

the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

Timing/Implementation: Prior to issuance of grading permit

Enforcement/Monitoring: City of Wildomar Public Works and Engineering Department and Community Development Department

TRI-4 **Native American Monitoring (Pechanga).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Pechanga Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.

Timing/Implementation: During ground-disturbing activities

Enforcement/Monitoring: City of Wildomar Public Works and Engineering Department and Community Development Department

TRI-5 **Native American Monitoring (Soboba).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Soboba Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.

Timing/Implementation: During ground-disturbing activities

Enforcement/Monitoring: City of Wildomar Public Works and Engineering Department and Community Development Department

TRI-6 **Archeology Report - Phase III and IV.** Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data

Recovery report (if required for the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Community Development Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).

Timing/Implementation: *Prior to final inspection*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-7 **Non-Disclosure of Reburial Locations**. It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code Section 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial.

Timing/Implementation: *During discovery of Native American human remains*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

TRI-8 **No-Build Easement or Similar Instrument.** In the event that Native American artifacts are found and buried within the project vicinity, a no-build easement, or similar legal instrument, shall be used to preclude future development from taking place on the reburial site(s).

Timing/Implementation: *Before Reburial of Native American Artifacts*

Enforcement/Monitoring: *City of Wildomar Public Works and Engineering Department and Community Development Department*

19. Utilities and Service Systems

Issues, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			✓	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			✓	
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			✓	
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			✓	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			✓	

DISCUSSION

a,c) **Less Than Significant Impact.**

Wastewater Treatment

The EVMWD currently operates three wastewater treatment facilities: The Regional Water Reclamation Facility (WRF), the Horsethief Canyon Wastewater Treatment Plant (WWTP), and the Railroad Canyon WWTP (EVMWD 2021). In addition, flow in the southern part of the EVMWD's service area is treated at the Santa Rosa Water Reclamation Facility operated by the Rancho California Water District. The project site is within the Regional WRF wastewater collection area (EVMWD 2024a).

To determine future demand for wastewater facilities, the EVMWD relies on recommended generation factors specified in the 2024 Sewer System Master Plan. The recommended generation rates are

determined according to land use designation. The wastewater generation rate in Table 3.6, RTS Ratios and Wastewater Flow Factors by Land Use, of the 2024 Sewer System Master Plan is 1,400 gallons per day (gpd)/acre for General Commercial land use (EVMWD 2024a). The proposed wastewater generation for the proposed project would be 9,310 gpd.[2]

The proposed project would connect to an existing 12-inch sewer line on Cherry Street. The project site is located within the Regional Water Reclamation Facility (WRF) service area. The Regional WRF has an average daily intake of 8 million gallons per day (mgd) and a peak flow capacity of 17.6 mgd (EVMWD 2024a). Therefore, the Regional WRF has an excess daily intake capacity of approximately 9.6 mgd. In addition, the Regional WRF also has plans to upgrade the plant capacity (EVMWD 2024a).

The proposed project would result in an increase of approximately 0.097 percent[3] of the remaining design capacity of the Regional WRF. With the planned capacity expansion at the plant, the increase in wastewater by the proposed project is considered less than significant. The proposed project would not require or result in the construction or expansion of any new/portable water or sewage treatment facilities. The proposed project impacts to wastewater treatment are less than significant.

Water Treatment

Water treatment facilities filter and/or disinfect water before it is delivered to customers. The EVMWD supplies water to the surrounding area and would supply water to the project site. Water line improvements at the project site would be constructed in accordance with Title 13, Public Services, of the Wildomar Municipal Code.

EVMWD delivers potable water from three primary sources, groundwater, local surface water, and imported water (EVMWD 2024b). Local groundwater is pumped from wells, local surface water comes from Canyon Lake Reservoir, and imported water is purchased from Metropolitan Water District (MWD) via the Western Municipal Water District (WMWD) (EVMWD 2024b). The EVMWD water treatment facilities, their capacities, and remaining available treatment capacities are shown in **Table 19-1**, EVMWD Water Treatment Facilities.

Table 19-1 EVMWD Water Treatment Facilities

Treatment Plant	Capacity (mgd)	Maximum Flow (mgd)	Remaining Treatment Capacity (mgd)
Canyon Lake Water Treatment Plant	7	7	0
Skinner Filtration Plant (via the Auld Valley Pipeline)	24.2	20	4.2
Mills Filtration Plant (via the Temescal Valley Pipeline)	12.7	11.3	1.4
Total:	**43.9**	**38.3**	**5.6**

Source: EVMWD 2024b

[2] Project site = 6.65 acres

1,400 gpd x 6.65 acres = 9,310 gpd

[3] 9,310 gpd / 9,600,000 gpd = 0.000969 = 0.097 percent.

As shown in **Table 19-1**, the EVMWD water treatment facilities have a remaining water treatment capacity of approximately 5.6 mgd. Based on water generations rates in Table 3.6, RTS Ratios and Wastewater Flow Factors by Land Use, of the 2024 Sewer System Master Plan, the water demand for the proposed project's uses would be 2,300 gpd/acre for General Commercial (EVMWD 2024a). The total water demand of the proposed project would be 15,295 gpd.[4] This is approximately 0.27 percent[5] of the remaining treatment capacity of the EVMWD water treatment facilities. Therefore, based on water demands of the project, the current capacity of the EVMWD treatment facilities would be able to accommodate the water demands generated from the proposed project. The proposed project impacts to water treatment is less than significant.

Stormwater Drainage

Stormwater drainage impacts are addressed in section V.10.c.iii, above. The proposed development would be approximately 73 percent impervious (Tait 2024a). Stormwater runoff from the project site would be directed towards the bioretention area for water quality treatment requirements and would be directed by sheet flow and drainage inlets (Tait 2024a). The detention basin would serve a dual purpose of detention and treatment and would be allowed to infiltrate out of the basin over time (Tait 2024a). The proposed detention basin has been designed with flow controls to mimic existing 100-year 24-hour storm flow from the existing (undeveloped) project site. Additionally, implementation of BMPs, such as drainage stenciling and signage, avoiding the use of unprotected metals for roofing/gutters/trim, and designing landscape to minimize irritation and runoff, would improve water quality and reduce runoff. Stormwater drainage improvements associated with the proposed project have been designed to not impact the local, off-site storm drain system. Therefore, impacts would be less than significant.

Electricity and Natural Gas

The project site would require connection to utilities such as natural gas lines in the vicinity of the site in accordance with the installation requirements of City of Wildomar Municipal Code Section 16.40.010. The applicant would be responsible for the payment of electricity and gas connections as well as use of the utility. As described in section V.6, Energy, the project would not result in energy use such that new or expanded facilities would be required. Therefore, impacts are less than significant.

b) Less Than Significant Impact. The project site is within the service boundary of the EVMWD. The EVMWD utilizes both groundwater and imported water supplies to ensure adequate water is available for consumers. Imported water is utilized to ensure that significant overdraft of local groundwater supplies does not occur. Imported water is obtained from the Metropolitan Water District, local surface water from Canyon Lake, and local groundwater from the Elsinore Basin. Since the adoption of the 2005 Groundwater Management Plan, EVMWD has limited pumping to 5,500 acre-ft/year to be consistent with the safe yield of the Elsinore Groundwater Basin (EVMWD 2021). The EVMWD has the ability to obtain a capacity of 26,296 acre-feet per year (23.4 mgd) during average years and wet years (EVMWD 2021).

[4] Project site = 6.65 acres

2,300 gpd x 6.65 acres = 15,295 gpd

[5] 15,295 gpd / 5,600,000 gpd = 0.0027 = 0.27 percent

As shown in the 2020 Urban Water Management Plan, the projected 2025 water demand and supply would be 38,932 acre-feet per year and 47,218 acre-feet per year, respectively (EVMWD 2021); the supply would exceed the demand by 8,286 acre-feet/year. Therefore, this impact is less than significant because there would be sufficient water supply to meet the demand of the proposed project.

The California State Model Water Efficient Landscape Ordinance (MWELO) requires local agencies to adopt, implement, and enforce the MWELO or a local Water Efficient Landscape Ordinance (WELO) that is at least as effective as the MWELO. Chapter 17.276 of the City of Wildomar Municipal Code implements the MWELO and requires that a landscape documentation package be submitted to the City for review and approval prior to the issuance of any permits to install or construct any landscape-related improvements. This ensures that landscapes are planned, designed, installed, maintained, and managed in a manner that uses water efficiently, encourages water conservation, and prevents water waste. Compliance with the City's ordinance would additionally help to reduce impacts on water supplies and ensure that water resources would be available for the foreseeable future of the project. Impacts would be less than significant.

d) Less Than Significant Impact. The main solid waste disposal site that would serve the project site is the El Sobrante Landfill in the City of Corona. The landfill is projected to reach its full capacity of 209,910,000 cubic yards in 2051 (CalRecycle 2019a). The landfill covers approximately 1,322 acres and has a maximum permitted throughput of approximately 16,054 tons/day (CalRecycle 2019a). The El Sobrante Landfill has a remaining capacity of 143,977,170 tons (CalRecycle 2019a).

The California Department of Resources Recycling and Recovery's (CalRecycle) most recent solid waste generation rates for Commercial uses is 10.53 pounds per employee per day (lb/emp/day) and for Hotel uses is 2 lb/room/day (CalRecycle 2019b). The proposed commercial uses would result in 27 employees and the hotel use would result in 72 rooms. Therefore, the proposed commercial uses would generate 284 lb/day and the proposed hotel would generate 144 lb/day; the proposed project would generate a total of 428 lb/day of solid waste[6]. This increase would be 0.0013 percent[7] of the landfill's daily maximum permitted throughput and could be accommodated. Therefore, the project impacts on landfill capacity are less than significant**.**

e) Less Than Significant Impact. Solid waste would be generated during construction and operation of the proposed project. The Solid Waste Reuse and Recycling Access Act of 1991 requires that adequate areas be provided for collecting and loading recyclable materials such as paper, products, glass, and other recyclables. City of Wildomar Municipal Code Section 8.104 regulates solid waste handling and mandates that sufficient receptacles be in place onsite to accommodate refuse and recycling. Compliance with State law and the City's Municipal Code would ensure the project would result in a less than significant impact.

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[6] Commercial = 27 employees, hotel = 72 rooms

10.53 lb/day x 27 employees = 284.31 = 284 lb/day (commercial uses)

2 lb/day x 72 rooms = 144 lb/day (hotel use)

Total: 284 + 144 = 428 lb/day

[7] 428 lb/day = 0.214 ton/day

0.214 tons/day / 16,054 tons/day = 0.00001333 or 0.001333 percent.

STANDARD CONDITIONS AND REQUIREMENTS

1. As required by City of Wildomar Municipal Code Section 13.12.050, Regulatory Consistency, and the MS4 Permit from the Santa Ana Regional Water Quality Control Board, stormwater drainage improvements must be consistent and in accordance with these provisions.
2. As required by City of Wildomar Municipal Code Section 16.40.10, Installation Requirements, the project would comply with the installation requirements for undergrounding utilities.
3. As required by City of Wildomar Municipal Code Section 8.104, Solid Waste Collection and Disposal, the generation, accumulation, handling, collection, transportation, conversion, and disposal of solid waste must be controlled and regulated through the provisions of this chapter.
4. As required by City of Wildomar Municipal Code Section 17.276.060, a landscape documentation package shall be submitted and approved prior to installation of any landscaping.

MITIGATION MEASURES

None required.

20. Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?		✓		
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?		✓		
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			✓	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			✓	

a) Less Than Significant Impact With Mitigation Incorporated. California Government Code Chapter 6.8 directs the California Department of Forestry and Fire Protection (CALFIRE) to identify areas of very high fire hazard severity within Local Responsibility Areas (LRA). Mapping of the areas, referred to as Very High Fire Hazard Severity Zones (VHFHSZ), is based on data and models of potential fuels over a 30- to 50-year time horizon and their associated expected fire behavior and expected burn probabilities, which quantifies the likelihood and nature of vegetation fire exposure to buildings. LRA VHFHSZ maps were initially developed in the mid-1990s and are now being updated based on improved science, mapping techniques, and data. In 2008, the California Building Standards Commission adopted California Building Code Chapter 7A requiring new buildings in Very High Fire Hazard Severity Zones to use ignition-resistant construction methods and materials.

The eastern and western portions of the City of Wildomar have been designated Very High Fire Hazard Severity Zones (VHFHSZ). The project site is not within a VHFHSZ within the LRA, but the site is within a HFHSZ and VHFHSZ in an SRA (CAL FIRE 2023). Development on the project site would be subject to compliance with the 2022 CBC, or the current version of the CBC at the time of construction. Wildomar is covered under the City's Emergency Operations Plan and Local Hazard Mitigation Plan (2022). These plans provide guidance to effectively respond to any emergency, including wildfires. In addition, all proposed

construction is required to meet minimum standards for fire safety. Implementation of these plans and policies in conjunction with compliance with the Fire Code would minimize the risk of loss due to wildfires.

Furthermore, the proposed project would not conflict with adopted emergency response or evacuation plans. The surrounding roadways would continue to provide emergency access to the project site and surroundings during construction and postconstruction. In addition, as with all projects in the City of Wildomar, mitigation measures **HAZ-1** and **HAZ-2** which require conformance with the CBC and Fire Code, would be implemented. Therefore, impacts are considered less than significant with mitigation incorporated.

b) Less Than Significant with Mitigation Incorporated. The project site is vacant and contains ruderal vegetation. The City does not regularly experience high-speed prevailing winds; average wind speeds are approximately 6 miles per hour during the windier part of the year, from November to June (Weather Spark 2022).

Developing the existing vacant site with the proposed structures would reduce the amount of exposed vegetation that could be used as fuel. Therefore, the project and site conditions would not contribute to an increase in exposure to wildfire risk. Additionally, development on the project site would be subject to compliance with the CBC and CFC. Moreover, the City of Local Hazard Mitigation Plan provides guidance to effectively respond to and mitigate emergencies, including wildfires. The project site is within a HFHSZ and VHFHSZ in an SRA (CAL FIRE 2023). As with all projects in the City of Wildomar, mitigation measures **HAZ-1** and **HAZ-2,** which require conformance with the CBC and CFC, would be implemented. Therefore, impacts are considered less than significant with mitigation incorporated.

c) Less Than Significant Impact. The project site would require connections to the existing utility lines (as electricity, water, and sewer) along Bundy Canyon Road and Cherry Street. The project applicant/developer is required to pay for connections and maintenance of onsite utility infrastructure. The utilities would be installed to meet service requirements. The construction of new and improved infrastructure for the project would not directly increase fire risk, and impacts are less than significant.

d) Less Than Significant Impact. As discussed in Section V.7, the project site is not within a flood hazard zone. There are no flooding or safety concerns caused by drainage. Additionally, as discussed in Section V.10, due to no evidence of slope instability within or adjacent to the project site, there is a low risk for slope stability related hazards (Geocon 2023).

Construction activities related to the proposed project would be subject to compliance with the CBC and would include BMPs. BMPs may include but are not limited to covering of the soil, use of a dust-inhibiting material, landscaping, use of straw and jute, hydroseeding, and grading in a pattern than slows stormwater flow and reduces the potential for erosion, landslides, and downstream flooding. Operationally, natural drainage at the project site would generally be similar to existing conditions; no substantial changes to drainage patterns would occur. Therefore, with implementation of BMPs, impacts are less than significant.

STANDARD CONDITIONS AND REQUIREMENTS

None Required.

MITIGATION MEASURES

Implementation of mitigation measures **HAZ-1** and **HAZ-2** in Section V.9 of this document.

VI. MANDATORY FINDINGS OF SIGNIFICANCE

Issues, does the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		✓		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)		✓		
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		✓		

DISCUSSION

The following mandatory findings of significance are in accordance with CEQA Guidelines Section 15065.

a) Less Than Significant Impact with Mitigation Incorporated. Based on the evaluations and discussion in this IS/MND, the proposed project has a limited potential to incrementally degrade the quality of the environment. As discussed in Section V.3, Air Quality, Mitigation Measure **AQ-1** and Mitigation Measure **AQ-2,** would ensure the use of Tier 4 construction equipment and the implementation of fugitive dust BMPs which would reduce impacts. Section V.4, Biological Resources, implementation of mitigation measures **BIO-1**, which requires a pre-construction burrowing owl survey, and **BIO-2,** which requires pre-construction survey for nesting birds, would reduce impacts to biological resources to less than significant. As discussed in Section V.5, Cultural Resources, with implementation of mitigation measures **CUL-1** and **TRI-1** through **TRI-8,** the proposed project would have a less than significant impact on archaeological resources and human remains. Furthermore, as discussed in Section V.7, Geology and Soils, the proposed project would have a less than significant impact on geological and paleontological resources with

implementation of mitigation measures **GEO-1**, which requires the project to incorporate recommendations of the geotechnical report, and **GEO-2**, which requires the applicant to retain a paleontologist to assess the potential for presence of paleontological resources. Moreover, with implementation of mitigation measures **CUL-1** and **TRI-1** through **TRI-8**, the proposed project would have a less than significant impact on tribal cultural resources. Implementation of Mitigation Measures **HAZ-1** and **HAZ-2**, as discussed in Section V.8, Hazards and Hazardous Materials, and Section V.20, Wildfire, would reduce impacts of wildfires to a less than significant impact upon conformance with building codes and City standards. As discussed in Section V.13, Noise, Mitigation Measures **NOI-1** and **NOI-2** would include noise reduction features and ensure compliance with interior noise standards, which would reduce impacts to sensitive receptors. Therefore, the proposed project would not significantly affect the environment after implementation of the mitigation measures in this IS/MND. Therefore, any impacts would be considered less than significant with mitigation incorporated.

b) Less Than Significant Impact with Mitigation Incorporated.

Aesthetics

Implementation of the proposed project would not contribute to cumulative visual resource or aesthetic impacts. This project and other projects in Wildomar are required to comply with the City's light pollution ordinance. The project is proposed in an urbanized portion of the City and is consistent with the proposed General Plan designation. While the proposed building may obscure views of surrounding ridgelines from the project site, the proposed project, in combination with other development in the vicinity would not significantly impact any scenic vistas. Therefore, the proposed project would have a less than cumulatively considerable impact to aesthetics.

Agriculture and Forestry Resources

Implementation of the proposed project would not result in any impacts to agriculture or forestry resources and would therefore not contribute to cumulative impacts to these resources.

Air Quality

The South Coast Air Quality Management District's approach for assessing cumulative impacts is based on the Air Quality Management Plan forecasts for attainment of ambient air quality standards in accordance with the requirements of the federal and California Clean Air acts. In other words, the South Coast AQMD considers projects that are consistent with the AQMP, which is intended to bring the basin into attainment for all criteria pollutants, to also have less than significant cumulative impacts. The discussion in Section V.3, Air Quality, describes the South Coast AQMD criteria for determining consistency with the AQMP and further demonstrates that the proposed project would be consistent with the plan. Implementation of the proposed project would result in less than significant impacts with the implementation of Mitigation Measures **AQ-1 and AQ-2**, and would not contribute to cumulative impacts to Air Quality.

Biological Resources

The project site is primarily vacant and undeveloped, and is not within a Criteria Cell. The project site is located within the Stephens' Kangaroo Rat Fee Plan Area and MSHCP Fee Area and is required by ordinance to pay the fees at the time of building permit issuance. Implementation of mitigation measures **BIO-1** and **BIO-2**, would minimize potential project-related impacts to burrowing owls and nesting birds.

The proposed project would pay the MSHCP and Stephens' Kangaroo Rat Plan Area fees as required to ensure that there would be a less than cumulatively considerable impact on biological resources.

Cultural Resources

Development of the project site would contribute to a cumulative increase in potential impacts to cultural and archaeological resources. Other projects in the region could demolish or otherwise alter cultural resources. However, mitigation measures **CUL-1** and **TRI-1** through **TRI-8** would reduce the potential impacts associated with development on the project site. Other projects in the region would also be required to comply with CEQA Guidelines Section 15064.5, which requires the lead agency to determine if discovered resources are unique or historically significant, and if so, to avoid or mitigate impacts to such resources in accordance with the provisions of PRC Section 21083.2. Therefore, the project would have a less than cumulatively considerable impact.

Energy

Construction and operation of the proposed project would result in an increase in energy use as the site is currently vacant. Construction energy use would be temporary and normal of development in the region. Section V.6, Energy, analyzed the project's cumulative contribution to energy in the region and determined the project would have a less than cumulatively considerable environmental impact to energy.

Geology and Soils

Project-related impacts on geology and soils associated with development on the project site are site specific, and project development would not contribute to seismic hazards or soil erosion. Implementation of mitigation measure **GEO-1** would result in decreased exposure to the risks associated with seismic activity, and implementation of mitigation measure **GEO-2** would ensure impacts to paleontological resources are reduced to a less than significant level. Therefore, impacts are expected to be less than cumulatively considerable**.**

Greenhouse Gas Emissions

The greenhouse gas analysis in Section V.8, Greenhouse Gas Emissions, analyzed the proposed project's cumulative contribution to global climate change and determined that the project would have a less than cumulatively considerable environmental impact resulting from greenhouse gas emissions.

Hazards and Hazardous Materials

The proposed project is not expected to utilize or contribute to hazards associated with the accidental release of hazardous materials. The proposed project is within a High Fire Hazard Severity Zone; implementation of mitigation measures **HAZ-1** and **HAZ-2** would ensure that the proposed project complies with the California Building Code, Fire Code, and City standards in regard to fire hazards. All development in the City is required to comply with the California Building Code, Fire Code, and City standards Compliance with federal, state, and local regulations would ensure that cumulative hazard conditions are less than cumulatively considerable.

Hydrology and Water Quality

Water quality measures included in the proposed project and the WQMP and SWPPP prepared for the project would ensure that the quality of water discharged from the site during both construction and operational activities do not adversely affect any off-site uses or water resources. The site is not located within a flood hazard zone. Therefore, the proposed project would have a less than cumulatively considerable impact related to hydrology.

Land Use and Planning

The proposed project would comply with the standards for its zoning designation as listed in the Wildomar Municipal Code. As the proposed project would not change the zoning or land use designations for the site, the proposed project would be consistent with the General Plan . The proposed project is developing a vacant corner parcel consistent with the General Plan, is self-contained, and would be surrounded by existing developed lands. Nothing in the proposed project would lead to other development nearby. Other development projects would be reviewed by the City to ensure consistency with the General Plan and land use designations at the time of application. Therefore, the proposed project combined with related projects would not result in cumulatively considerable impacts to land use and planning.

Mineral Resources

The proposed project would have no impact related to mineral resources and would therefore not contribute to any cumulative impacts to such resources.

Noise

As discussed in section V.13, Noise, the proposed project would comply with all applicable noise standards and would have less than significant direct impacts related to construction and operational noise, with the implementation of Mitigation Measures **NOI-1** and **NOI-2**. It is possible that other construction projects in the vicinity could overlap with activity on the proposed project site, but other such projects are required to mitigate their construction noise impacts and comply with the City's noise ordinances. Although the proposed project requests a continuous events exception for the impact of operational noise, the exception only affects the proposed car wash and does not affect any other properties. Nothing in the exception would suggest that other properties would be affected, or that additional continuous events exceptions would be required. Any combined impacts would be temporary, constituting intermittent annoyance, but not a significant cumulative noise impact. Therefore, the proposed project would have a less than cumulatively considerable impact related to construction noise.

Population and Housing

As the project site is currently vacant, no housing units or people would be displaced, and the construction of replacement housing is not required. The proposed project would increase the employment opportunities in the City which are expected to be filled by the local labor pool. Therefore, the project would have a less than cumulatively considerable impact related to population and housing.

Public Services

Implementation of the proposed project, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the immediate area, may increase the demand for

public services such as fire and police protection. However, as a standard condition of approval, project applicants/developers are required to pay development impact fees to fund the expansion of such services. Development of any future public service facilities would be subject to CEQA review prior to approval that would identify and address any resulting impacts. Therefore, the proposed project would have a less than cumulatively considerable impact on public services.

Recreation

The proposed project would have no impact related to recreational facilities, as no residential uses are proposed, and would therefore not contribute to any cumulative impacts to such facilities. Therefore, the proposed project would have no impact on recreational facilities.

Transportation

Cumulative traffic impacts are created because of a combination of the proposed project and other future developments contributing to the overall traffic impacts and requiring additional improvements to maintain acceptable level of service operations. A project's contribution to a cumulatively significant impact can be reduced to less than significant if the project implements or funds its fair share of improvements designed to alleviate the potential cumulative impact. As enforced by City Municipal Code Chapter 3.40, the Western Riverside County Transportation Uniform Mitigation Fee, and the adopted City Traffic Signal Development Impact Fee (Article I, Development Impact Fees, of Municipal Code Chapter 3.44), the project applicant/developer would be required to participate in the funding of off-site improvements.

In addition to these fees, as conditions of approval for the proposed project, the applicant/developer would implement the recommended improvements to six intersections or pay its fair-share for the improvements.

The proposed project is screened out and exempt from a VMT analysis since the proposed project meets the screening criteria for locally serving retail 50,000 square feet or less. Because the nearest hotels to the City are in the Cities of Murrieta and Lake Elsinore, constructing a hotel in the City would shorten trips and reduce VMT because people visiting Wildomar would likely stay in a hotel within the City. Additionally, the proposed hotel would be considered local-serving which would also shorten trip and reduce VMT. Therefore, the project's contribution to VMT can be considered less than significant. Implementation of the intersection improvements would reduce the project's impacts to cumulative traffic conditions to less than cumulatively considerable.

Tribal Cultural Resources

Development of the project site would contribute to a cumulative increase in potential impacts to cultural, tribal cultural, and archaeological resources. However, mitigation measures **CUL-1** and **TRI-1** through **TRI-8** would reduce the potential impacts to tribal cultural resources associated with development on the project site. As with the proposed project, each related cumulative project would be required to comply with AB 52 and PRC Section 21083.2(i), which addresses accidental discoveries of archaeological sites and resources, including tribal cultural resources, and would be required to implement mitigation measures **CUL-1** and **TRI-1** through **TRI-8**. Therefore, any discoveries of tribal cultural resources caused by the

project or related projects would be mitigated to a less than significant level. Therefore, the project would have a less than cumulatively considerable impact.

Utilities and Service Systems

Implementation of the proposed project would increase demand for public utilities. However, the proposed project would not result in a significant increase in utility demand and would be accounted for in long-range plans for the provision of such services, as provided in the General Plan. Therefore, the proposed project would have less than cumulatively considerable impacts on utilities and service systems.

Wildfire

The project site is located within a High Fire Hazard Severity Zone. Implementation of mitigation measures **HAZ-1** and **HAZ-2** and compliance with the California Building Code, Fire Code, and other applicable federal, state, and local regulations would ensure that cumulative hazard conditions are less than cumulatively considerable.

c) **Less Than Significant Impact with Mitigation Incorporated**. The proposed project does not have the potential to significantly adversely affect humans, either directly or indirectly. Although a number of impacts were identified as having potential to significantly impact humans, with implementation of the identified mitigation measures, and implementation of standard conditions and requirements, these impacts are less than significant. With implementation of the identified mitigation measures, the proposed project is not expected to cause significant adverse impacts to humans. Furthermore, this document analyzes long-term and short-term impacts and mitigates all potential impacts to a less than significant level; therefore, the proposed project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals. Any impacts are considered less than significant with implementation of Mitigation Measures **AQ-1, AQ-2, GEO-1, GEO-2, HAZ-1, HAZ-2, NOI-1,** and **NOI-2**.

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Appendix 1

Cherry Outpost Development Plans

CHERRY OUTPOST

ENTITLEMENT SUBMITTAL

CONTACT INFORMATION

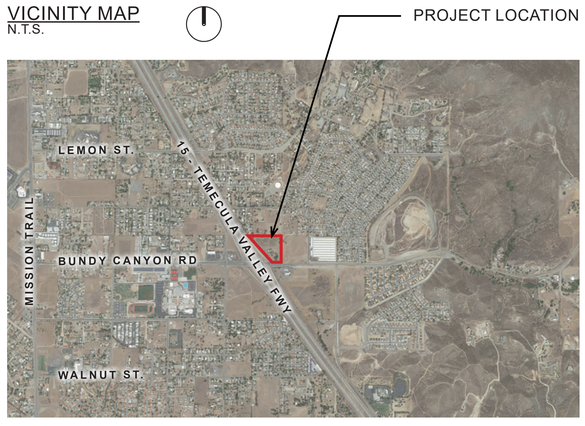
OWNER/DEVELOPER:
J & T MANAGEMENT, INC.
139 RADIO RD
CORONA, CA 92879
KARINE KOFDARALI
(951) 280-3833 EXT. 11
karine@jntmgmt.com

CIVIL ENGINEER:
TAIT & ASSOCIATES, INC.
701 N. PARKCENTER DRIVE
SANTA ANA, CA 92705
KAVEH HAGHIGHI
(714) 560-8640
khaghighi@tait.com

ARCHITECT:
KTGY GROUP, INC.
17911 VON KARMAN AVE, STE 200
IRVINE, CA 92614
JENNIFER WEIGAND
(949) 797-8306
jweigand@ktgy.com

LANDSCAPE ARCHITECT:
CDPC, INC.
3195-C AIRPORT LOOP DRIVE,
STUDIO ONE
COSTA MESA, CA 92626
RICHARD RAMIREZ
(702) 818-1223
rramirez@cdpcinc.com

VICINITY MAP
N.T.S.



PROJECT INFORMATION

SCOPE OF WORK:
PROPOSED DEVELOPMENT OF ±6.64 AC SITE WHICH INCLUDES ±16,700 SF RETAIL, 72 KEY HOTEL, AND ON-SITE IMPROVEMENTS. PROPOSED RETAIL USES INCLUDE RESTAURANTS, CONVENIENCE STORE, GAS/DIESEL STATION AND CAR WASH.

ASSESSOR'S PARCEL NUMBERS:
366-290-007 & 366-290-008

LAND USE: COMMERCIAL RETAIL
CURRENT ZONING: SCENIC HIGHWAY COMMERCIAL

LEGAL DESCRIPTION:
THE LAND REFERRED TO HEREIN IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF RIVERSIDE, CITY OF WILDOMAR AND DESCRIBED AS FOLLOWS:

PARCEL 1:
THAT PORTION OF LOT 29 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. AS SHOWN BY MAP ON FILE IN BOOK 10,, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:
BEGINNING AT A TWO INCH IRON PIPE MARKING THE NORTHEAST CORNER OF SAID LOT 29; THENCE ALONG THE EASTERLY LINE OF SAID LOT 29, SOUTH 01° 11' 58" WEST(RECORD SOUTH 00° 37'20"WEST) 133.12 FEET; THENCE COURSE "A" NORTH 35° 22'37'WEST, 20.59 FEET; THENCE COURSE "B" NORTH 44° 14' 20" WEST, 55.90 FEET; THENCE COURSE "C"NORTH 33° 56'00" WEST, 94.44 FEET TO THE NORTHERLY LINE OF SAID LOT29, DISTANT ALONG SAID NORTHERLY LINE NORTH 88° 52' 14" WEST (RECORD NORTH 89° 26' 10" WEST) 105.44 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTHERLY LINE SOUTH 88° 52*14" EAST (RECORD SOUTH 89° 26'10"EAST) 106.44 FEET TO THE POINT OF BEGINNING.
EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

PARCEL 2:
ALL THAT PORTION OF LOT 19 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, LYING NORTHEASTERLY OF THE STATE HIGHWAY, AS CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED APRIL 20, 1955 IN BOOK 1725. PAGE 467, OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.
EXCEPTING THEREFROM THAT PORTION AS DESCRIBED IN THE DEED TO THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 20.1970 AS FILE NO. 18792, OF OFFICIAL RECORDS.
ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

DRAWING INDEX

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2 EMERGENCY VEHICLE & ACCESSIBLE PATH OF TRAVEL EXHIBIT
3 LOADING PATH EXHIBIT
4 TRUCK ACCESS EXHIBIT
5 PAD 1 CONCEPTUAL FLOOR & ROOF PLAN
6 PAD 1 CONCEPTUAL ELEVATIONS
7 PAD 2 CONCEPTUAL FLOOR & ROOF PLAN
8 PAD 2 CONCEPTUAL ELEVATIONS
9 CAR WASH CONCEPTUAL FLOOR PLAN
10 CAR WASH CONCEPTUAL MEZZANINE PLAN
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17 HOTEL CONCEPTUAL ELEVATIONS
18 GAS CANOPY CONCEPTUAL ELEVATIONS
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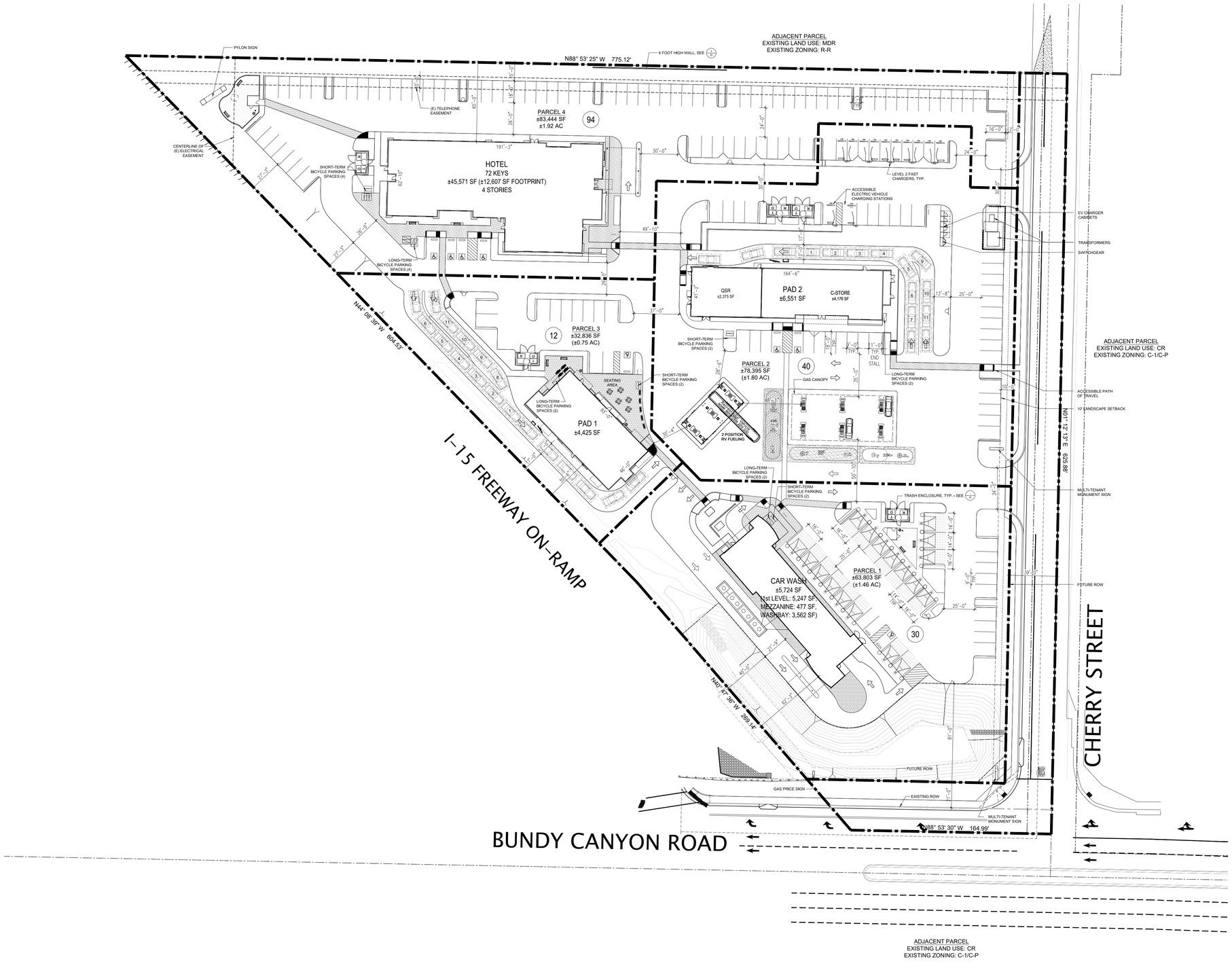
L-2 CONCEPTUAL PARKING LOT SHADE PLAN
L-3 WALL AND FENCE PLAN
L-4 SCREENING TREE PLAN
L-5 CONCEPTUAL PLANTING PALETTE IMAGERY

CIVIL
1 CONCEPTUAL GRADING PLAN
2 CONCEPTUAL UTILITY PLAN
3 EASEMENT PLAN
4 CHERRY STREET CENTERLINE PROFILE
5 STRIPING PLAN



SITE SUMMARY

FUTURE NET LAND AREA:	±289,445 SF (±6.64 AC)
EXISTING LAND AREA :	±259,087 SF (±5.95 AC)
BUILDING AREA :	±62,271 SF
LAND/BLDG RATIO:	9.0/1[1]
COVERAGE:	10.0%[1]
PARKING PROVIDED:	176 STALLS
PARKING REQUIRED :	151 STALLS[2]
RETAIL PARKING RATIO:	6.2/1000[3]

BICYCLE PARKING REQUIRED

SHORT TERM PARKING:	9 STALLS[4]
LONG TERM PARKING:	9 STALLS[4]

BICYCLE PARKING PROVIDED

SHORT TERM PARKING:	10 STALLS
LONG TERM PARKING:	10 STALLS

1 Based on Future Net Land Area and first level building area (±28,830 SF).
2 Based on City of Wildomar Municipal Code:
General Retail: 6/1000 (13,138[5]) = 79 stalls
Hotel: 1/ Key (72) = 72 stalls
3 Based on retail building area (13,138 SF[5]) and retail parking (82 stalls).
4 Based on 2022 CalGreen section 5.106.4.
5 Carwash Tunnel/Wash Bay (3,562 SF) is excluded from calculation.

NOTE:
GAS STATION TO PROVIDE REGULAR FUEL PRODUCTS, DIESEL, E85, RACING FUEL, AND ELECTRIC VEHICLE CHARGING STATIONS.
E85 AND RACING FUEL TO BE PROVIDED WITHIN STANDARD FUEL CANOPY.

UTILITIES & SERVICE

WATER:
ELSINORE VALLEY MUNICIPAL WATER DISTRICT
31315 CHANEY ST.
LAKE ELSINORE, CA 92530
951-674-3146

SEWER:
ELSINORE VALLEY MUNICIPAL WATER DISTRICT
31315 CHANEY ST.
LAKE ELSINORE, CA 92530
951-674-3146

GAS:
SOUTHERN CALIFORNIA GAS COMPANY
1801 S. ATLANTIC BLVD
MONTEREY PARK, CA 91754
1-800-427-2000

ELECTRIC:
SOUTHERN CALIFORNIA EDISON COMPANY
P.O. BOX 6400
RANCHO CUCAMONGA, CA 91729
1-800-990-7788

TELEPHONE:
FRONTIER
9 SOUTH 4TH ST.
REDLANDS, CA 92373
909-217-0116

CABLE TELEVISION:
SPECTRUM/CHARTER
560 S. PROMENADE AVE #102
CORONA, CA 92879
951-393-3146

SCHOOL DISTRICT:
LAKE ELSINORE UNIFIED SCHOOL DISTRICT
545 CHANEY ST.
LAKE ELSINORE, CA 92530
951-253-7000

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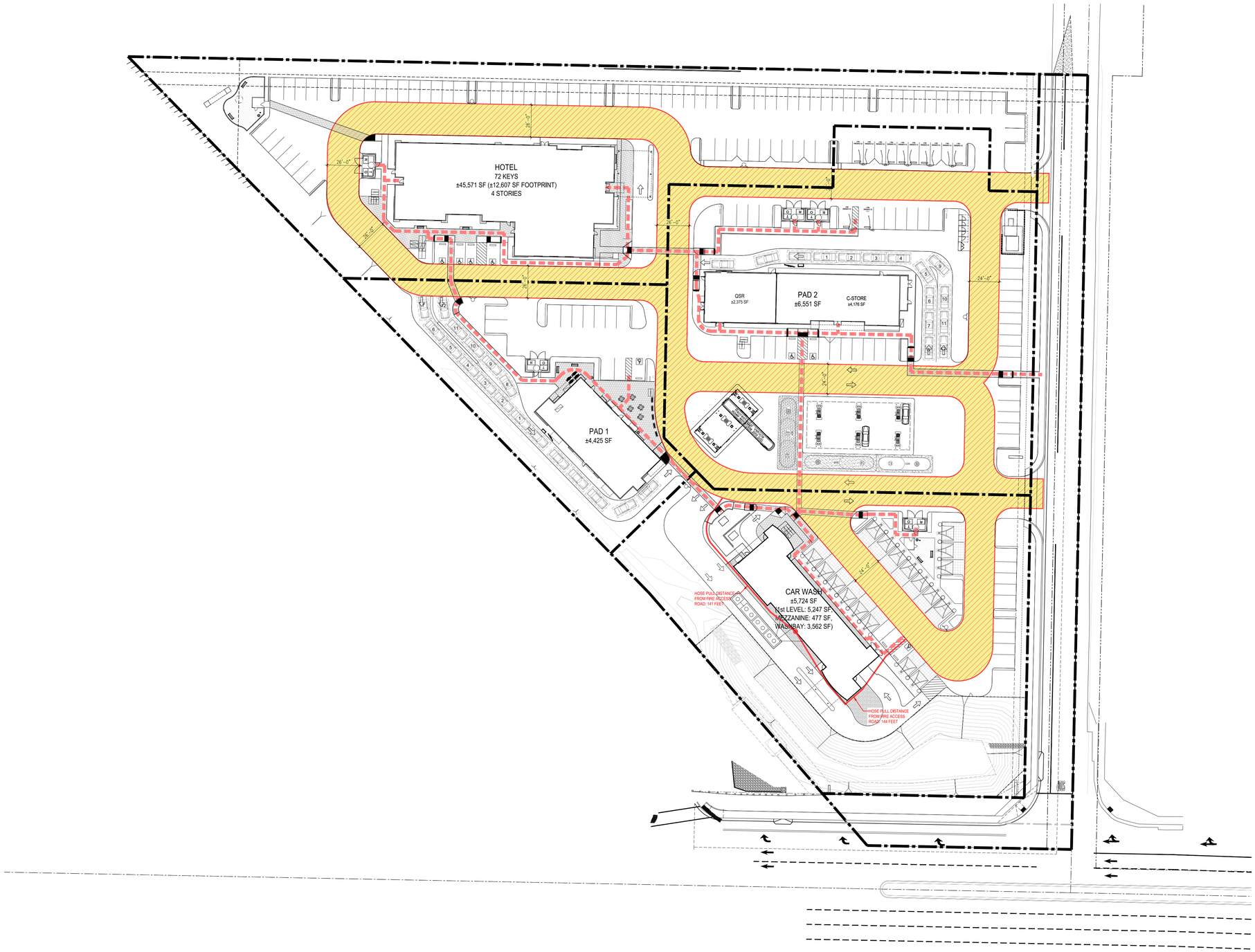
0 20 40 80
SCALE: 1" = 40'

CONCEPTUAL SITE PLAN

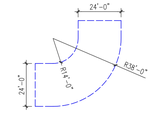


LEGEND

ACCESSIBLE PATH OF TRAVEL

FIRE LANE/SERVICE VEHICLE PATH

FIRE TRUCK TURNING RADIUS



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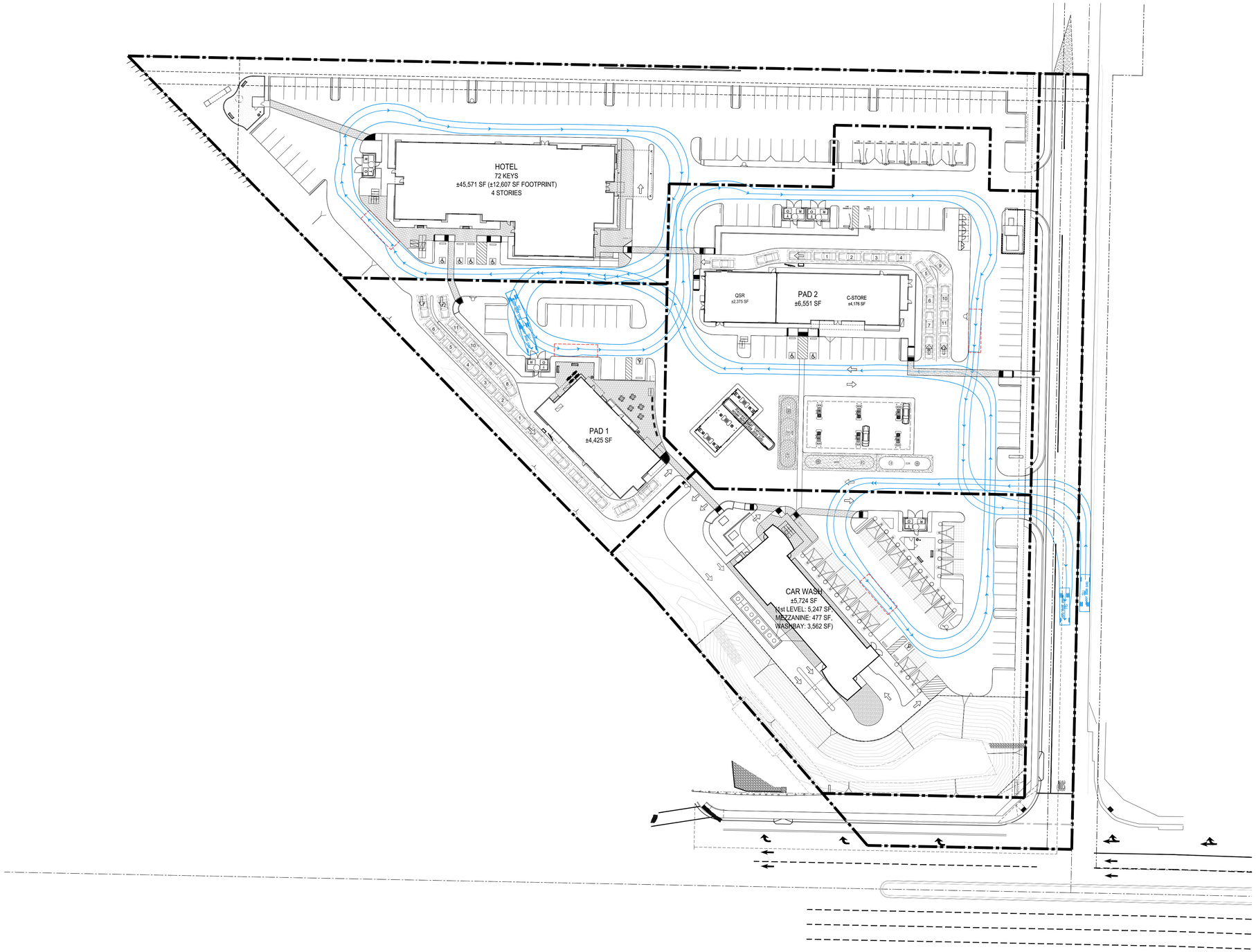
SCALE: 1" = 40'

EMERGENCY VEHICLE &
ACCESSIBLE PATH OF TRAVEL EXHIBIT

2



LEGEND

LOADING TRUCK PATH

LOADING AREA

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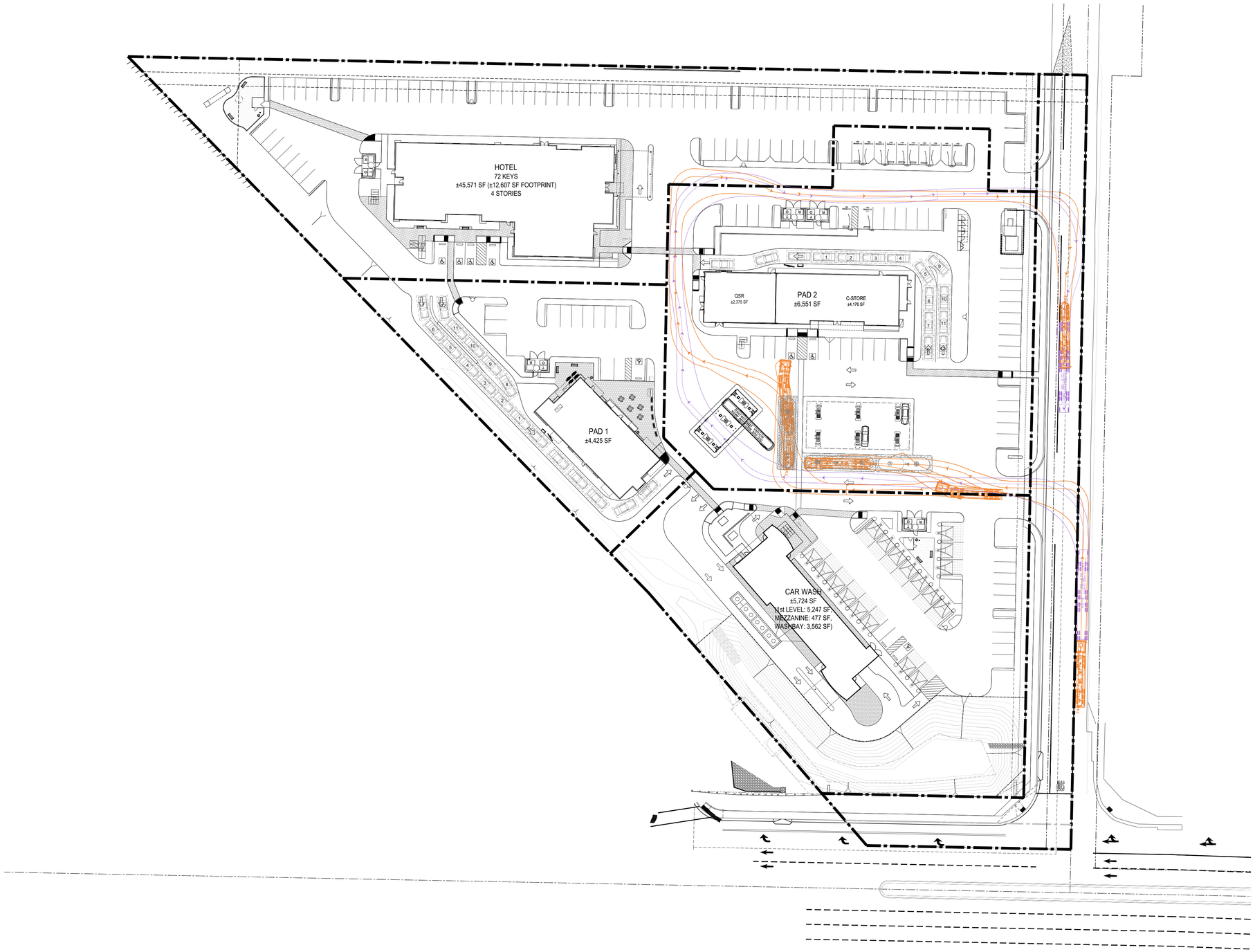
SCALE: 1" = 40'

LOADING PATH EXHIBIT



LEGEND

WB-67D TRUCK PATH

FUEL TANKER TRUCK PATH

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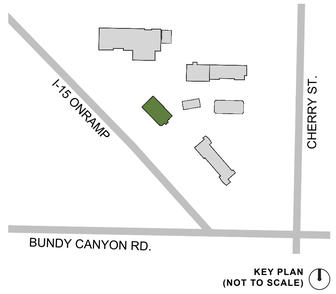
0 20 40 80
SCALE: 1" = 40'

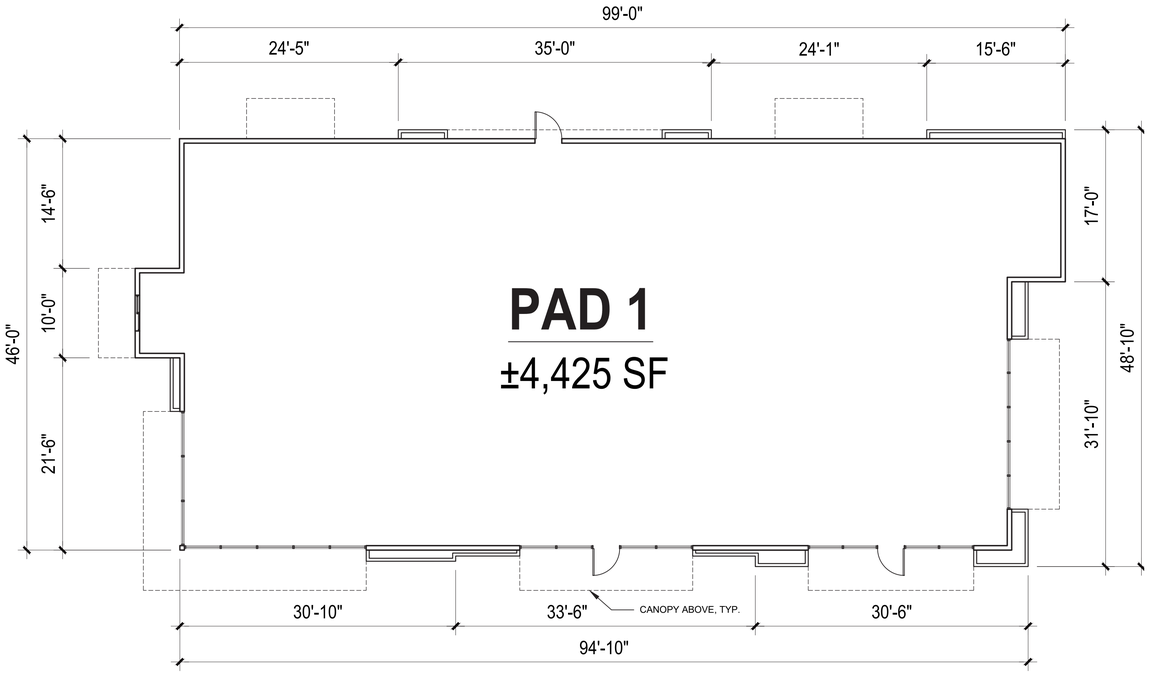
TRUCK ACCESS EXHIBIT

4



KEY PLAN
(NOT TO SCALE)

NOTE:
1. RTU PLACEMENT IS CONCEPTUAL AND IS SUBJECT TO CHANGE



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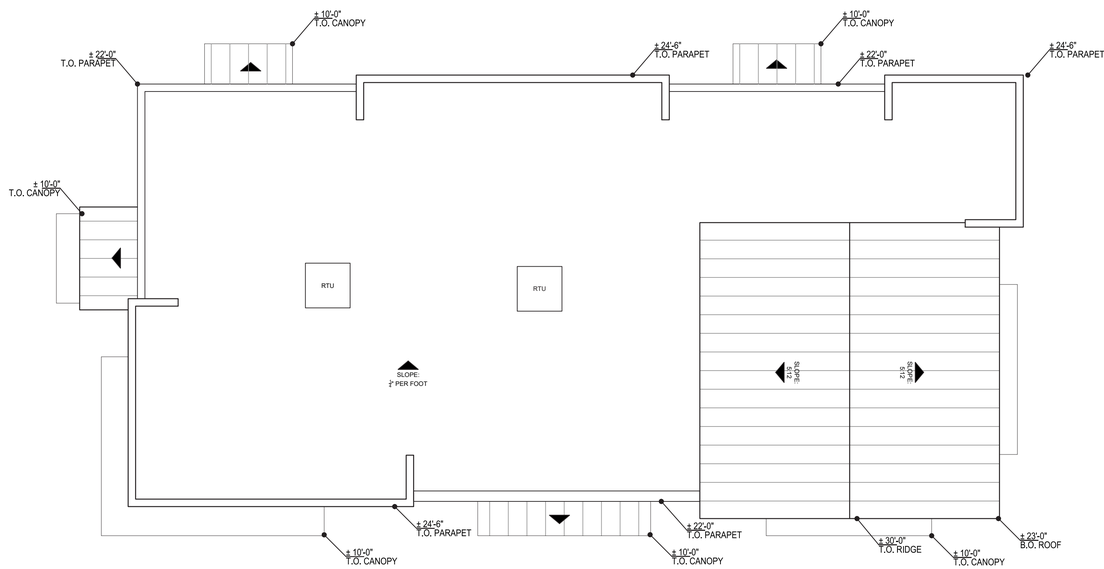

2 ROOF PLAN

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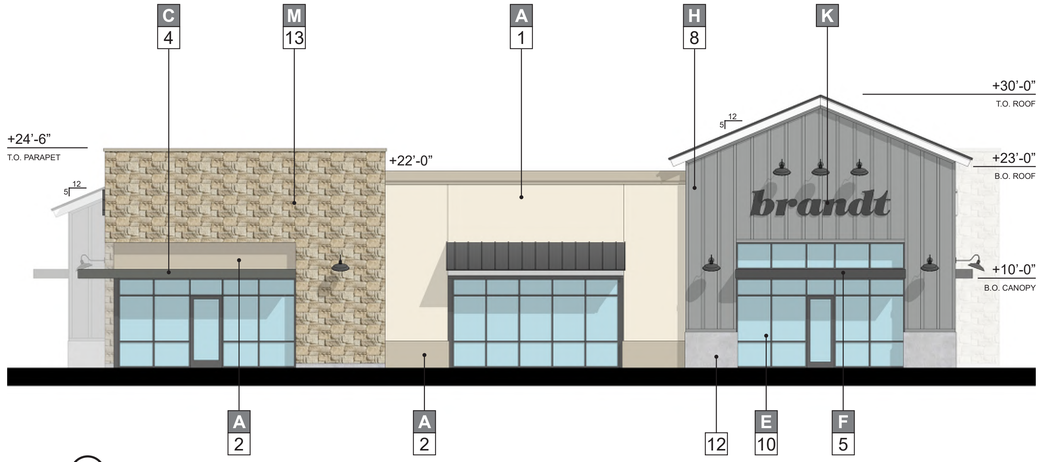
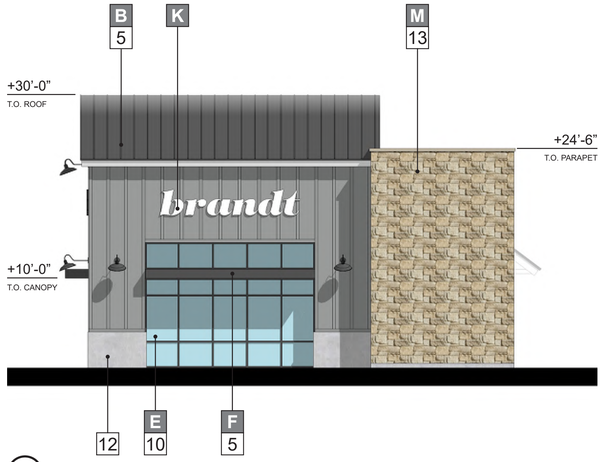
0 4 8 16
SCALE: 1/8" = 1'

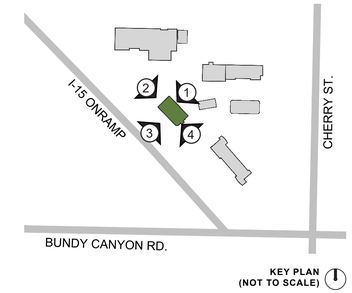
CONCEPTUAL PLANS
PAD 1

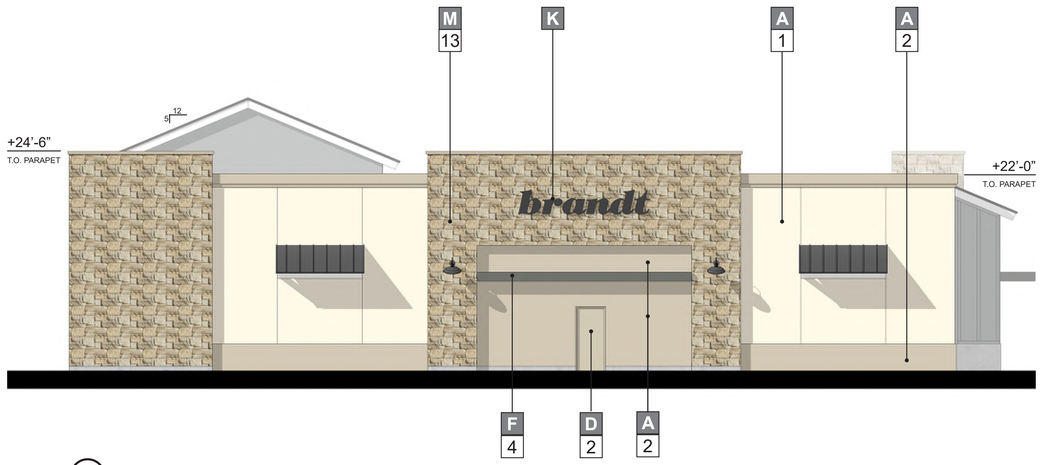


1 NORTHEAST ELEVATION (FRONT)

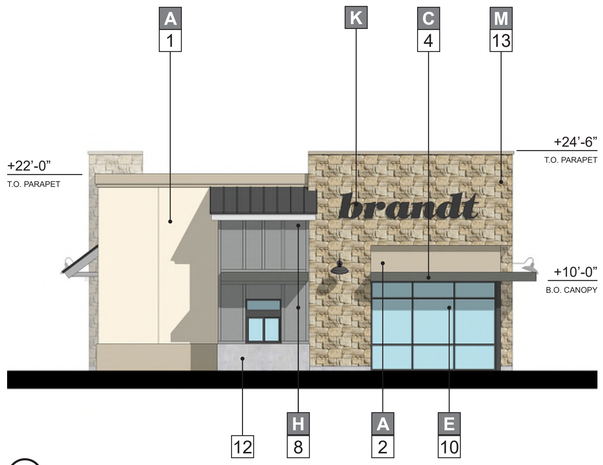


2 NORTHWEST ELEVATION (RIGHT)





3 SOUTHWEST ELEVATION (REAR)



4 SOUTHEAST ELEVATION (LEFT)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
D	**DOOR**	K	**SIGNAGE**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"	13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

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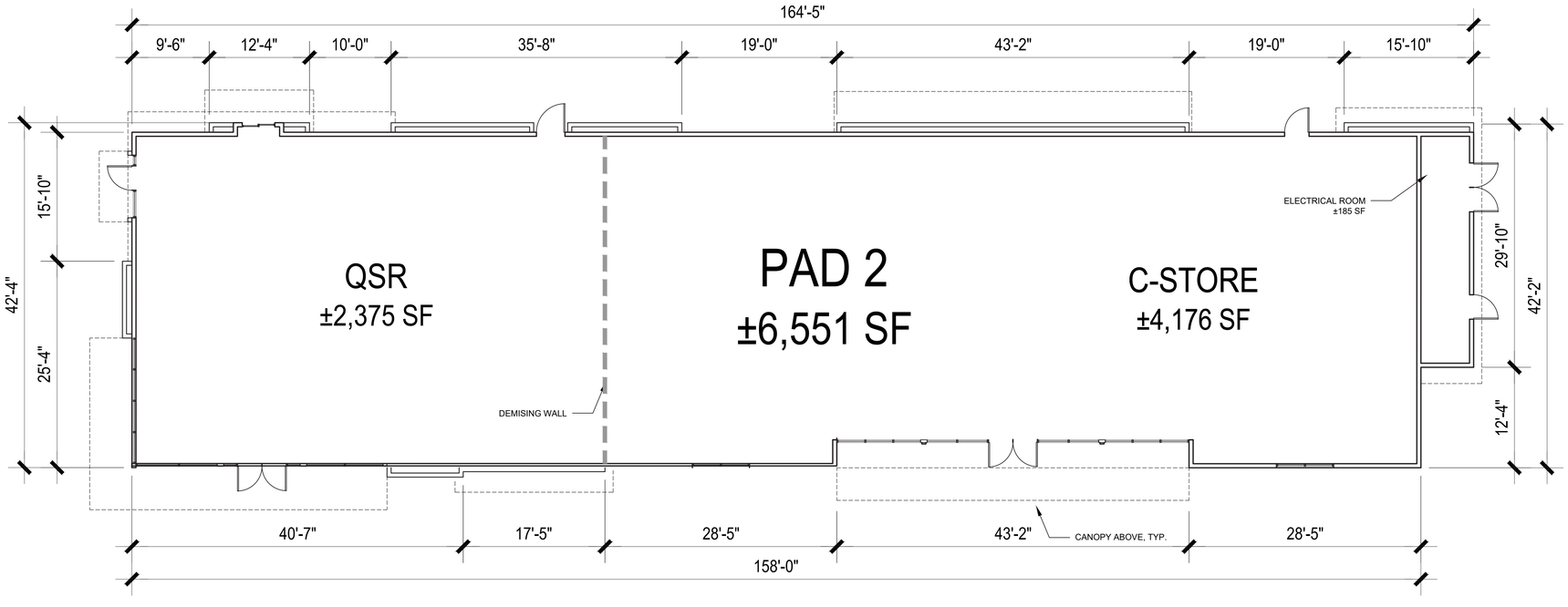
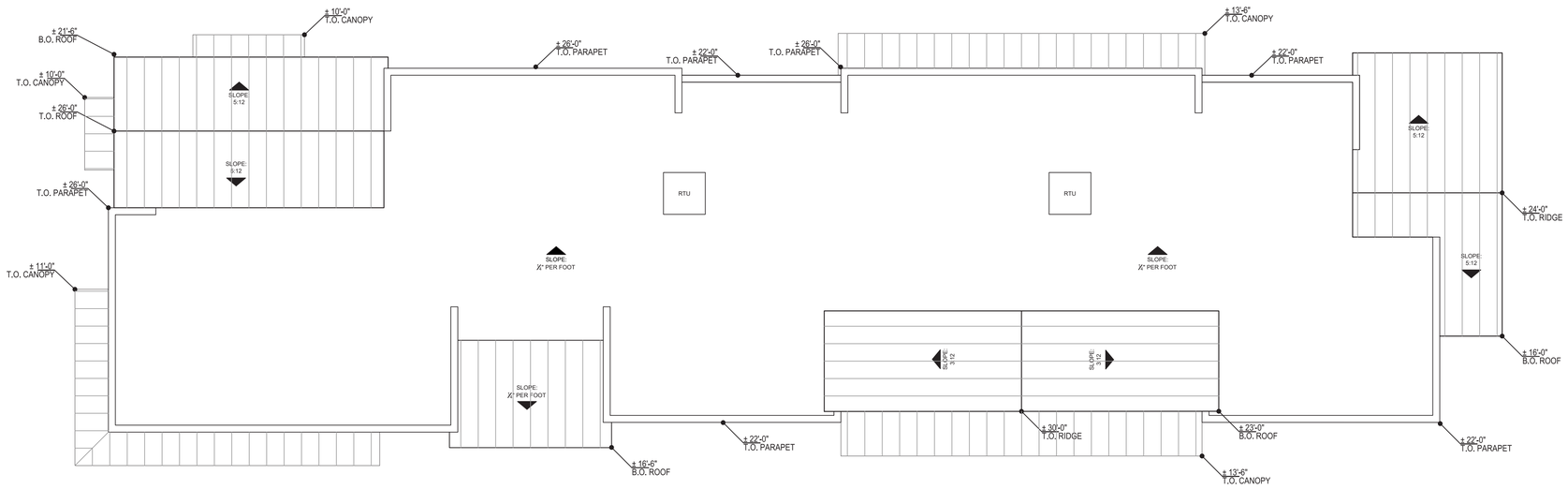
0 4 8 16
SCALE: 1/8" = 1'

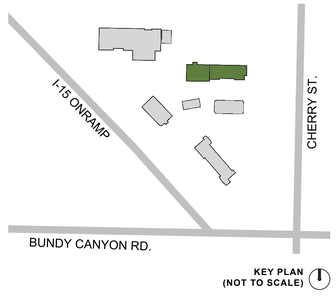
CONCEPTUAL ELEVATIONS
PAD 1



1 FLOOR PLAN



2 ROOF PLAN



NOTE:
1. RTU PLACEMENT IS CONCEPTUAL AND IS SUBJECT TO CHANGE

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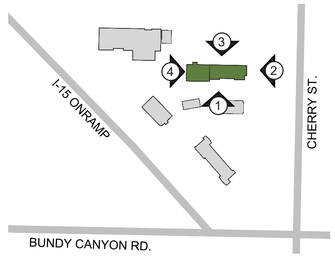
CHERRY OUTPOST
WILDOMAR, CA
2022-0521

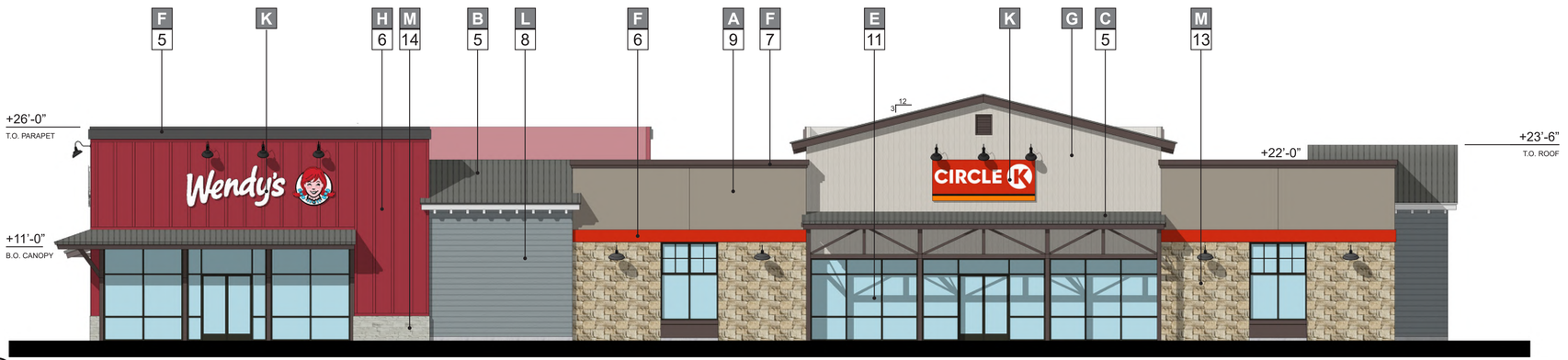
ENTITLEMENT SUBMITTAL
OCTOBER 3, 2024

0 4 8 16
SCALE: 1/8" = 1'

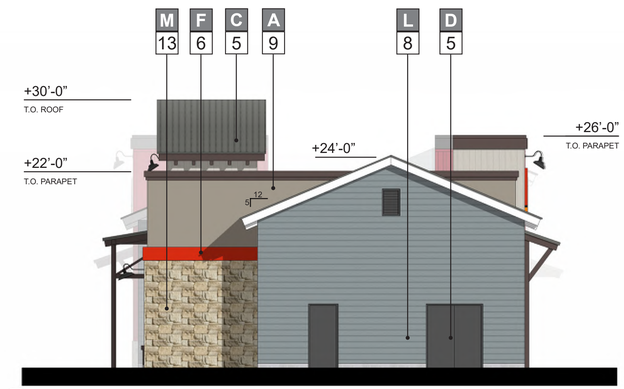
CONCEPTUAL PLANS
PAD 2



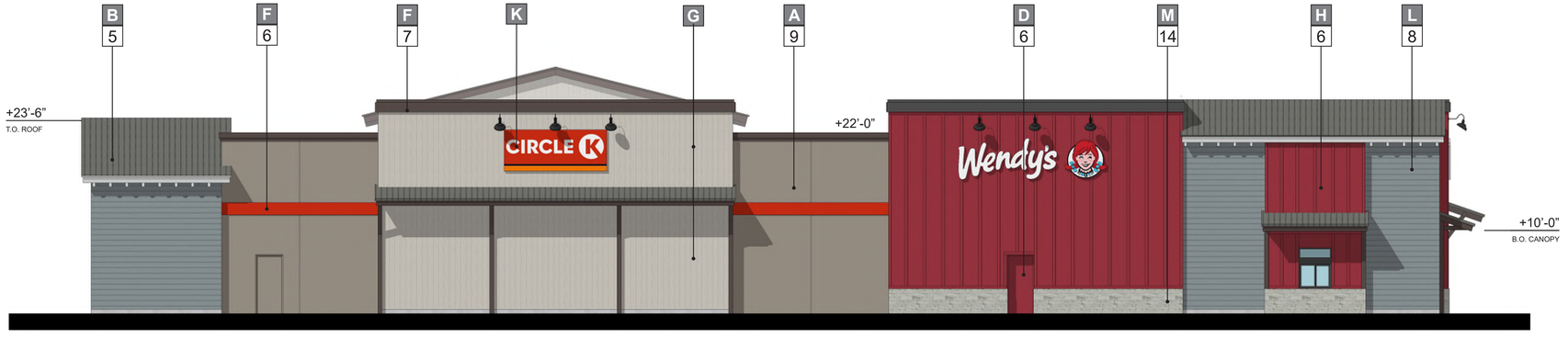
KEY PLAN
(NOT TO SCALE)



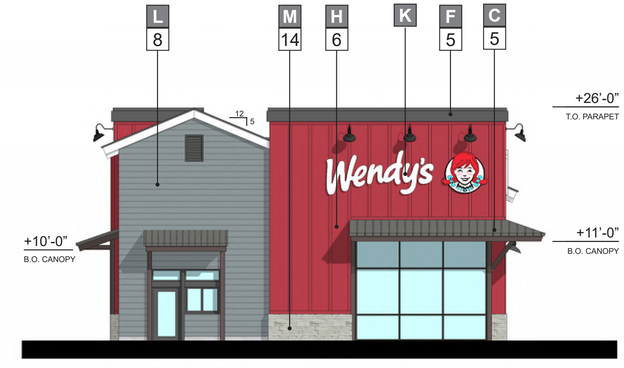
1 SOUTH ELEVATION (FRONT)



2 EAST ELEVATION (RIGHT)



3 NORTH ELEVATION (REAR)



4 WEST ELEVATION (LEFT)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"	1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**	2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"	3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"
D	**DOOR**	K	**SIGNAGE**	4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**	5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**	6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE

COLORS & FINISHES

13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"

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J&T Management, Inc.
139 Radio Road
Corona, CA 92879

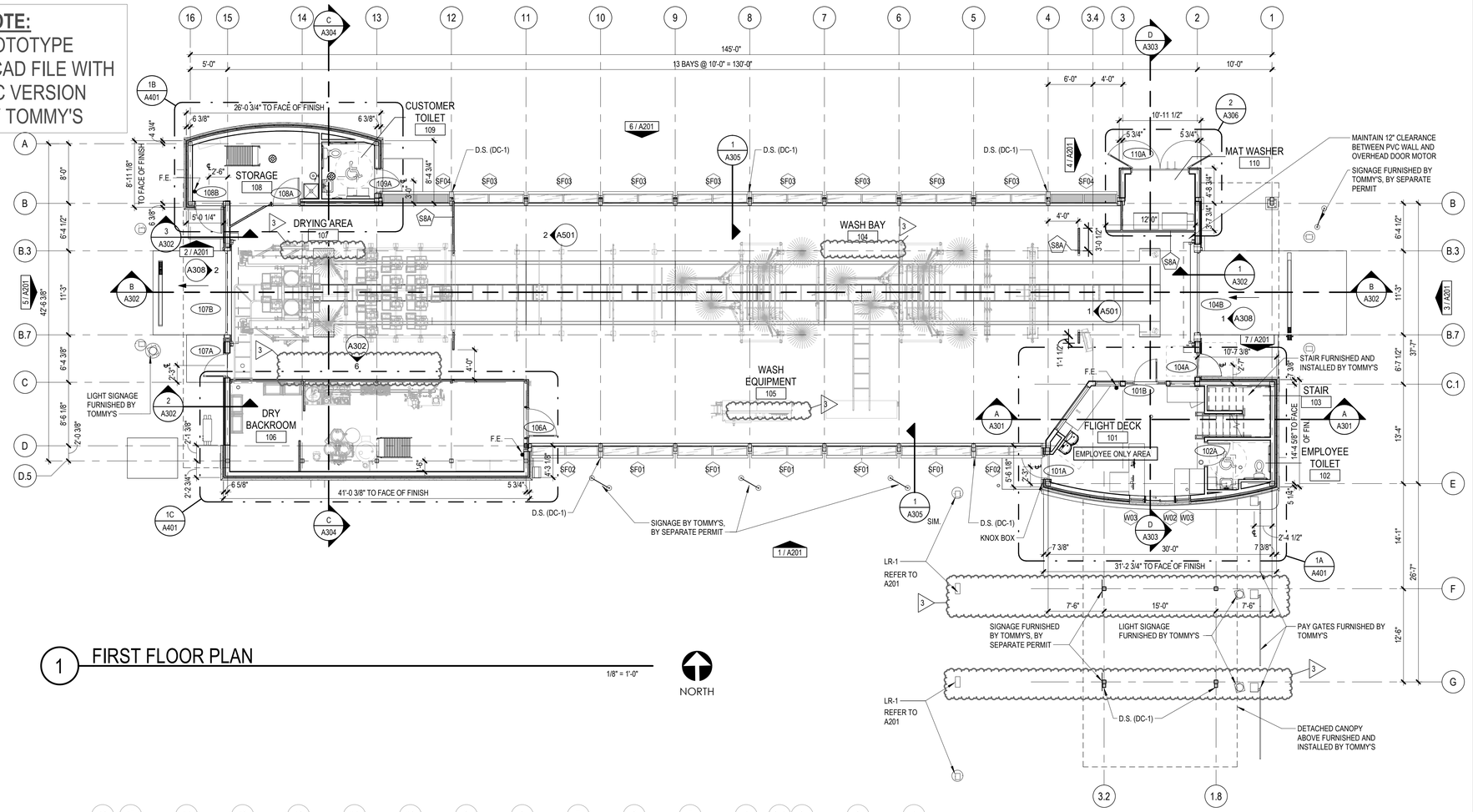
CHERRY OUTPOST
WILDOMAR, CA
2022-0521

ENTITLEMENT SUBMITTAL
OCTOBER 3, 2024

0 4 8 16
SCALE: 1/8" = 1'

CONCEPTUAL ELEVATIONS
PAD 2

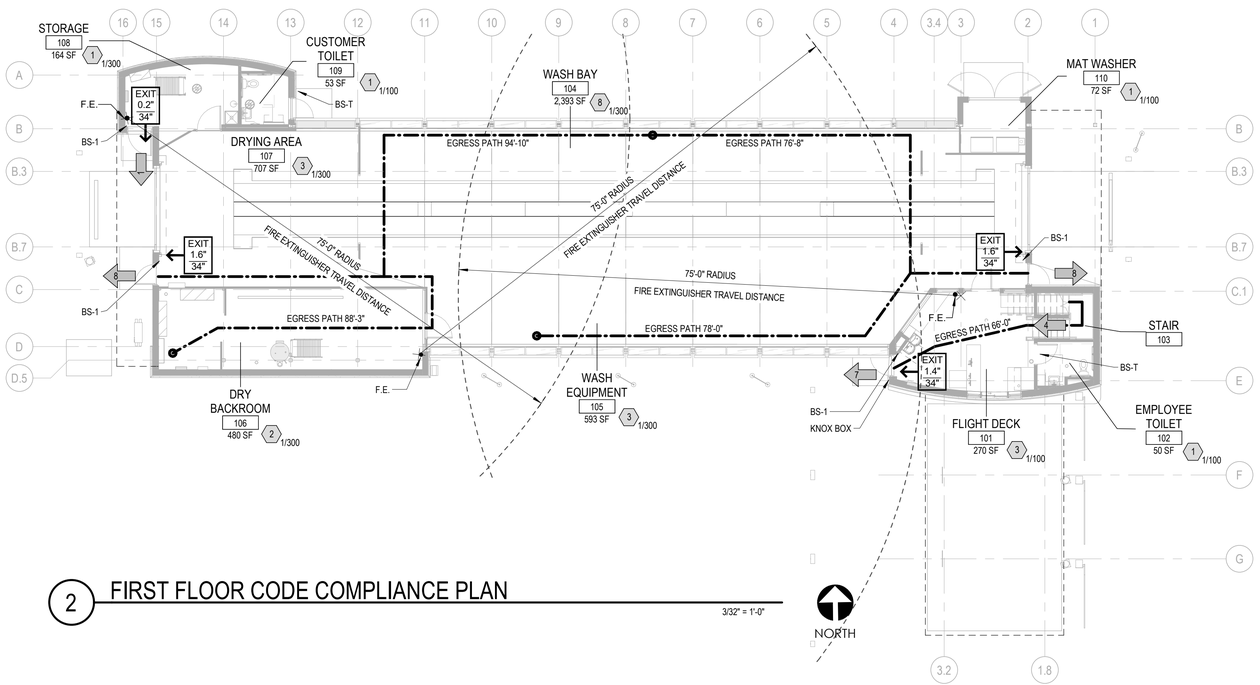
DESIGNER NOTE:
REPLACE PROTOTYPE EQUIPMENT CAD FILE WITH SITE SPECIFIC VERSION PROVIDED BY TOMMY'S



1 FIRST FLOOR PLAN

1/8" = 1'-0"

NORTH



2 FIRST FLOOR CODE COMPLIANCE PLAN

3/32" = 1'-0"

NORTH

DESIGNER NOTE:
STRUCTURAL STEEL MODEL IS INCLUDED FOR REFERENCE ONLY AS A "GENERIC MODEL" FAMILY ON WORKSET "XLINK_STEEL FRAME". REFER TO SITE SPECIFIC STEEL DRAWINGS FOR MORE INFORMATION.

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. FINISH FLOOR ELEVATION = 100' - 0". REFER TO CIVIL DRAWINGS FOR SITE DATUM ELEVATION EQUIVALENT.
3. BEGINNING WORK INDICATES THAT THE CONTRACTOR HAS ACCEPTED AND VERIFIED EXISTING CONDITIONS.
4. REFER TO CODE COMPLIANCE DRAWING(S) FOR LOCATIONS OF RATED ASSEMBLIES AND CODE SUMMARY.
5. ALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF CONCRETE, FACE OF STUDS, COLUMN CENTERLINE AS SHOWN UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS ARE PERPENDICULAR AND PARALLEL, UNLESS NOTED OTHERWISE.
7. OWNER FURNISHED EQUIPMENT IS SHOWN LIGHT DASHED FOR REFERENCE ONLY. REFER TO EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.

FLOOR PLAN LEGEND AND NOTES

D.S. DOWNSPOUTS FURNISHED AND INSTALLED BY G.C.

ENCLOSURES **DC-1** FURNISHED AND INSTALLED BY TOMMY'S, REFER TO SHEET A201

(#) REFER TO SHEET A602 FOR WINDOW SCHEDULE

(#) REFER TO SHEET A601 FOR DOOR SCHEDULE

(#) WALL TYPE, REFER TO WALL TYPE LEGEND

NEW WALL CONSTRUCTION, REFER TO WALL TYPE LEGEND

NOTE 1: ALL GYPSUM BOARD TO BE "TYPE X" FIRE RATED, UNLESS NOTED OTHERWISE, TYP. USE MOISTURE RESISTANT GYP. BOARD IN WET AREAS, TYP.

NOTE 2: ALL PLYWOOD AND DIMENSIONAL LUMBER USED AS BLOCKING TO BE EXTERIOR GRADE PRESSURE TREATED WOOD, UNLESS NOTED OTHERWISE, TYP.

INTERIOR WALL GENERAL NOTES

1. CONSTRUCT ALL WALLS TIGHT TO DECK ABOVE AND EXTEND INTO DECK FLUTES AND WEBS OF STEEL MEMBERS UNLESS OTHERWISE NOTED.
2. PROVIDE DEFLECTION TRACK AT THE TOP OF ALL INTERIOR NON-BEARING METAL STUD WALLS CAPABLE OF ACCOMMODATING 3/4" ROOF/FLOOR DEFLECTION.

INTERIOR WALL LEGEND

S1 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
- S1A 3-5/8" METAL STUDS

S2 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE AND ACOUSTICAL BATT INSULATION. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
- S2A 3-5/8" METAL STUDS

S3 METAL STUD FURRING / FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD ONE SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. PROVIDE FRP PANELS IN TOILET ROOMS AS REQUIRED, REFER TO INTERIOR ELEVATIONS FOR HEIGHTS OF FRP AT TOILET ROOMS
- S3A 7/8" METAL HAT CHANNEL
- S3B 1-1/2" METAL STUDS
- S3D 3-5/8" METAL STUDS

S4 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD ONE SIDE AND 1/2" CDX PLYWOOD WITH SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) AND 1/2" PVC PANELS INSTALLED ON WASH TUNNEL SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
- S4E 6" METAL STUDS

S5 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD AND SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) ONE SIDE AND 5/8" GYPSUM BD W/ FRP PANELS ON TOILET ROOM SIDE, REFER TO INTERIOR ELEVATION FOR HEIGHTS OF FRP. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. UNLESS NOTED OTHERWISE
- S5B 6" METAL STUDS

S6 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE AND 1/2" CDX PLYWOOD WITH SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) AND 1/2" PVC WALL PANEL. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. UNLESS NOTED OTHERWISE
- S6A 3-5/8" METAL STUDS

S7 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE AND 5/8" GYPSUM BD W/ FRP PANELS ON TOILET ROOM SIDE, REFER TO INTERIOR ELEVATION FOR HEIGHTS OF FRP. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. UNLESS NOTED OTHERWISE
- S7A 3-5/8" METAL STUDS

S8 DEMOUNTABLE PVC WALL PANEL SYSTEM FURNISHED BY TOMMY'S
- S8A 2-1/4" THICK X 24 " WIDE TONGUE & GROOVE PANEL

S9 NOT USED

S10 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF STRUCTURE ABOVE.
- S10A 3-5/8" METAL STUDS

S11 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE. EXTEND ALL WALL COMPONENTS TO 3'-6" ABOVE UPPER STAIR NOSING
- S11A 3-5/8" METAL STUDS

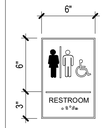
NOTE: ALL PVC WALL PANELS/TRIM ARE FURNISHED BY TOMMY'S AND INSTALLED BY G.C. STAINLESS STEEL FASTENERS FURNISHED AND INSTALLED BY G.C. REFER TO TOMMY'S PROVIDED EXTRUTECH MANUAL FOR FASTENER TYPES AND LOCATIONS.

SIGNAGE



BS-1

BUILDING SIGNS - EXIT 8"W X 6"H
BLACK PLASTIC (FIELD) BACKGROUND WITH WHITE EMBLEMS AND 2" HIGH WHITE LETTERING. (NOTE: EMBLEMS AND LETTERING MUST BE RAISED OR DEPRESSED MIN 1/16" TYPICAL.) PROVIDE (1) SIGN PER EXIT DOOR COMPLYING WITH ANSI A117.1. SIGN TO HAVE RAISED AND BRAILLE CHARACTERS. MOUNT NEAR CORRESPONDING DOOR ACCORDING TO LOCAL CODE.



BS-T

BUILDING SIGNS - TOILET ROOMS 6"W X 9"H
BLACK PLASTIC (FIELD) BACKGROUND WITH WHITE EMBLEMS AND 5/8" MIN. TO 2" MAX. HIGH WHITE LETTERING. (NOTE: EMBLEMS AND LETTERING MUST BE RAISED OR DEPRESSED MIN 1/16" TYPICAL.) PROVIDE (1) SIGN PER TOILET ROOM COMPLYING WITH ANSI A117.1. SIGN TO HAVE RAISED AND BRAILLE CHARACTERS AND PICTORAL SYMBOL OF ACCESSIBILITY. MOUNT NEAR CORRESPONDING DOOR ACCORDING TO LOCAL CODE.

CODE LEGEND

100 EXIT/EXIT ACCESS WITH CAPACITY SERVED

DIRECTION OF EGRESS INCUDING SECONDARY EXIT/EXIT ACCESS

(#) XXX/XX SF OCCUPANT LOAD OF SPACE AND BASIS FOR CALCULATION

EXIT
XXX REQUIRED EGRESS DOOR WIDTH
XXX PROVIDED EGRESS DOOR WIDTH

F.E. WALL MOUNTED FIRE EXTINGUISHER CLASS A Ordinary (Moderate) Hazard Occupancy 2A-10B EXTINGUISHER. CONTRACTOR TO VERIFY LOCATION WITH FIRE INSPECTOR PRIOR TO INSTALLATION. 75' TRAVEL DISTANCE MAXIMUM.

REVISION NUMBER	REVISION DATE	REVISION DESCRIPTION
-	01/26/2022	2022 CI
1	01/13/2023	2023 CM
2	01/31/2023	2024 CM

CONSULTANTS

TOMMY CAR WASH SYSTEMS
QUOTE: XXXXX
VERSION NUMBER: XX
PROGRAM: 2023-Q1-T3-R24

FIRST FLOOR PLAN AND CODE COMPLIANCE PLAN

TOMMY CAR WASH SYSTEMS

TOMMY EXPRESS TT130-T3-R24-Q1

ADDRESS, CITY, STATE ZIP

ISSUED BY:

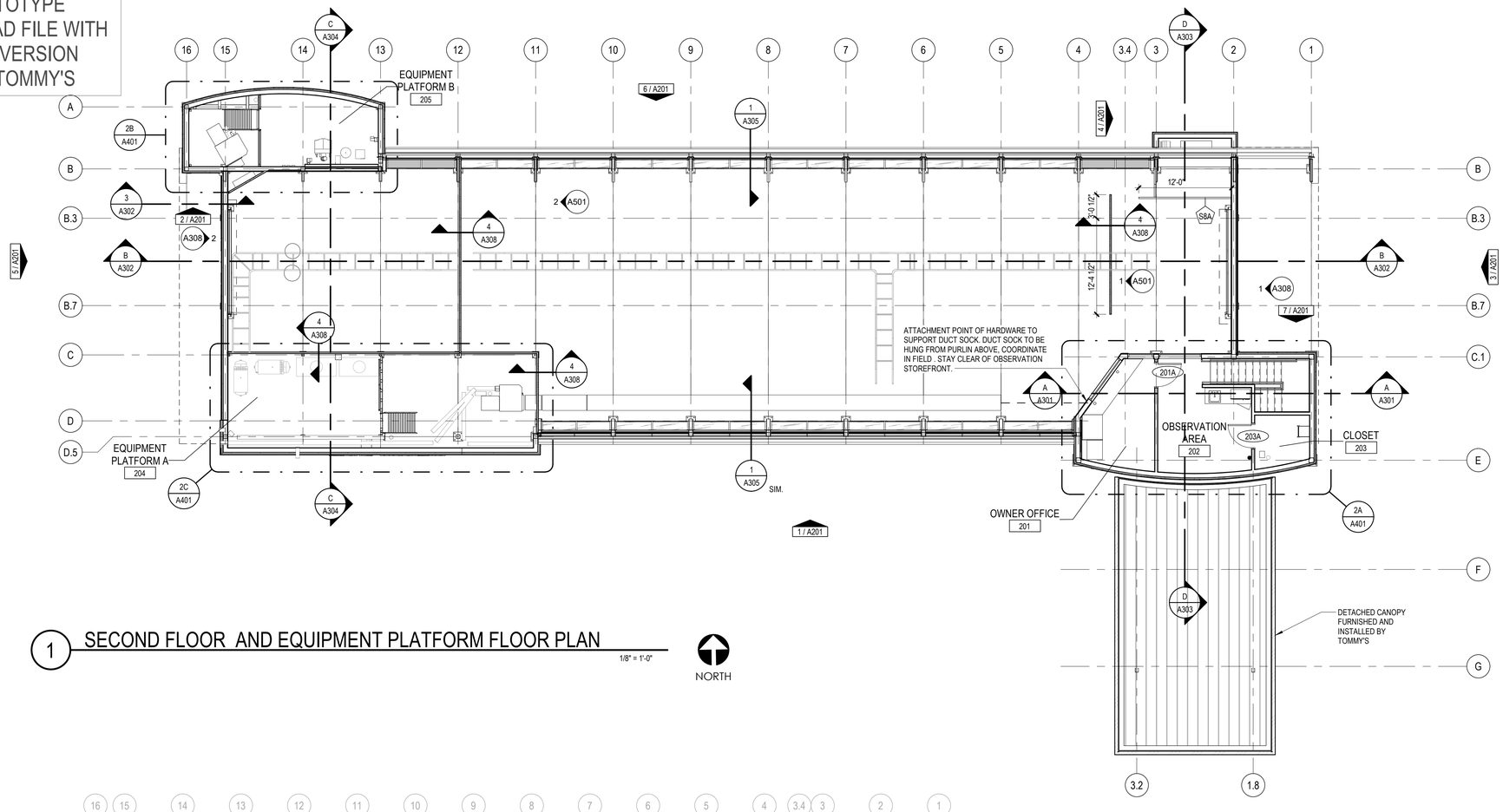
PRELIMINARY NOT FOR CONSTRUCTION

Drawn By: -
Checked By: -
Quality Assurance: -
Scale: As indicated
Sheet: 9
Date: 01/31/2023
Project Number: -

Paul I. Cripe, Inc.

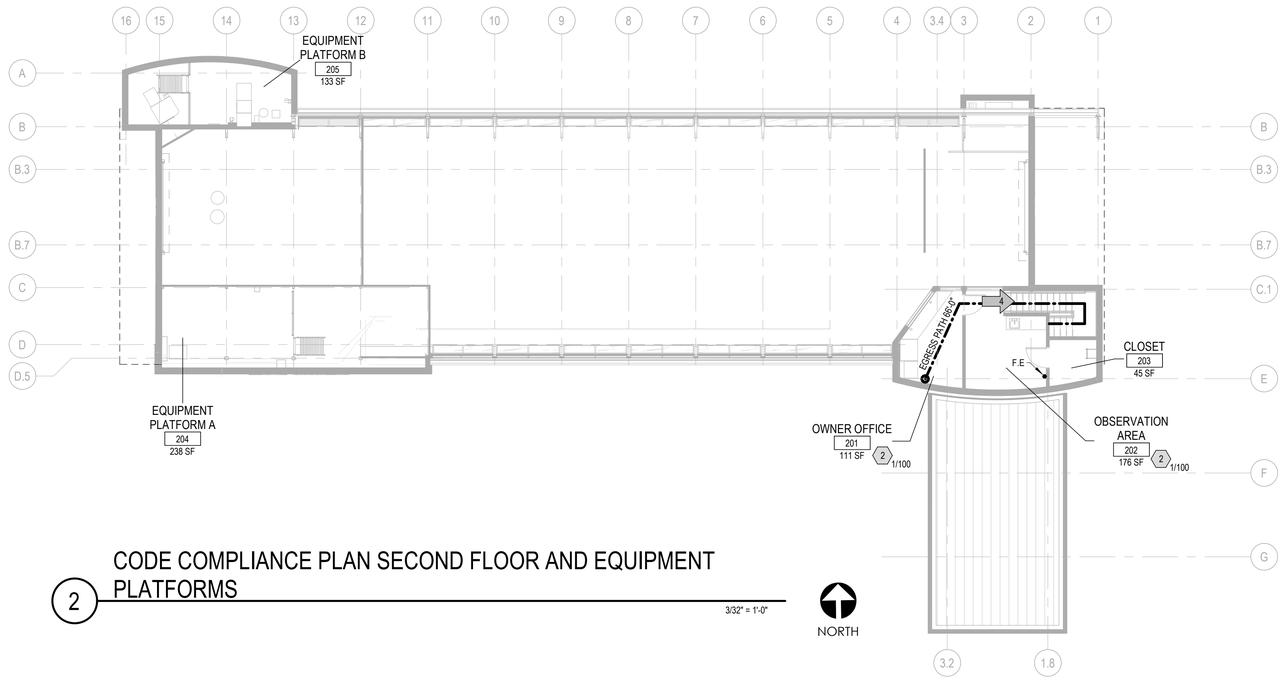
2/1/2023 8:23:19 AM

DESIGNER NOTE:
REPLACE PROTOTYPE EQUIPMENT CAD FILE WITH SITE SPECIFIC VERSION PROVIDED BY TOMMY'S



1 SECOND FLOOR AND EQUIPMENT PLATFORM FLOOR PLAN
1/8" = 1'-0"

NORTH



2 CODE COMPLIANCE PLAN SECOND FLOOR AND EQUIPMENT PLATFORMS
3/32" = 1'-0"

NORTH

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FLOOR PLAN LEGEND AND NOTES

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INTERIOR WALL LEGEND

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- S1A 3-5/8" METAL STUDS

(S2) METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE AND ACOUSTICAL BATT INSULATION. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
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- S3B 1-1/2" METAL STUDS
- S3D 3-5/8" METAL STUDS

(S4) METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD ONE SIDE AND 1/2" CDX PLYWOOD WITH SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) AND 1/2" PVC PANELS INSTALLED ON WASH TUNNEL SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
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- S5B 6" METAL STUDS

(S6) METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE AND 1/2" CDX PLYWOOD WITH SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) AND 1/2" PVC WALL PANEL. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. UNLESS NOTED OTHERWISE
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- S7A 3-5/8" METAL STUDS

(S8) DEMOUNTABLE PVC WALL PANEL SYSTEM FURNISHED BY TOMMY'S
- S8A 2-1/4" THICK X 24 " WIDE TONGUE & GROOVE PANEL

(S9) NOT USED

(S10) METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF STRUCTURE ABOVE.
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XXX/XX SF

EXIT
XXX REQUIRED EGRESS DOOR WIDTH
XXX PROVIDED EGRESS DOOR WIDTH

F.E. WALL MOUNTED FIRE EXTINGUISHER CLASS A Ordinary (Moderate) Hazard Occupancy 2A-10B EXTINGUISHER. CONTRACTOR TO VERIFY LOCATION WITH FIRE INSPECTOR PRIOR TO INSTALLATION. 75' TRAVEL DISTANCE MAXIMUM.

REVISION NUMBER	REVISION DATE	REVISION DESCRIPTION
1	03/28/2022	2023 Q1
3	01/13/2023	2024 Q1

CONSULTANTS

TOMMY CAR WASH SYSTEMS
QUOTE: XXXXX
VERSION NUMBER: XX
PROGRAM: 2023-Q1-T3-R24

SECOND FLOOR PLAN AND CODE COMPLIANCE PLAN

TOMMY CAR WASH SYSTEMS

TOMMY EXPRESS TT1130-T3-R24-Q1

ADDRESS, CITY, STATE ZIP

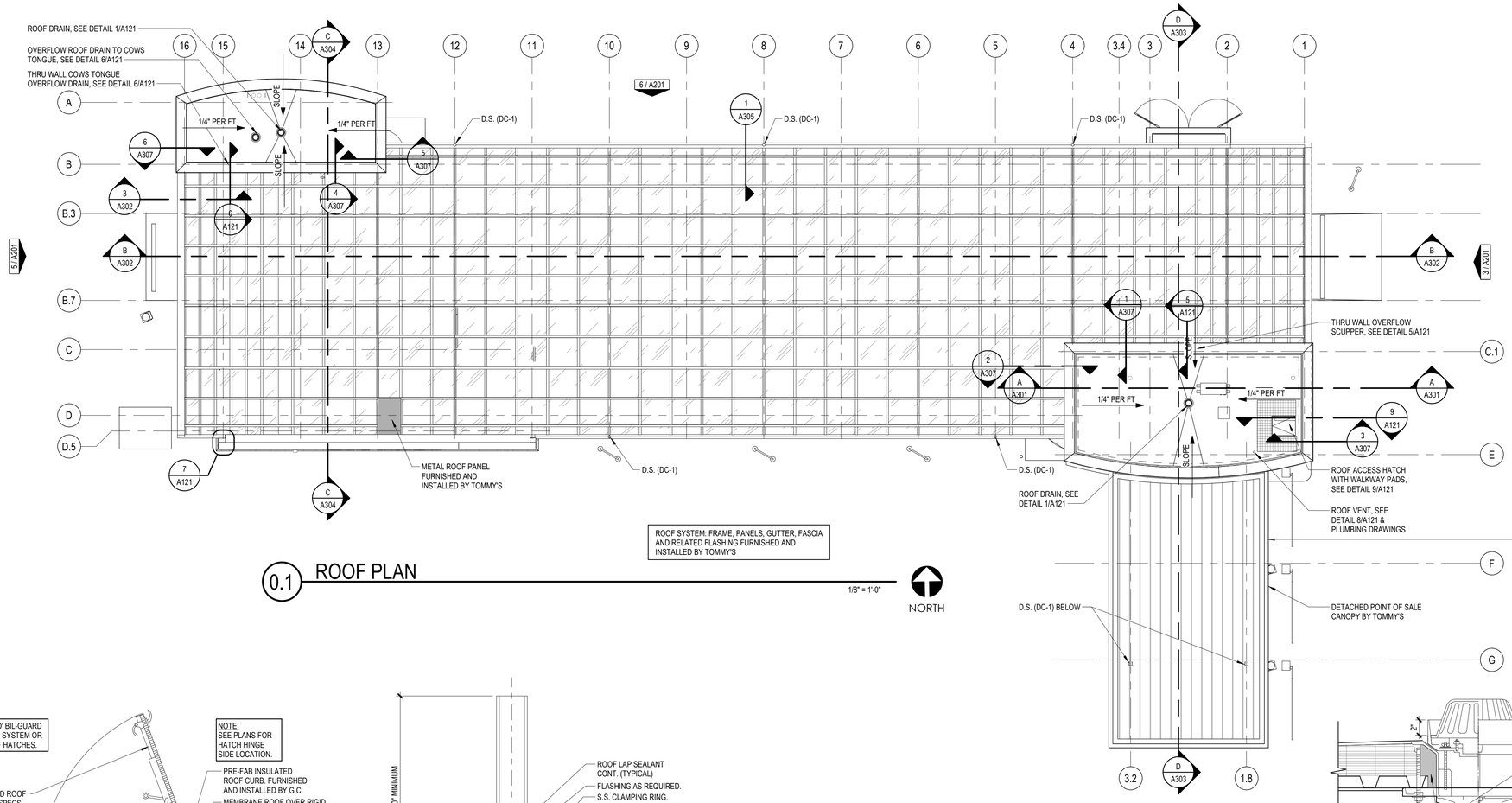
VERIFIED BY:

PRELIMINARY NOT FOR CONSTRUCTION

Drawn By: -
Checked By: -
Quality Assurance: -
Scale: As indicated
Sheet: 10
Date: 01/31/2023
Project Number: -

Paul I. Cripe, Inc.

2/1/2023 8:23:24 AM



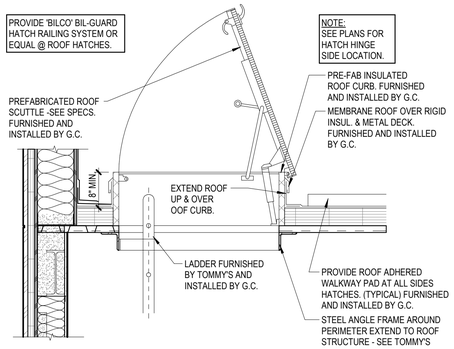
0.1 ROOF PLAN

1/8" = 1'-0"

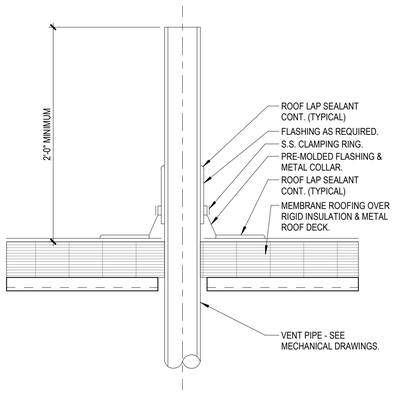
ROOF LEGEND

- THERMOPLASTIC MEMBRANE ROOFING OVER (2) LAYERS OF POLYISOCYANURATE INSULATION STAGGERED OVER METAL DECK FOR A TOTAL OF 5" MINIMUM THICKNESS AT LOWEST POINT.
- ACRYLIC ROOF SYSTEM FURNISHED AND INSTALLED BY TOMMY'S
- ROOF WALKWAY PAD
- INDICATES DIRECTION OF SLOPE
- ROOF DRAIN (RD) OR OVERFLOW ROOF DRAIN (ORD)

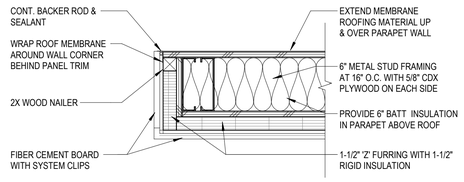
DESIGNER NOTE:
POS CANOPY IS A MODEL GROUP THAT CAN BE SELECTED AND QUICKLY SWITCHED TO THE 2-LANE OR CANTILEVERED VERSION IN THE PROPERTIES WINDOW.



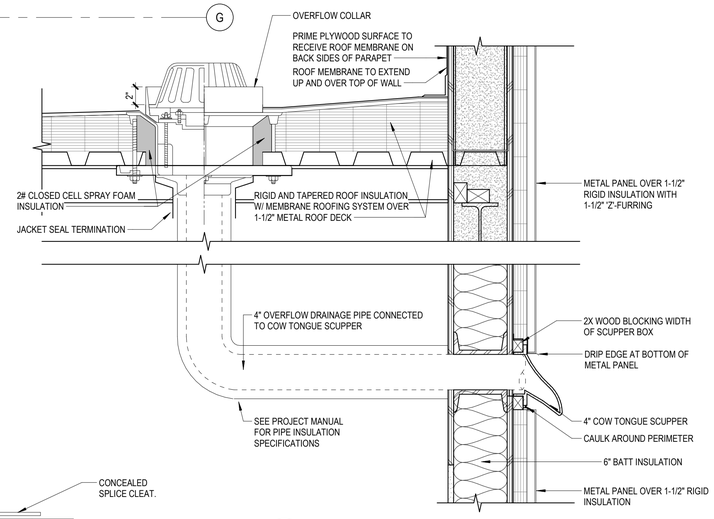
9 ROOF HATCH DETAIL
A121 3/4" = 1'-0"



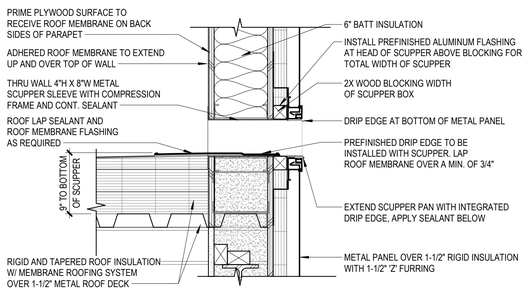
8 TYPICAL ROOF VENT DETAIL
1 1/2" = 1'-0"



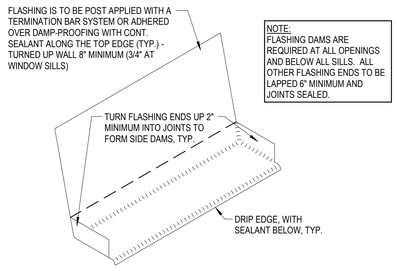
7 PLAN DETAIL AT PARAPET CORNER
A121 1 1/2" = 1'-0"



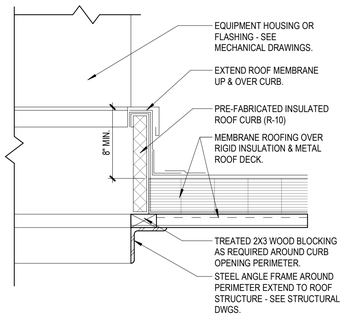
6 THRU WALL COW TONGUE OVERFLOW SCUPPER
A121 1 1/2" = 1'-0"



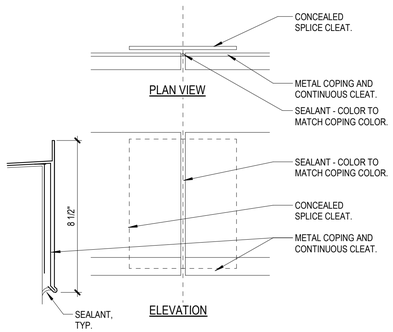
5 THRU WALL OVERFLOW SCUPPER METAL PANEL
A121 1 1/2" = 1'-0"



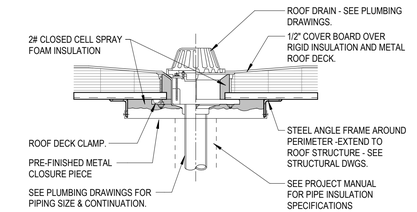
4 TYPICAL FLASHING & DAM DETAIL
1 1/2" = 1'-0"



3 TYPICAL ROOF CURB DETAIL
1 1/2" = 1'-0"



2 METAL COPING SPLICE DETAIL
A301 3" = 1'-0"



1 SINGLE ROOF DRAIN DETAIL
3/4" = 1'-0"

REVISION SCHEDULE		
REVISION NUMBER	REVISION DATE	REVISION DESCRIPTION
2	09/30/2022	2023 Q4

CONSULTANTS

TOMMY CAR WASH SYSTEMS
QUOTE: XXXXX
VERSION NUMBER: XX
PROGRAM: 2023-Q1-T3-R24

ROOF PLAN
TOMMY CAR WASH SYSTEMS
TOMMY EXPRESS TT130-T3-R24-Q1
ADDRESS, CITY, STATE ZIP

PRELIMINARY NOT FOR CONSTRUCTION

Drawn By: -
Checked By: -
Quality Assurance: -
Scale: As indicated
Sheet: 11
Date: 01/31/2023
Project Number: -

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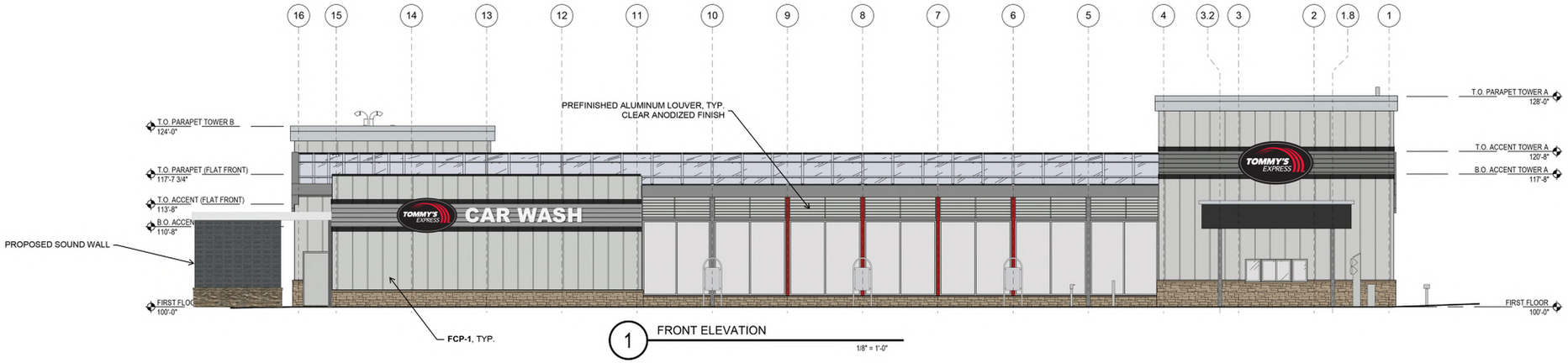
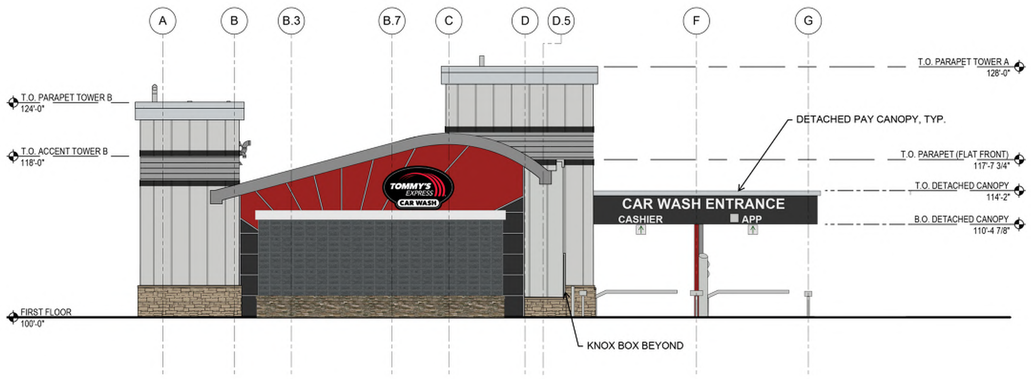
2/1/2023 8:23:39 AM



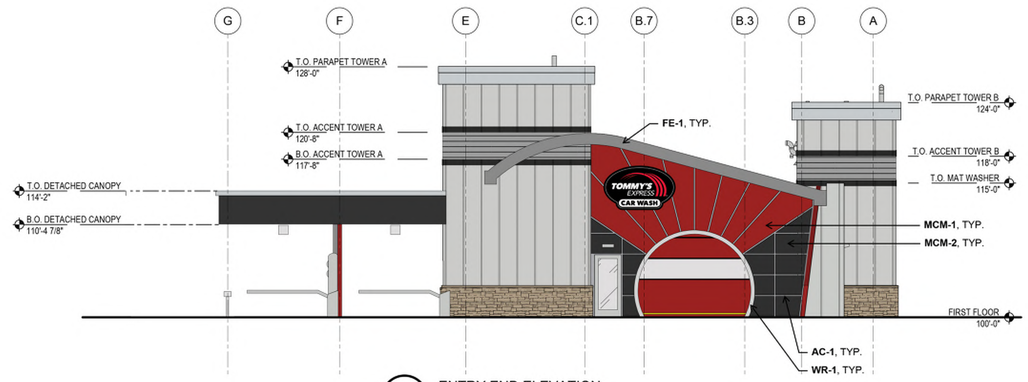
1 FRONT ELEVATION

1/8" = 1'-0"



2 EXIT END ELEVATION

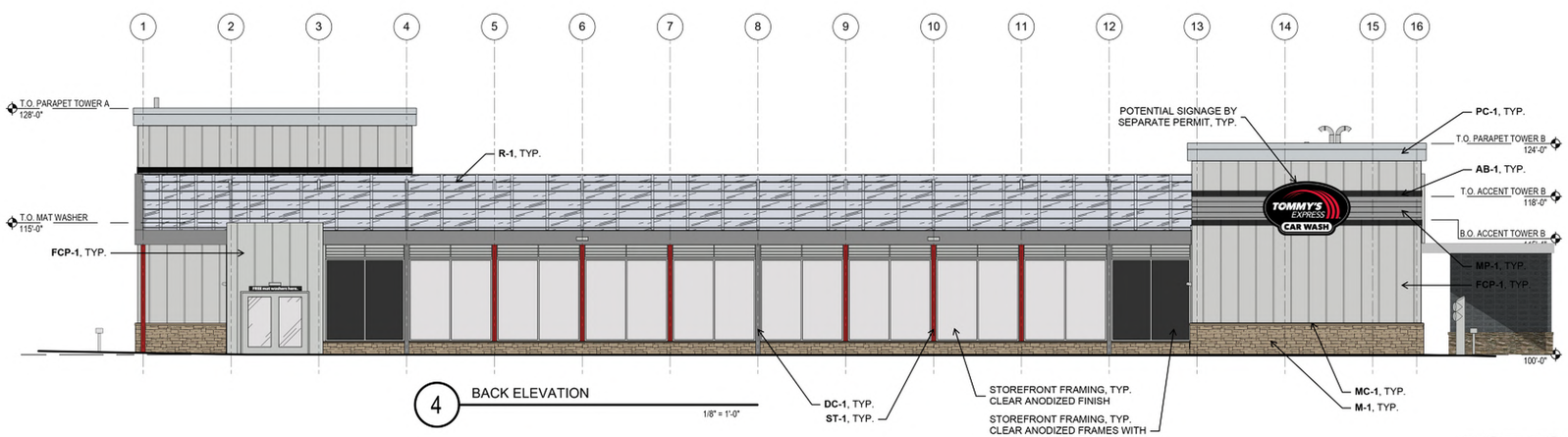
1/8" = 1'-0"



3 ENTRY END ELEVATION

1/8" = 1'-0"

TAG	MATERIAL	MFR.	DESCRIPTION	MFR. COLOR
ST-1	STRUCTURAL STEEL	PROSPIANT	5-STAGE POWDER COATED	RAL 3001
MP-1	PREFINISHED PROFILED MCM, TOWER BANDING	ATAS	BELVEDERE 7.2" RIB PANEL	SILVERSMITH
FCP-1	FIBER CEMENT PANEL BOARD	JAMES HARDIE (OR EQUIV)	VERTICAL SIDING	SW7064 PASSIVE
M-1	CULTURED STONE VENEER, KNEE WALL	ELDORADO STONE	STACKED STONE	CASTAWAY (MORTAR COLOR TO MATCH)
MC-1	WAINSCOT SILLS CAP (FOR KNEE WALL)	ELDORADO STONE	SPLIT-EDGE WAINSCOT SILL	GREY SKY
AB-1	PREFINISHED MCM, TOWER BANDING	ATAS	FLAT SHEET AND COIL	BLACK
PC-1	PREFINISHED MCM, TOWER FASCIA	ARCONIC	REYNOBOND COMPOSITE PANEL	BRIGHT SILVER METALLIC
MCM-1	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	RAL 3001
MCM-2	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	EBONY
AC-1	PREFINISHED MCM, END WALL REVEALS	TUBELITE	200 SERIES CURTAINWALL	CLEAR ANODIZED
DC-1	PREFINISHED MCM, DOWNSPOUT COVERS	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
WR-1	PREFINISHED MCM, GARAGE DOOR WRAPS	CITADEL	ENVELOPE 2000 SYSTEM	CLEAR SATIN ANODIZED
FE-1	PREFINISHED MCM, ROOF FASCIA	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
R-1	ACRYLIC ROOF SYSTEM	ACRYLITE	HEATSTOP HIGH IMPACT MULTI-SKIN	WZO11 - COOL BLUE WHITE



4 BACK ELEVATION

1/8" = 1'-0"

NOT FOR CONSTRUCTION
FOR REFERENCE ONLY
NOT TOMMY APPROVED

CONFIDENTIAL WARNING: THIS SHEET CONTAINS AND CONSTITUTES CONFIDENTIAL INFORMATION, IMAGES, AND TRADE SECRETS OF TOMMY CAR WASH SYSTEMS. ANY UNAUTHORIZED USE OR PORTION THEREOF IS STRICTLY PROHIBITED. THIS WORK IS THE EXCLUSIVE PROPERTY OF TOMMY CAR WASH SYSTEMS. ALL RIGHTS RESERVED.

REVISION SCHEDULE

VERSION	DATE	DESCRIPTION

TOMMY CAR WASH SYSTEMS

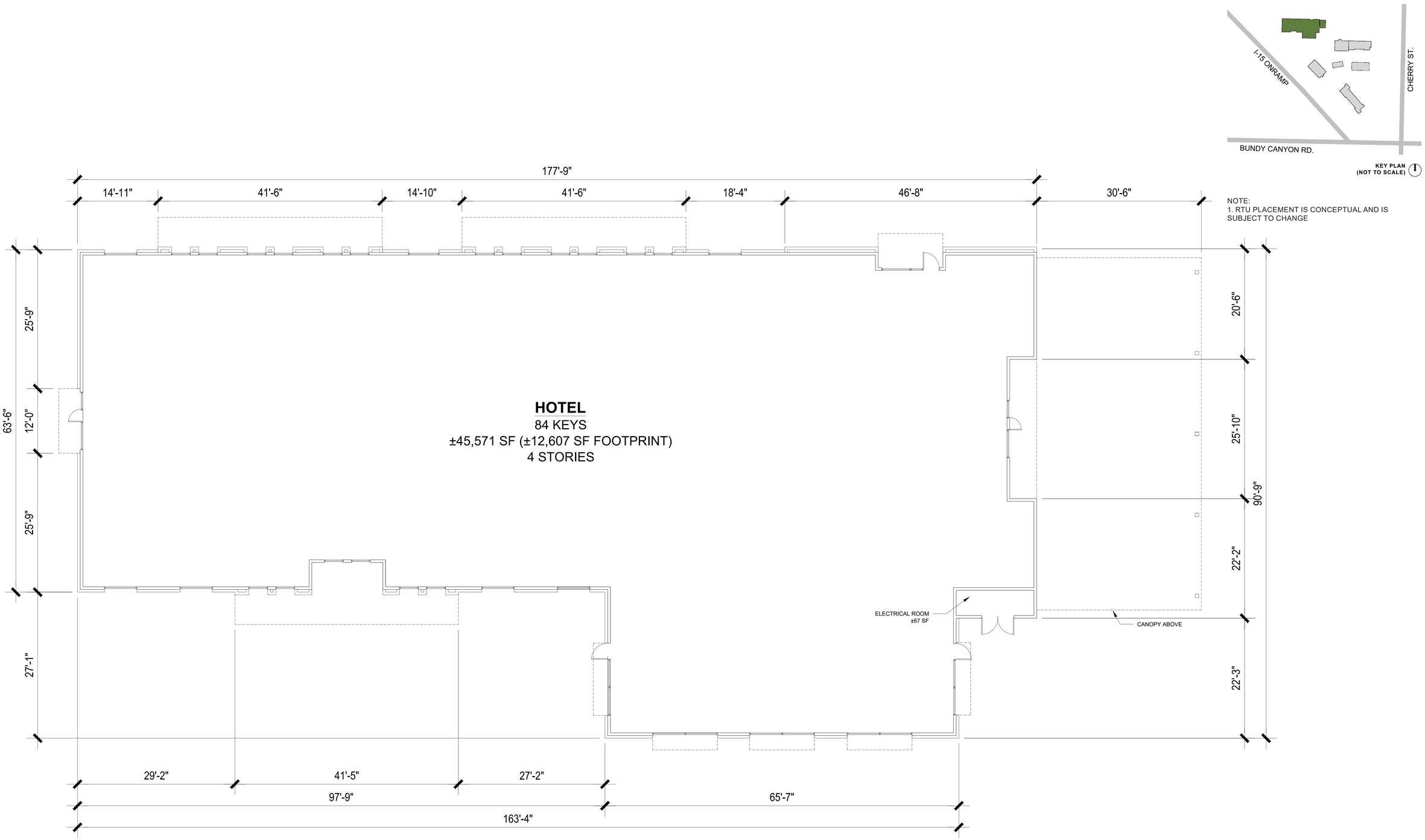
TOMMY'S EXPRESS CAR WASH
EXTERIOR ELEVATIONS

P4047 WILDOMAR, CALIFORNIA

10

11/28/2023

1/8" = 1'-0"



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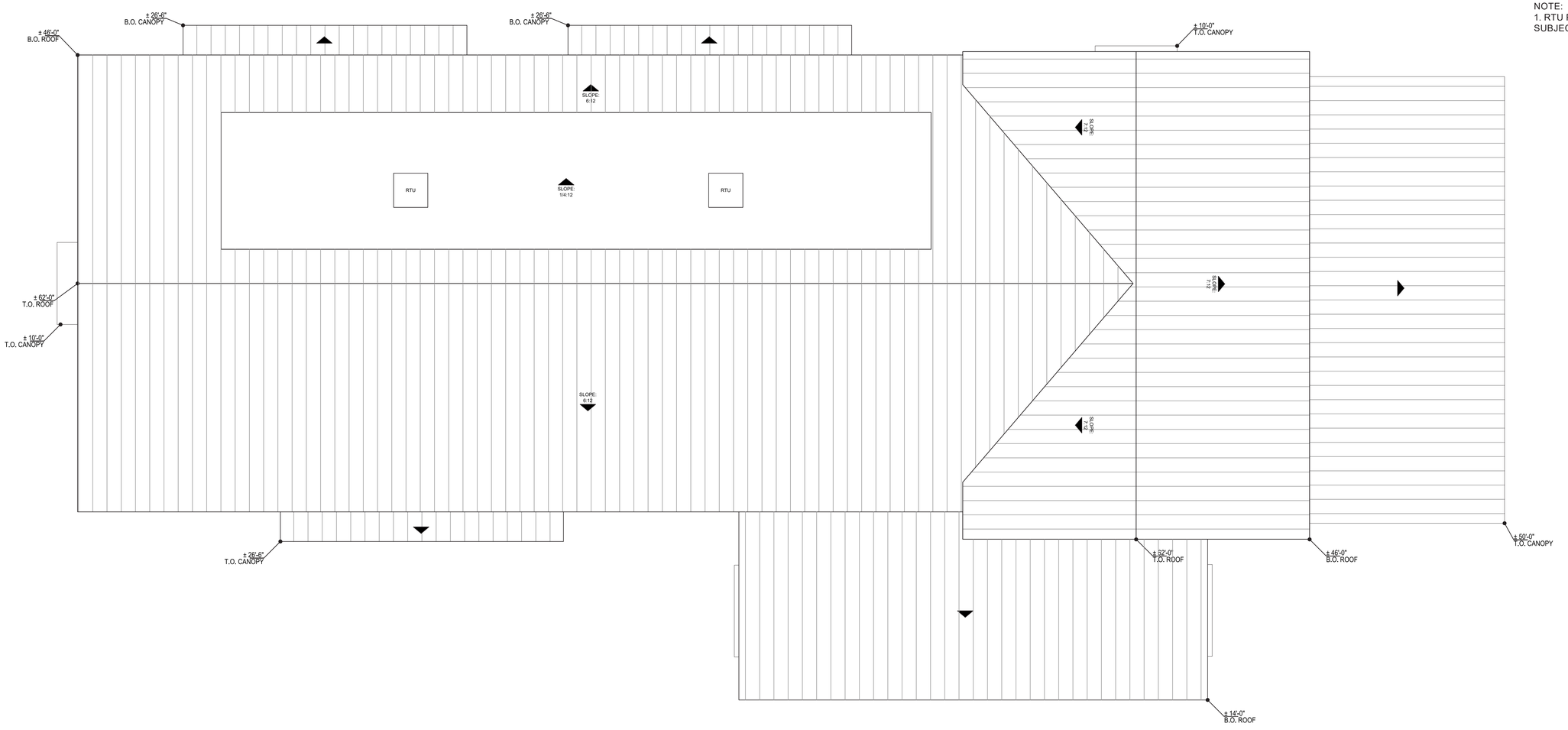
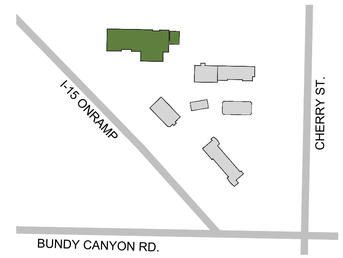
CHERRY OUTPOST
WILDOMAR, CA
2022-0521

ENTITLEMENT SUBMITTAL
OCTOBER 3, 2024

0 4 8 16
SCALE: 1/8" = 1'

CONCEPTUAL PLANS
HOTEL - FIRST FLOOR





KEY PLAN
(NOT TO SCALE)

NOTE:
1. RTU PLACEMENT IS CONCEPTUAL AND IS SUBJECT TO CHANGE

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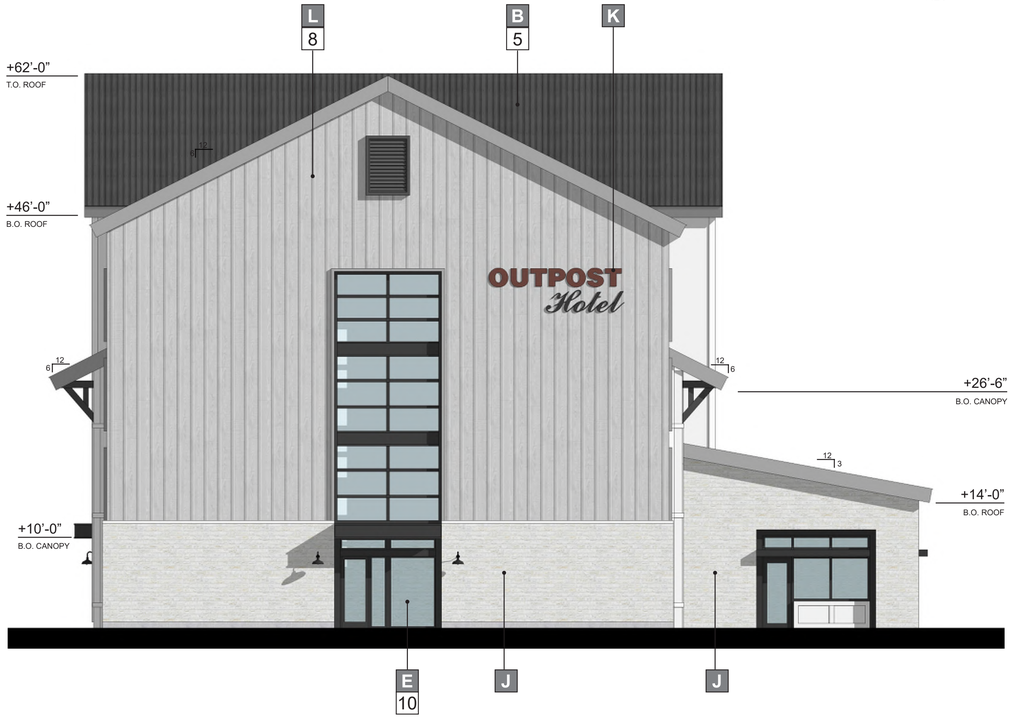
SCALE: 1/8" = 1'

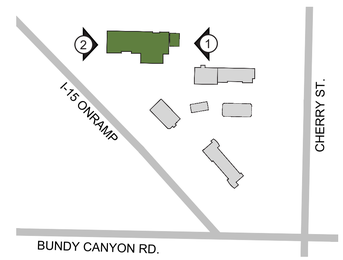
CONCEPTUAL PLANS
HOTEL - ROOF PLAN



1 EAST ELEVATION (FRONT)



2 WEST ELEVATION (REAR)



KEY PLAN
(NOT TO SCALE)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
D	**DOOR**	K	**SIGNAGE**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"	13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

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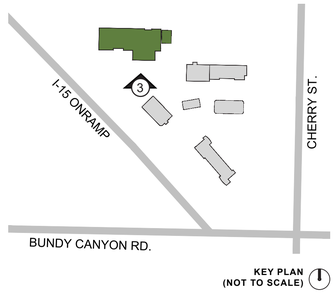
0 4 8 16
SCALE: 1/8" = 1'

CONCEPTUAL ELEVATIONS
HOTEL



KEY PLAN
(NOT TO SCALE)



3 SOUTH ELEVATION (RIGHT)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
D	**DOOR**	K	**SIGNAGE**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"	13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

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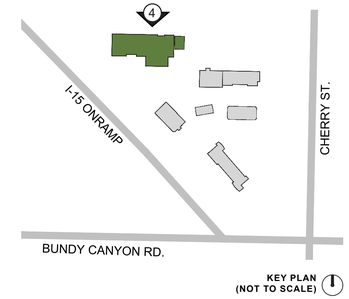
0 4 8 16
SCALE: 1/8" = 1'

CONCEPTUAL ELEVATIONS
HOTEL



KEY PLAN
(NOT TO SCALE)



4 NORTH ELEVATION (LEFT)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH
B	**STANDING SEAM METAL ROOF**
C	**METAL CANOPY**
D	**DOOR**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"
F	**ARCHITECTURAL TRIM/COPING**
G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
H	**BOARD AND BATTEN**
J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
K	**SIGNAGE**
L	**HARDIE BOARD SIDING**
M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"
6	**PAINT**: TENANT BRAND COLOR
7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"
8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"
9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"
10	ARCADIA-AC-2 "CLEAR"
11	ARCADIA-AB-7 "STANDARD DARK BRONZE"
12	PRECAST CONCRETE BASE
13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"

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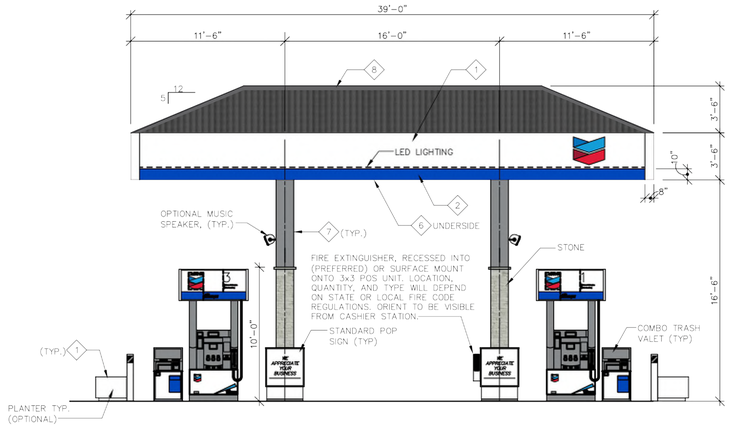
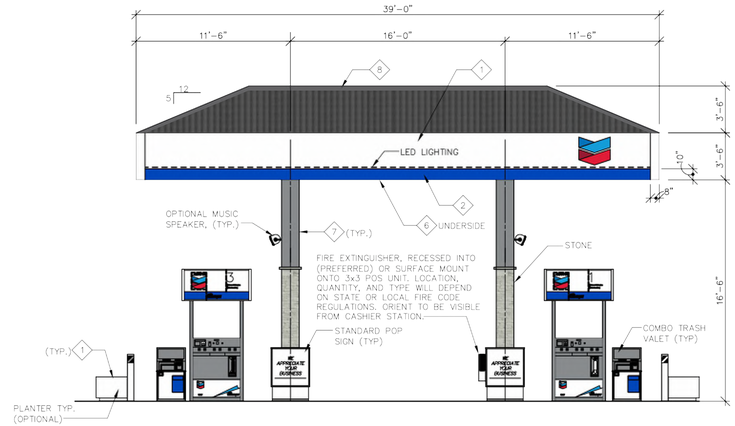
CONCEPTUAL ELEVATIONS
HOTEL



01 – **GAS CANOPY ELEVATION - FACING CHERRY**
SCALE: 3/16"=1'-0"



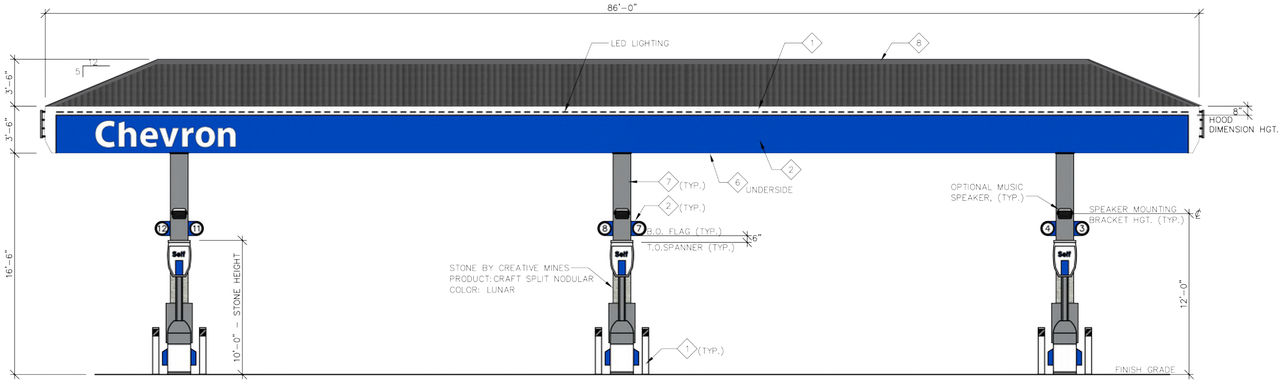
02 – **GAS CANOPY ELEVATION - FACING 1-15 FWY**
SCALE: 3/16"=1'-0"

GENERAL NOTES

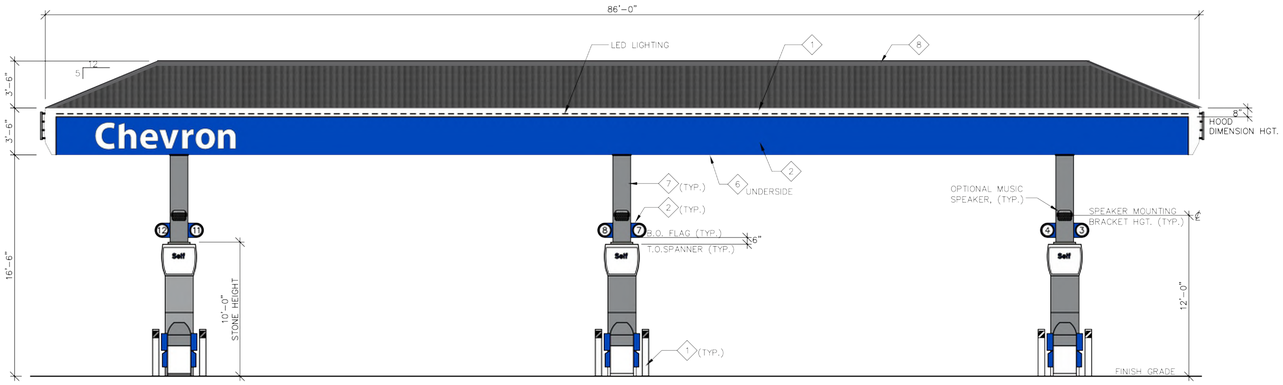
1. Do not scale off this drawing.
2. This drawing is the property of the Chevron Property & Facilities Optimization (P&FO) & must not be used, copied or reproduced in whole or in part without prior written permission.
3. [B] Under-Canopy light fixture, LSI Encore, Low Profile, 320W Metal Halide

◂ [A] Under-Canopy light fixture, LSI Focus, 100W Metal Halide

4. Refer to Hallmark 20/20 Image Guidelines for additional information as to design and image.



01 – **GAS CANOPY ELEVATION - FACING BUNDY CANYON**
SCALE: 3/16"=1'-0"

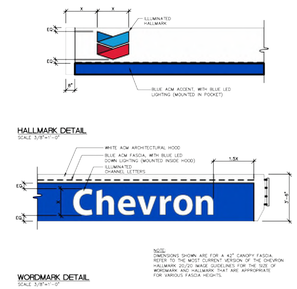


01 – **GAS CANOPY ELEVATION - FACING C - STORE**
SCALE: 3/16"=1'-0"

COLOR LEGEND

	COLOR	PMS MATCH	FILM (VINYL)
1	CVX WHITE (WH-835-S)	WHITE	ARLON WHITE #2
2	RETAIL OUTDOOR BLUE	PMS 293	N/A
3	CVX LIGHT GRAY (GY-450)	PMS 428	ARLON CUSTOM LIGHT GRAY
4	CVX DARK GRAY (GY-210)	PMS 431	ARLON CUSTOM DARK GRAY
5	CHEVRON RED	PMS 186	ARLON RED #3094E (TRANSLUCENT)
6	DECK WHITE	DECK WHITE	N/A
7	CVX SILVER FLAKE	PMS 877	ARLON CUSTOM SILVER
8	STANDING SEAM METAL ROOF	PAINT: DUNN EDWARDS – DEA002"BLACK"	

ALL PAINT TO BE V.O.C. COMPLIANT URETHANE



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GASOLINE CANOPY ELEVATION

WILDOMAR - FOLEY
BUNDY CANYON ROAD / CHERRY STREET
WILDOMAR, CA

REVISION
SEAL

DATE	JOB NO
07-05-22	000.000
SCALE	DRAWN BY
AS SHOWN	JH

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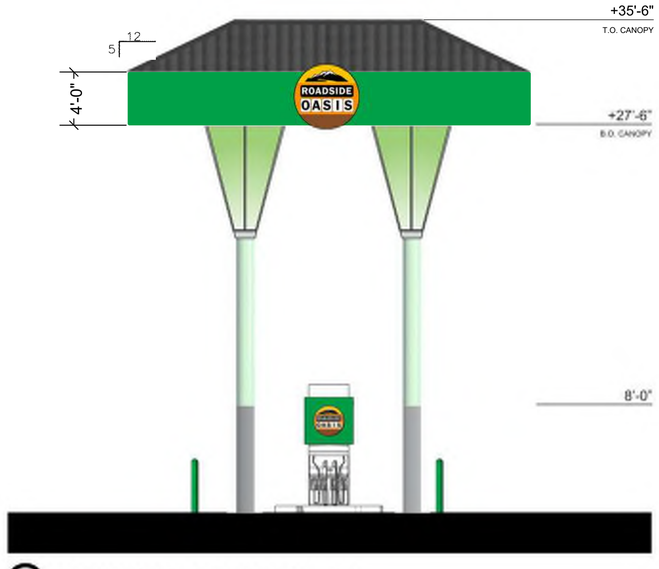
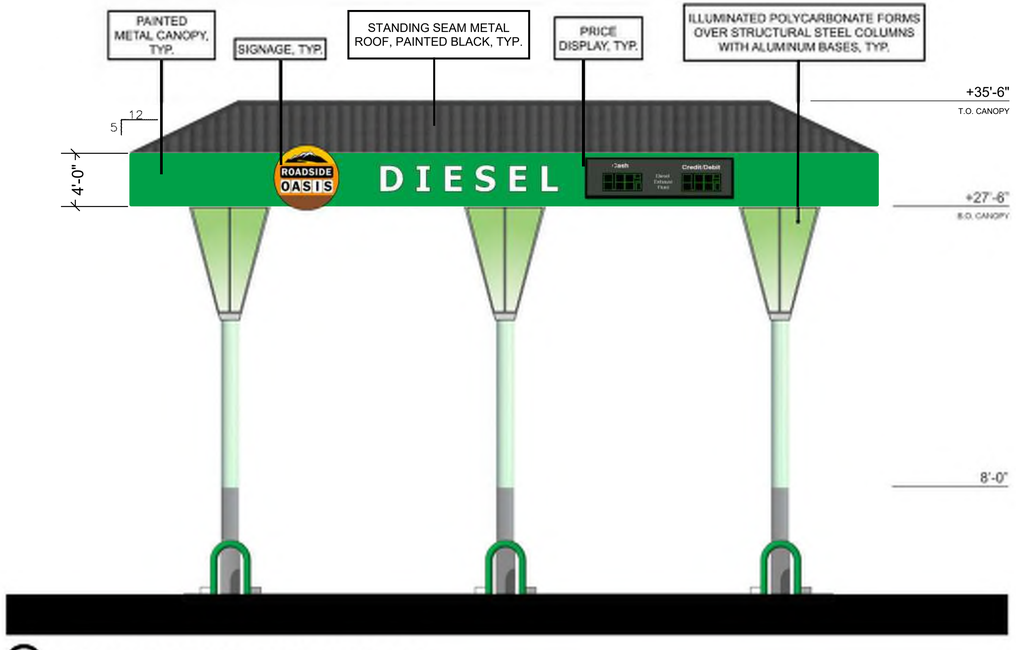
DRAWING NO.
18

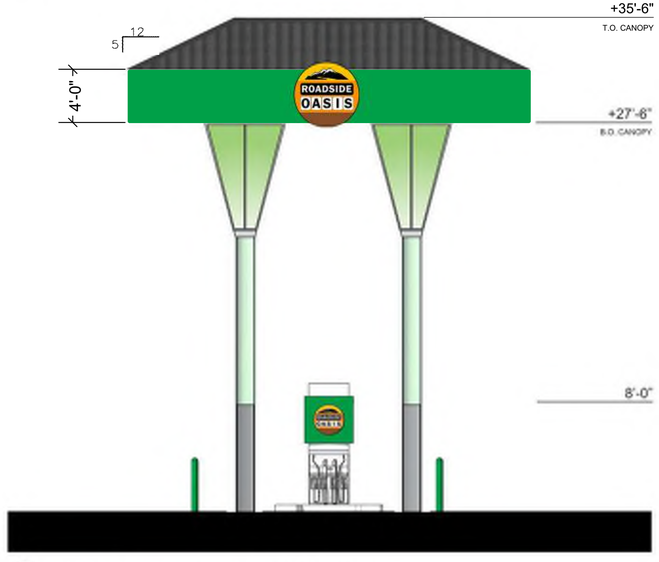
N:\P_PA\Cypress Th- Sandalwood\CUP\A2_2.DWG, jamma hunp, PLOTTED: 07-05-22 15:48:38



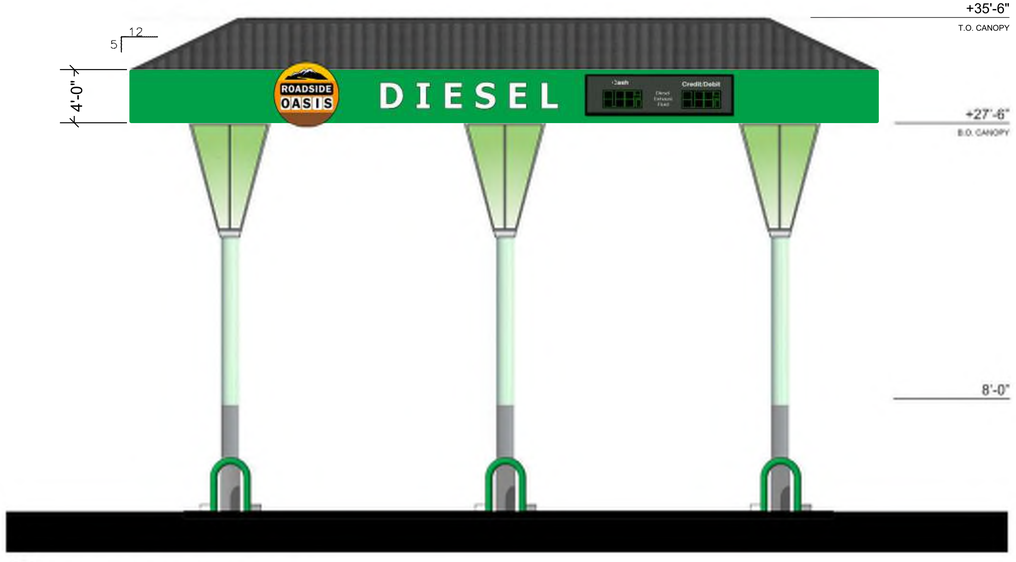
1 ELEVATION FACING CHERRY ST.



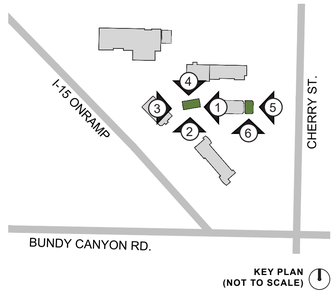
2 ELEVATION FACING BUNDY CANYON RD.



3 ELEVATION FACING INTERSTATE 15



4 ELEVATION FACING C-STORE



NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

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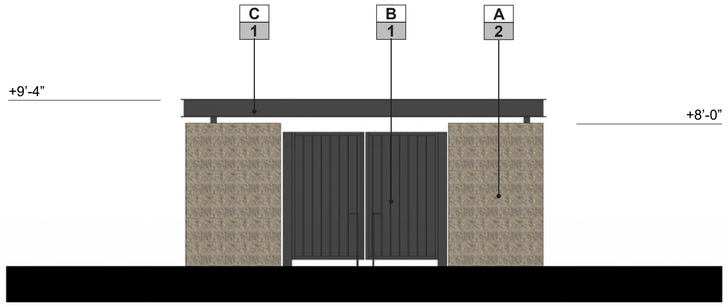
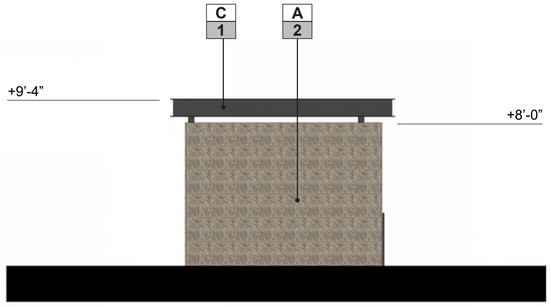
OCTOBER 3, 2024

0 4 8 10'-8"
SCALE: 3/16" = 1'-0"

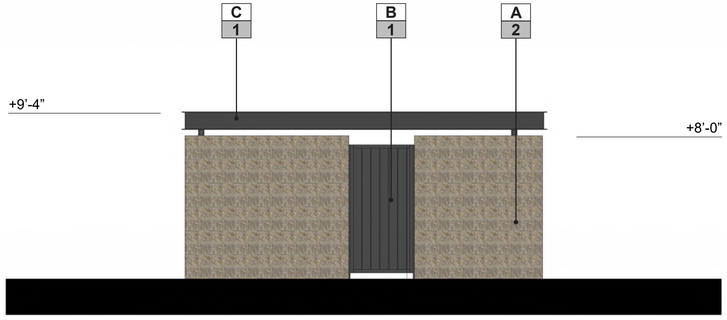
CONCEPTUAL ELEVATIONS
DIESEL CANOPY



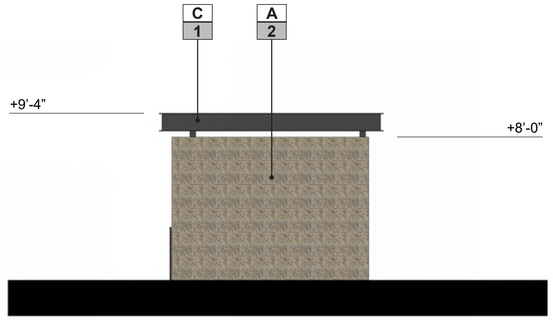
1 FRONT ELEVATION



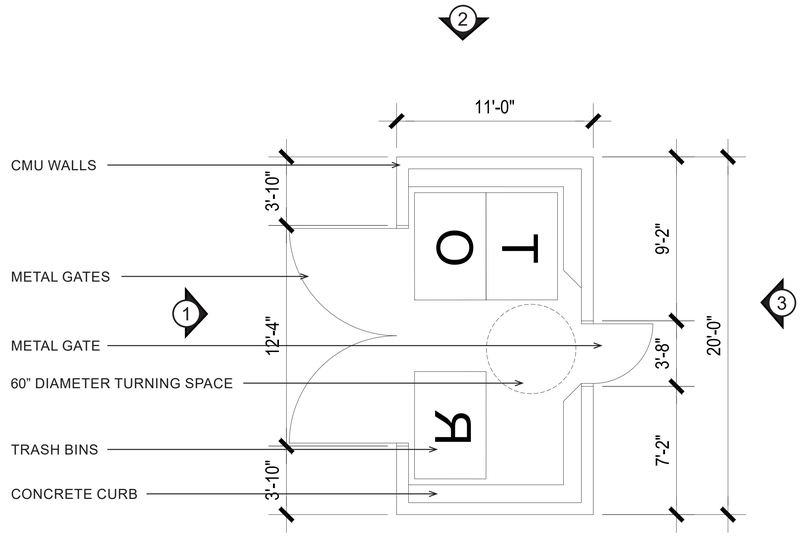
2 SIDE ELEVATION

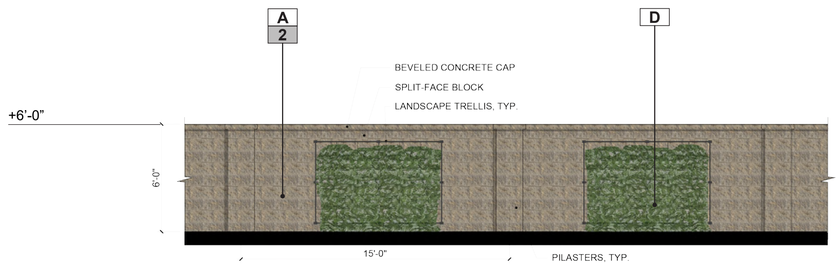


3 REAR ELEVATION



4 SIDE ELEVATION





5 SOUND WALL ELEVATION

MATERIALS				COLORS & FINISHES	
A	**CMU BLOCK**	C	**METAL ROOF**	1	**PAINT:** DUNN EDWARDS - DE6385 - BLACK BEAN
B	**METAL GATE**	D	**TRELLIS**	2	**CMU BLOCK:** SPLITFACE BLOCK, ORCO "NATURAL GRAY"

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Architecture + Planning
888.456.5849
ktgy.com

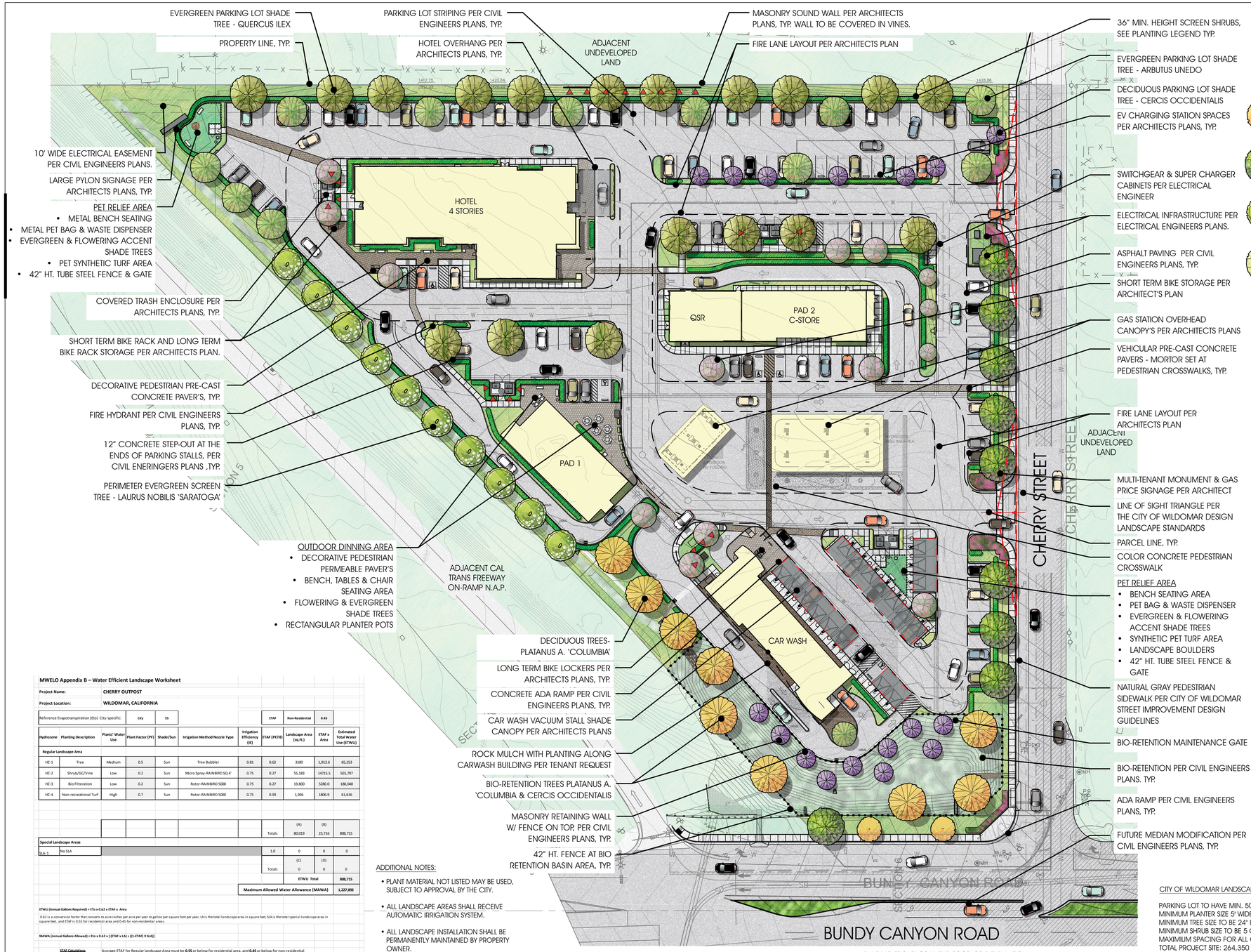
J&T Management, Inc.
139 Radio Road
Corona, CA 92879

CHERRY OUTPOST
WILDOMAR, CA
2022-0521

ENTITLEMENT SUBMITTAL
OCTOBER 3, 2024

0 2 4 8
SCALE: 1/4" = 1'-0"

TRASH ENCLOSURE CONCEPTUAL
FLOOR PLAN AND ELEVATIONS
SOUND WALL ELEVATION



PLANT PALETTE

SUNSET ZONE 18

Symbol	Botanical Name	Common Name	WUCOLS REGION 4	SIZE
TREES				
	Arbutus unedo Per City of Wildomar Approved Tree List	Strawberry Tree	Mod	36" BOX
	Cercidium 'Desert Museum' Per City of Wildomar Approved Tree List	Desert Museum Palo Verde	Mod	36" BOX
	Cercis occidentalis Per City of Wildomar Approved Tree List	Western Redbud	Mod Located in basin	36" BOX 15 Gal
	Koelreuteria paniculata Per City of Wildomar Approved Tree List	Golden Rain Tree	Mod	24" BOX
	Lagerstroemia i. 'Muskogee' Per City of Wildomar Approved Tree List	Muskogee Crape Myrtle	Mod	36" BOX
	Larus nobilis 'Saratoga' Per City of Wildomar Approved Tree List	Sweet Bay	Mod	24" BOX
	Platanus a. 'Columbia' Per City of Wildomar Approved Tree List	Columbia Plane Tree	Mod Located in basin	24" BOX 15 Gal
	Quercus ilex Per City of Wildomar Approved Tree List	Holly Live Oak	Mod	24" BOX

Symbol	Botanical Name	Common Name	WUCOLS	SIZE	SPACING
SHRUBS/ GROUNDCOVERS - 53,833 S.F.					
	Agave 'Blue Glow'	Blue Glow Agave	Low	5 GAL	24" O.C.
	Alyogyne huegelii	Blue Hibiscus	Low	1 GAL	24" O.C.
	Bouteloua g. 'Blonde Ambition'	Blue Grama	Low	5 GAL	36" O.C.
	Callistemon v. 'Little John'	Dwarf Bottlebrush	Low	5 GAL	36" O.C.
	Cistus purpureus	Purple-Flowered Rockrose	Low	5 GAL	48" O.C.
	Dalea greggii	Trailing Indigo Bush	Low	5 GAL	48" O.C.
	Dasylirion wheeleri	Desert Spoon	Low	5 GAL	48" O.C.
	Dianella r. 'Little Rev'	Little Rev Flax Lily	Low	5 GAL	24" O.C.
	Furcreaea f. 'Mediopicta'	Variegated Giant False Agave	Low	5 GAL	54" O.C.
	Lantana montevidensis	Trailing Lantana	Low	1 GAL	24" O.C.
	Luecophyllum f. 'Compacta'	Compact Texas Ranger	Low	5 GAL	36" O.C.
	Myoporum parvifolium	Myoporum	Low	1 GAL	24" O.C.
	Penstemon h. 'Margarita BOP'	Foothill Beardtounge	Low	5 GAL	24" O.C.
	Rosmarinus o. 'Huntington Carpet'	Creeping Rosemary	Low	5 GAL	36" O.C.
	Santolina charmaecyparissus	Lavender Cotton	Low	5 GAL	36" O.C.
	Virbina rigita	Slender Vervain	Low	1 GAL	24" O.C.
	Westringia f. 'Morning Light'	Morning Light Westringia	Low	5 GAL	36" O.C.
BIO-SWALE PLANTINGS - 18,972 S.F.					
	Carex divulsa	European Grey Sedge	Low	5 GAL	24" O.C.
	Leymus c. 'Canyon Prince'	Canyon Prince Wild Rye	Low	5 GAL	36" O.C.
	Juncus p. 'Elk Blue'	Elk Blue California Gray Rush	Low	5 GAL	24" O.C.
ACCENT PLANTINGS - 1,915 S.F					
	Achillea m. 'Paprika'	Paprika Yarrow	Low	5 GAL	24" O.C.
	Aeonium 'Zwartkop'	Black Rose Aeonium	Low	5 GAL	36" O.C.
	Aloe polyphylla	Spiral Aloe	Low	5 GAL	36" O.C.
	Aloe striata	Coral Aloe	Low	5 GAL	48" O.C.
	Senecio mandraliscae	Blue Chalksticks	Low	5 GAL	36" O.C.
SCREEN SHRUBS					
	Myrtus c. 'Compacta'	Dwarf Myrtle	Mod	15 GAL	36" O.C.
	Pittosporum t. 'Wheeler's Dwarf'	Wheeler's Dwarf Japanese Pittosporum	Mod	15 GAL	54" O.C.
	Prunus c. 'Compacta'	Compact Cherry Laurel	Mod	15 GAL	48" O.C.
	Westringia f. 'Morning Light'	Morning Light Westringia	Low	15 GAL	36" O.C.
SCREEN VINES - 22 QTY					
	Clytostoma callistegioides	Lavender Trumpet Vine	Mod	5 GAL	PER PLAN
	Macfadyena unguis-cati	Cat's Claw	Mod	5 GAL	PER PLAN
	Parthenocissus tricuspidata	Boston Ivy	Mod	5 GAL	PER PLAN
FUTURE MEDIAN RENOVATION PLANTING - 770 S.F.					
	Carex divulsa	Euorpean Grey Sedge	Low	5 GAL	24" O.C.
	Lantana montevidensis	Purple Trailing Lantana	Low	1 GAL	48" O.C.

MWELO Appendix B – Water Efficient Landscape Worksheet

Project Name: CHERRY OUTPOST

Project Location: WILDOMAR, CALIFORNIA

Reference Evapotranspiration (Eto) City-specific:	City	55	ETAF	Non-Residential	0.45

Hydrozone	Planting Description	Plants' Water Use	Plant Factor (PF)	Shade/Sun	Irrigation Method Nozzle Type	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area (sq.ft.)	ETAF x Area	Estimated Total Water Use (ETWU)
Regular Landscape Area										
HZ-1	Tree	Medium	0.5	Sun	Tree Bubbler	0.81	0.62	3100	1,933.6	65,253
HZ-2	Shrub/SGC/Vine	Low	0.2	Sun	Micro Spray-RAINBIRD SQ.4'	0.75	0.27	55,183	14715.5	501,797
HZ-3	Bio Filteration	Low	0.2	Sun	Rotor-RAINBIRD 5000	0.75	0.27	19,800	5280.0	180,048
HZ-4	Non-recreational Turf	High	0.7	Sun	Rotor-RAINBIRD 5000	0.75	0.93	1,936	1806.9	61,616
							Totals	(A) 80,019	(B) 23,716	808,715
Special Landscape Areas										
SLA-1	No SLA						1.0	0	0	0
							Totals	(C) 0	(D) 0	0
									ETWU Total	**808,715**
									Maximum Allowed Water Allowance (MAWA)	**1,227,892**

ETWU (Annual Gallons Required) = ETo x 0.62 x ETAF x Area

0.62 is a conversion factor that converts to acre-inches per acre per year to gallon per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is 0.55 for residential area and 0.45 for non-residential areas.

MAWA (Annual Gallons Allowed) = Eto x 0.62 x [(ETAF x LA) + ((1-ETAF) X SLA)]

ETAF Calculations Average ETAF for Regular landscape Area must be **0.55** or below for residential area, and **0.45** or below for non-residential areas.

Regular Landscape Areas		All Landscape Areas	
Total ETAF x Area (B)	23716	Total AETAF x Area (B+D)	**23716**
Total Area (A)	80019	Total Area (A+C)	**80,019**
Average ETAF (B/A)	**0.30**	Sitewide ETAF (B+D) / (A+C)	**0.30**

ADDITIONAL NOTES:

- PLANT MATERIAL NOT LISTED MAY BE USED, SUBJECT TO APPROVAL BY THE CITY.
- ALL LANDSCAPE AREAS SHALL RECEIVE AUTOMATIC IRRIGATION SYSTEM.
- ALL LANDSCAPE INSTALLATION SHALL BE PERMANENTLY MAINTAINED BY PROPERTY OWNER.
- WATER PURVAYOR: ELSINORE VALLEY MUNICIPAL WATER DISTRICT
- WATER TYPE: POTABLE

UTILITY LOCATION COORDINATION NOTES:

ALL WET AND DRY UTILITY LOCATIONS TO BE COORDINATED WITH OWNERSHIPS ARCHITECTURE AND ENGINEERING TEAM TO AVOID REQUIRED TREE AND UTILITY SCREENING CONFLICTS.

HIGH FIRE ZONE NOTE:

DUE TO PROJECT FALLING WITHIN THE FUTURE VERY HIGH FIRE HAZARD SEVERITY ZONE, LANDSCAPE PLAN FOLLOWS ALL FIRE CODE STANDARDS. NO FUEL MOD PLAN IS REQUIRED AT THE MOMENT.

BUILDING FRONTAGE LINEAR FOOTAGE & TABULATION:

- CAR WASH L.F.: 194'-8"
- PAD 1 L.F.: 99'-0"
- HOTEL L.F.: 114'-7"

TOTAL L.F.: 408'-3"

(1) 15 GALLON TREE PER 30 L.F. OF BUILDING FRONTAGE ON-SITE: 14 TREES REQUIRED

CITY OF WILDOMAR LANDSCAPE NOTES & TABULATIONS:

PARKING LOT TO HAVE MIN. 50% SHADING - SEE PARKING LOT SHADE PLAN L-2
MINIMUM PLANTER SIZE 5' WIDE
MINIMUM TREE SIZE TO BE 24" BOX
MINIMUM SHRUB SIZE TO BE 5 GALLON
MAXIMUM SPACING FOR ALL GROUNDCOVER SHRUBS 12"-24" O.C.
TOTAL PROJECT SITE: 264,350 S.F.
TOTAL RECREATION / LEISURE AREA (MIN. 5% TOTAL SITE): 13,262 S.F. (5%)
(1) PARKING LOT SHADE TREE SHALL BE PER EVERY (3) PARKING STALLS
TOTAL NEW LANDSCAPE SQUARE FOOTAGE: 54,414 S.F.
TOTAL BIO-FILTRATION AREA: 19,925 S.F.
TOTAL SLOPE AREA AT BIO-FILTRATION AREA: 11,498 S.F.
(1) 15 GALLON TREE PER 700 S.F. OF SLOPE AREA AT BIO-FILTRATION AREA: 16 TREES REQUIRED
TOTAL PARKING STALLS: 175
1 TREE FOR EVERY 3 PARKING STALLS: 58 REQUIRED TREES
TOTAL PARKING LOT TREES: 49
TOTAL TREES ON SITE: 88
ALL SITE TREES AND SHRUBS SHALL BE SELECTED FROM THE CITY OF WILDOMAR CLIMATE APPROVED PLANT LIST

VICINITY MAP



CONCEPTUAL LANDSCAPE PLAN

CHERRY OUTPOST

WILDOMAR, CALIFORNIA

J & T INVESTMENTS

CORONA, CALIFORNIA

0' 20' 40' 80' 120'

SCALE: 1" = 40'

CDPC PROJECT NO. 22113

September 13, 2024

conceptual design + planning company
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Costa Mesa, CA 92626
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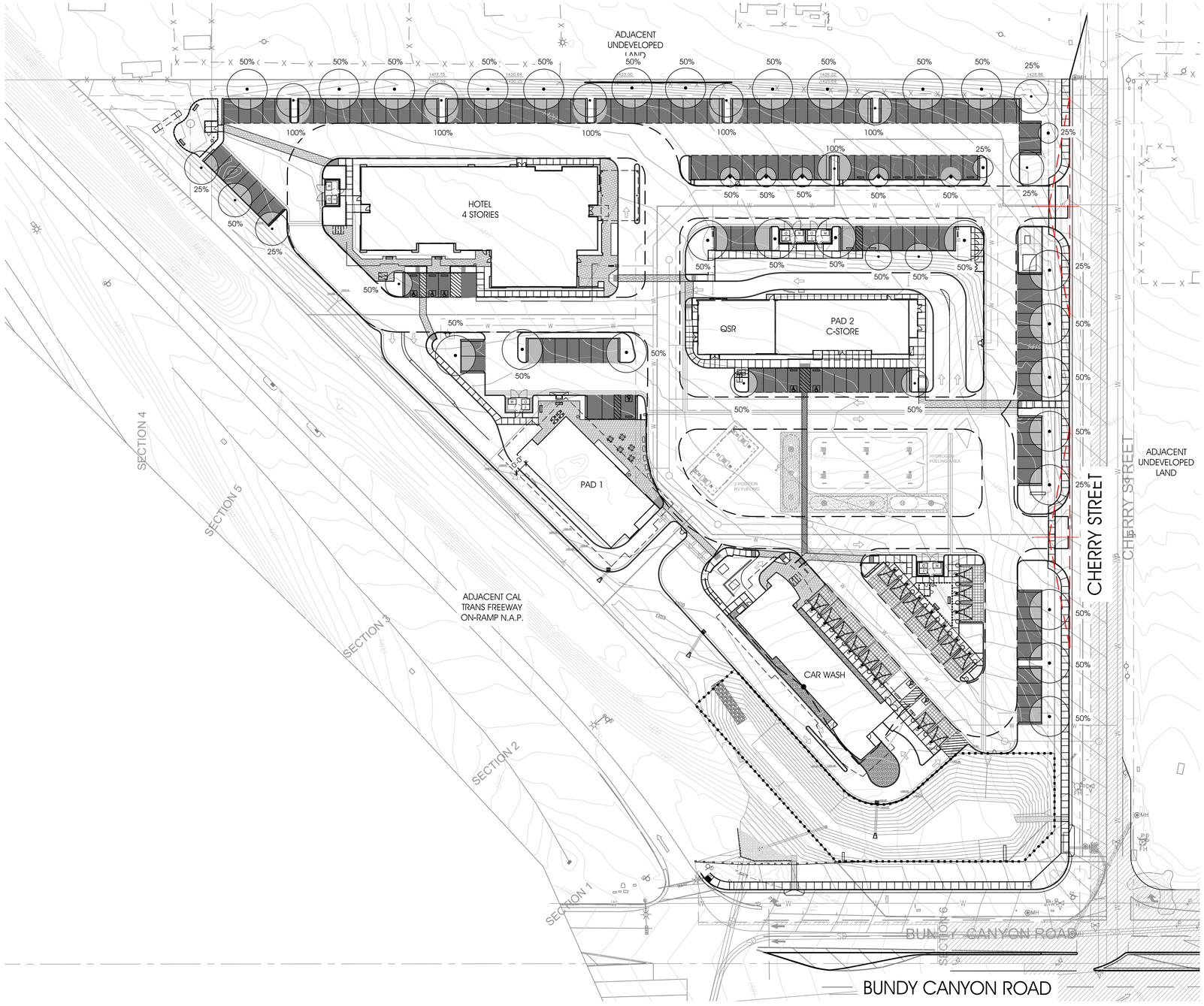
L-1

1 OF 5



PARKING LOT SHADE LEGEND

Symbol

- PARKING LOT MANEUVERABLE VEHICULAR AREA
- PARKING LOT TREE CANOPY SHADE COVERAGE
- OVERHEAD SHADE STRUCTURES AT CAR WASH

PARKING AREA SHADE CALCULATION

Date 08/19/24

Project Name: Cherry Outpost

Botanical Name / Canopy diameter at maturity	Quantity @ Full shade (Sq. Ft.)	Quantity @ 3/4 shade (Sq. Ft.)	Quantity @ 1/2 shade (Sq. Ft.)	Quantity @ 1/4 shade (Sq. Ft.)	Total (Sq. Ft.)
Arbutus u. 'Marina'	6 @ 491	0 @ 368	1 @ 246	4 @ 123	3,684
25'					
Cercis occidentallis	0 @ 176	0 @ 236	5 @ 88	2 @ 44	528
15'					
Koelrueteria paniculata	0 @ 706	0 @ 236	6 @ 354	2 @ 177	2,478
30'					
Lagerstroemia i. ;Muskogee'	0 @ 314	0 @ 236	5 @ 157	0 @ 79	785
20'					
Quercus ilex	0 @ 706	0 @ 236	18 @ 354	0 @ 177	6,372
30'					
Tree Sub Total	6	0	35	8	

		TOTAL TREE SHADE AREA	13,847.0
Surfaced Area	Parking Area 24,948	Total Surfaced	29,531
	Covered Stalls (garages, carports, etc.) 4,583		
		Shade Area Required (50% of parking areas)	14,766
		If applicable, TOTAL AUXILIARY SHADE* =	4,583
		TOTAL SHADE PROVIDED =	18,430
		PERCENT SHADE =	62.4%

*NOTE: Auxililary shade is the total parking area under covered stalls (carports, garages, vaccum stalls etc.) not the total covered area.

SHADE AREAS (Sq Ft)

Diameter	100%	75%	50%	25%
35'	962	722	481	240
30'	706	530	354	177
25'	491	368	246	123
20'	314	236	157	79
15'	176	132	88	44

VICINITY MAP



N.T.S.

CONCEPTUAL PARKING LOT SHADE PLAN

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

0' 20' 40' 80' 120'
SCALE:1"=40'

CDPC PROJECT NO. 22113

September 13, 2024

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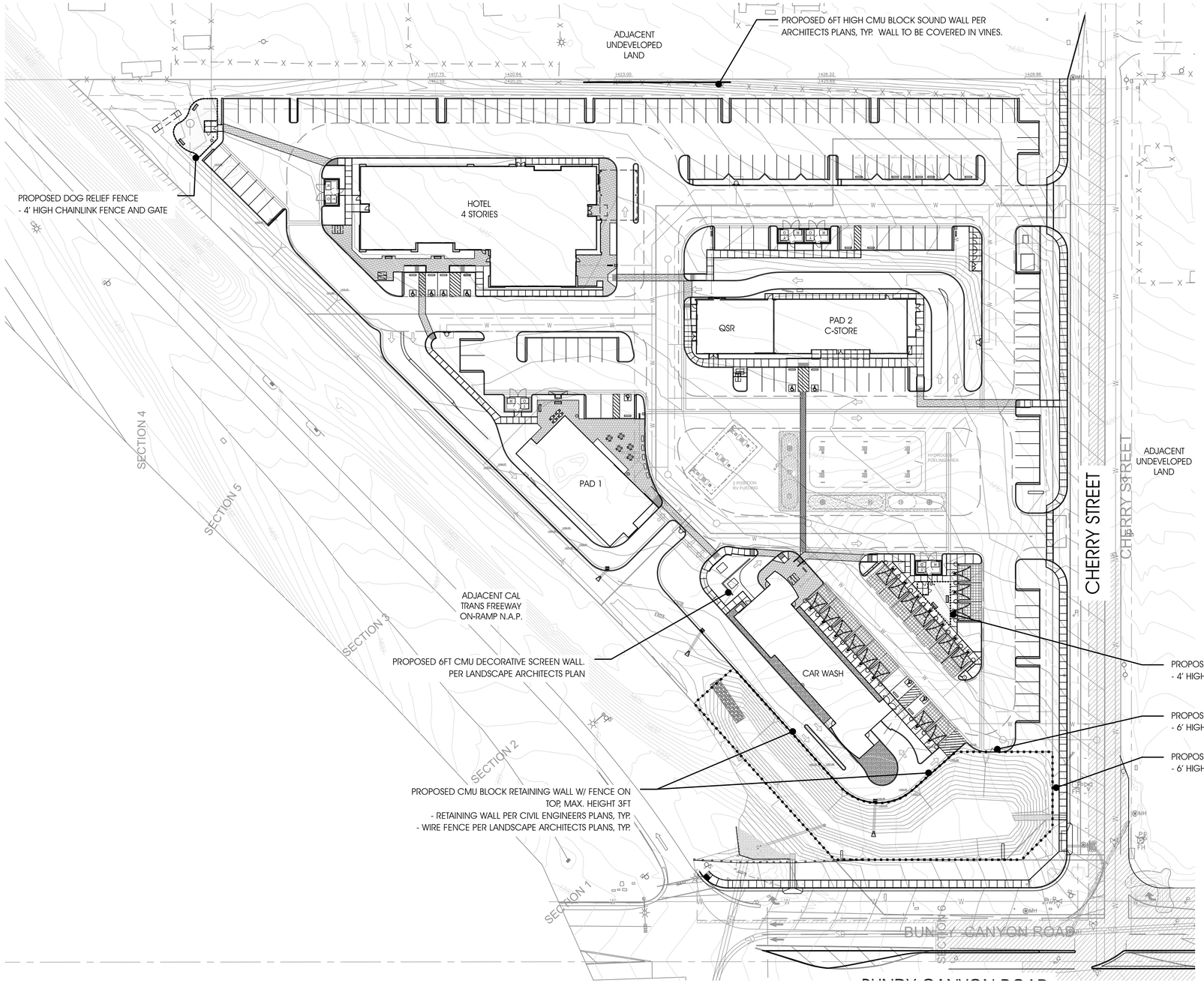
L-2



WALL AND FENCE LEGEND

4FT CHAINLINK FENCE AT DOG RELIEF AREAS
- VINYL-COATED
- COLOR: BLACK

6FT WIRE FENCE AND POST AT BIO BASIN
- GALVANIZED CABLE WIRE
- 3" POST COLOR: BLACK

3FT RETAINING WALL WITH 3FT WIRE FENCE AND POST AT BIO BASIN
- RETAINING WALL CMU SPLIT FACE BLOCK FINISH
- COLOR: NATURAL GREY
- GALVANIZED CABLE WIRE
- 3" POST COLOR: BLACK

6FT DECORATIVE SCREEN WALL
- CMU BURNISHED BLOCK FINISH
- COLOR: WHEAT

6FT SOUND WALL PER ARCHITECT'S PLAN
- CMU SPLIT FACE BLOCK FINISH
- COLOR: NATURAL GREY

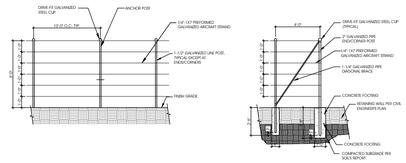
1. All metal parts of fences shall be galvanized new materials, and all posts shall be fitted with drive-fit cups.

2. Lightweight metal inserts shall be sheet metal tube3 with I.D. 3/4" greater than post O.D. Grout posts with neat grout of one part cement to two parts water or, if approved by the Engineer, with sulphur.

3. Cables shall be stretched and fastened with 2 cable clamps of each anchor post at 16 feet on center. Nuts shall be welded to clamps or covered with any epoxy putty (J.B. Weld or equal) to prevent removal.

4. Anchor posts shall be guyed with 3/8" steel truss rods as shown.

5. Pipe for fence shall conform to ASTM A-120. Galvanizing shall comply with ASTM A-123.



PROPOSED 6FT FENCE AT BIO RETENTION BASIN AREA

ktgy

WALL AND FENCE PLAN

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

0' 20' 40' 80' 120'
SCALE:1"=40'
CDPC PROJECT NO. 22113
September 13, 2024

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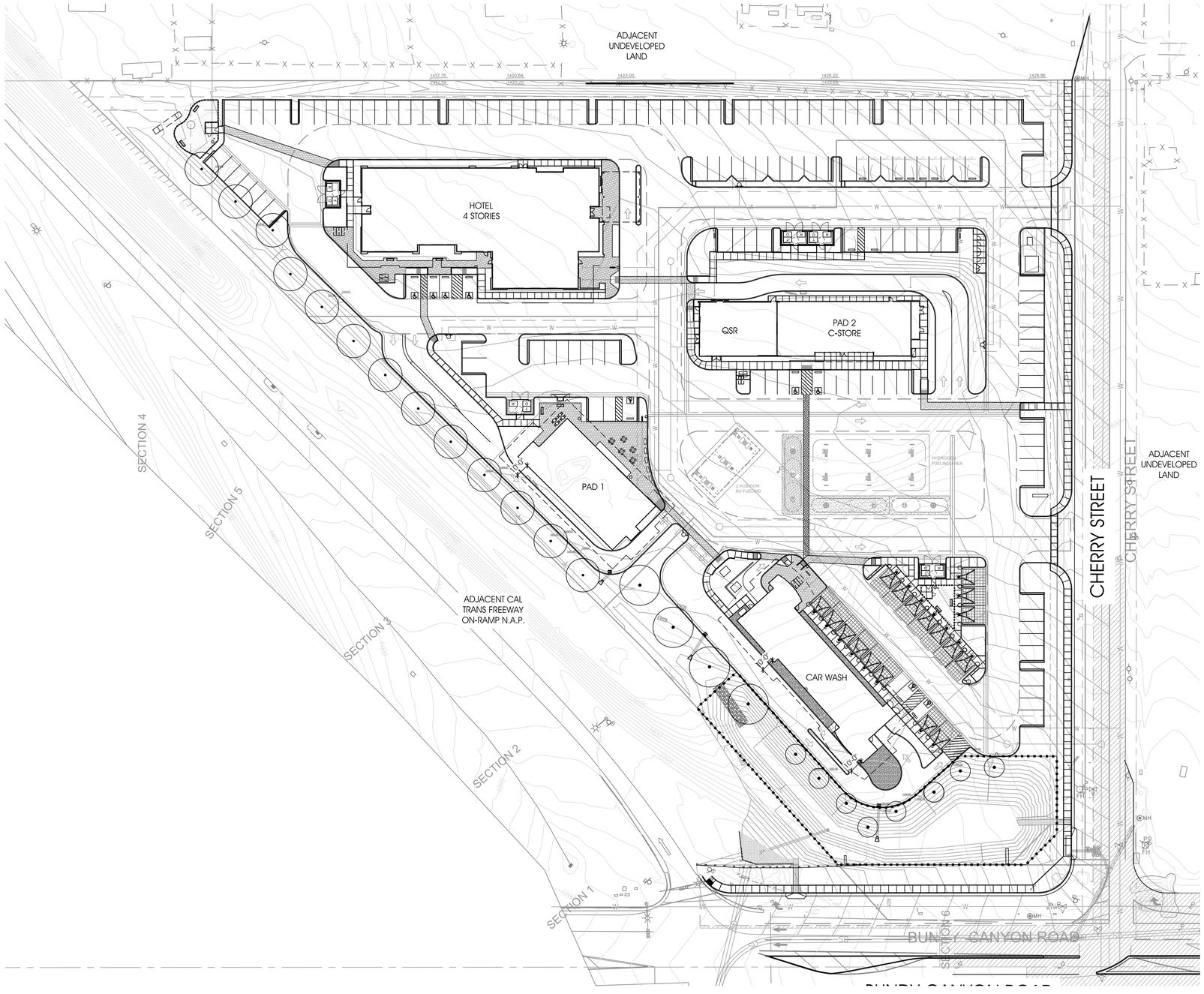
L-3
3 OF 5



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ktgy

SCREENING TREE PLAN

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

0' 20' 40' 80' 120'
SCALE: 1" = 40'
CDPC PROJECT NO. 22113

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L-4

TREES


Arbutus u. 'Marina'
Marina Strawberry Tree


Cercidium 'Desert Museum'
Desert Museum Palo Verde


Cercis occidentalis
Western Redbud


Koelrueteria paniculata
Golden Rain Tree


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Holly Live Oak

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Creeping Rosemary


Santolina chamaecyparissus
Lavender Cotton


Virbina rigita
Slender Vervain


Westringia f. 'Morning Light'
Morning Light Westringia

BIO-SWALE PLANTS


Carex divulsa
Berkeley Sedge


Juncus p. 'Elk Blue'
Elk Blue California Gray Rush


Leymus c. 'Canyon Prince'
Canyon Prince Wild Rye

ACCENT PLANTS


Achillea m. 'Paprika'
Paprika Yarrow


Aeonium 'Zwartkop'
Black Rose Aeonium


Aloe polyphylla
Spiral Aloe


Aloe striata
Coral Aloe


Senecio mandraliscae
Blue Chalksticks

SCREEN SHRUBS


Myrtus c. 'Compacta'
Dwarf Myrtle


Pittosporum t. 'Silver Sheen'
Silver Sheen Kohuhu


Prunus c. 'Compacta'
Compact Cherry Laurel


Westringia f. 'Morning Light'
Morning Light Westringia

SCREEN VINES


Clytostoma callistegioides
Lavender Trumpet Vine


Macfadyena unguis-cati
Cat's Claw


Parthenocissus tricuspidata
Boston Ivy

ktgy

CONCEPTUAL PLANTING PALETTE IMAGERY

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

CDPC PROJECT NO. 22113

August 20, 2024

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SHEET INDEX

1 CONCEPTUAL GRADING PLAN
2 CONCEPTUAL UTILITY PLAN
3 EASEMENT PLAN
4 CHERRY STREET CENTERLINE PROFILE
5 STRIPING PLAN

LEGEND

(E)	EXISTING
FG	FINISH GRADE
FF	FINISH FLOOR
FS	FINISH SURFACE
NAP	NOT A PART
SF	SQUARE FOOTAGE
TF	TOP OF FOOTING
TW	TOP OF WALL
0000.00XX / 0000.00XX	PROPOSED ELEVATION
	PROPERTY LINES
	INTERIOR LOT LINES
(0000)	EXISTING CONTOUR LINE AND ELEVATION
0000	PROPOSED CONTOUR LINE AND ELEVATION
	PROPOSED RETAINING WALL

NOTES:

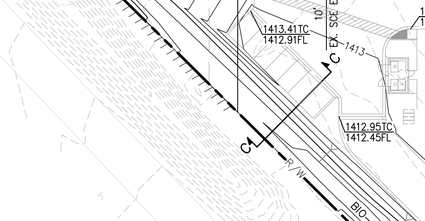
1. ALL FENCING AND WALLS SHALL BE BUILT PER THE LANDSCAPE PLANS
2. DRIVEWAYS SHALL BE COMMERCIAL DRIVEWAYS
3. ONSITE LIGHTING SHALL BE PRIVATE AND PER SEPARATE PLANS

EARTHWORK QUANTITIES:

CUT = 14,060 CY
FILL = 9,900 CY
NET EXPORT = 4,160 CY

GRADING NOTE:

PRECISE GRADING OF EACH PARCEL WILL BE PER THEIR SPECIFIC SITE REQUIREMENTS.



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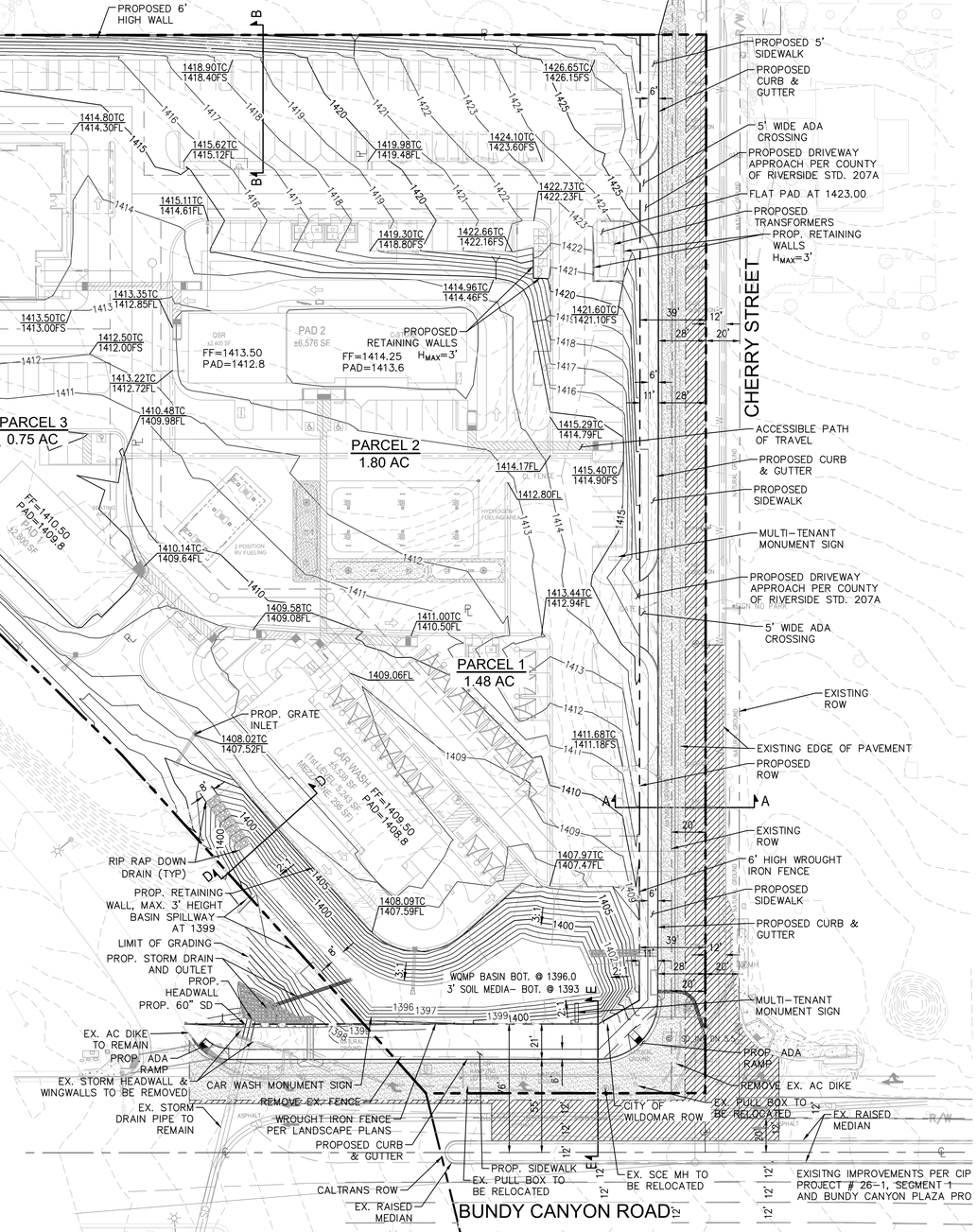

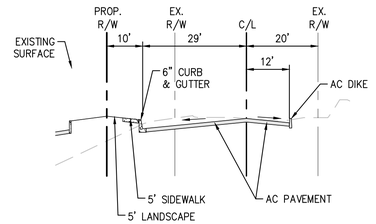

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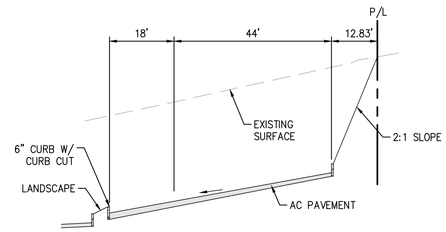

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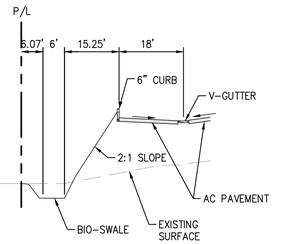

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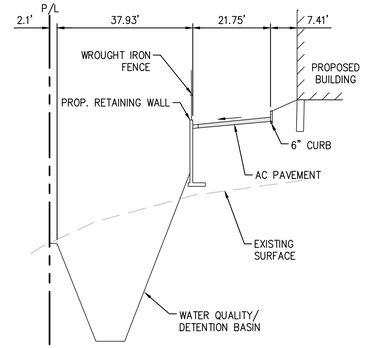

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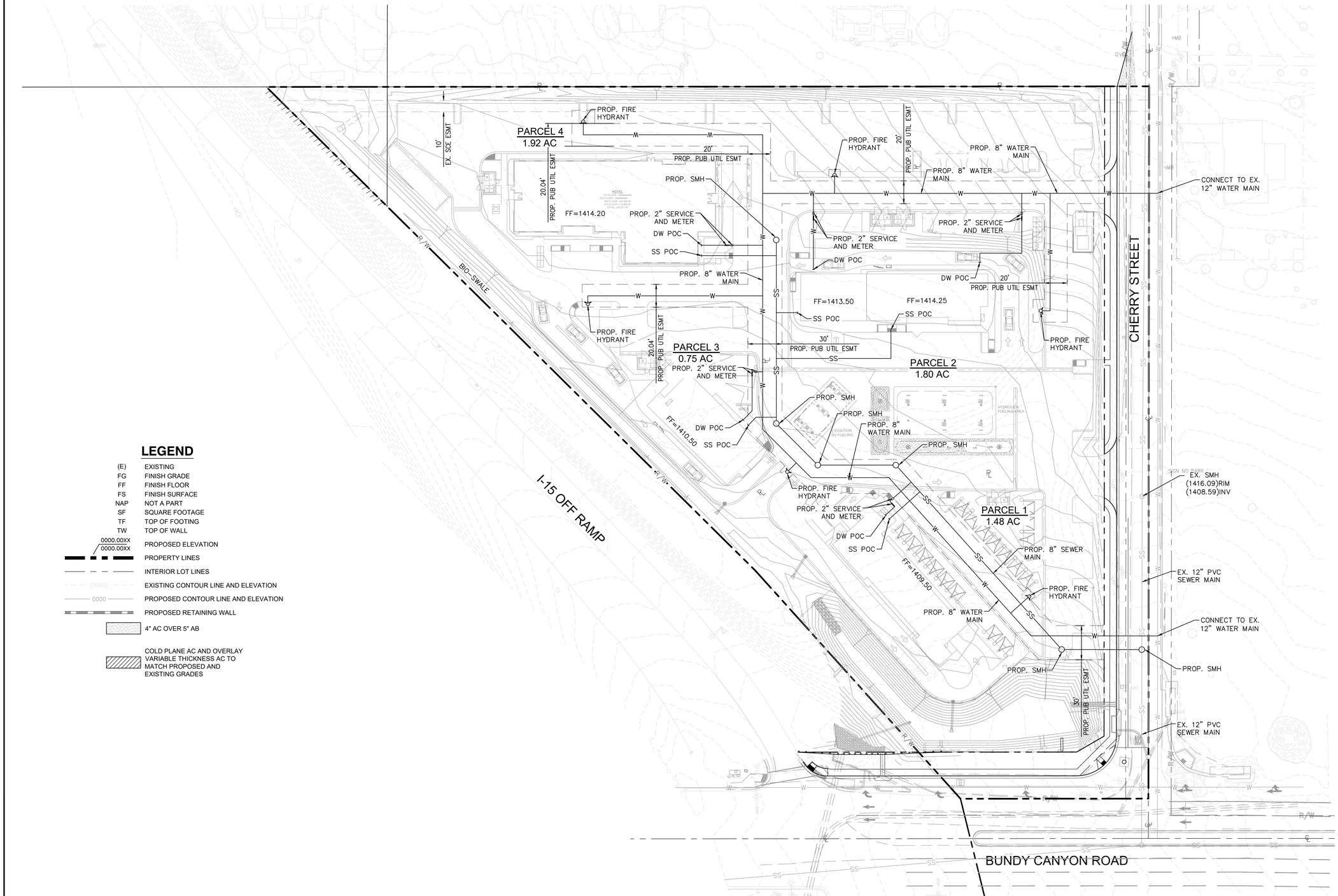

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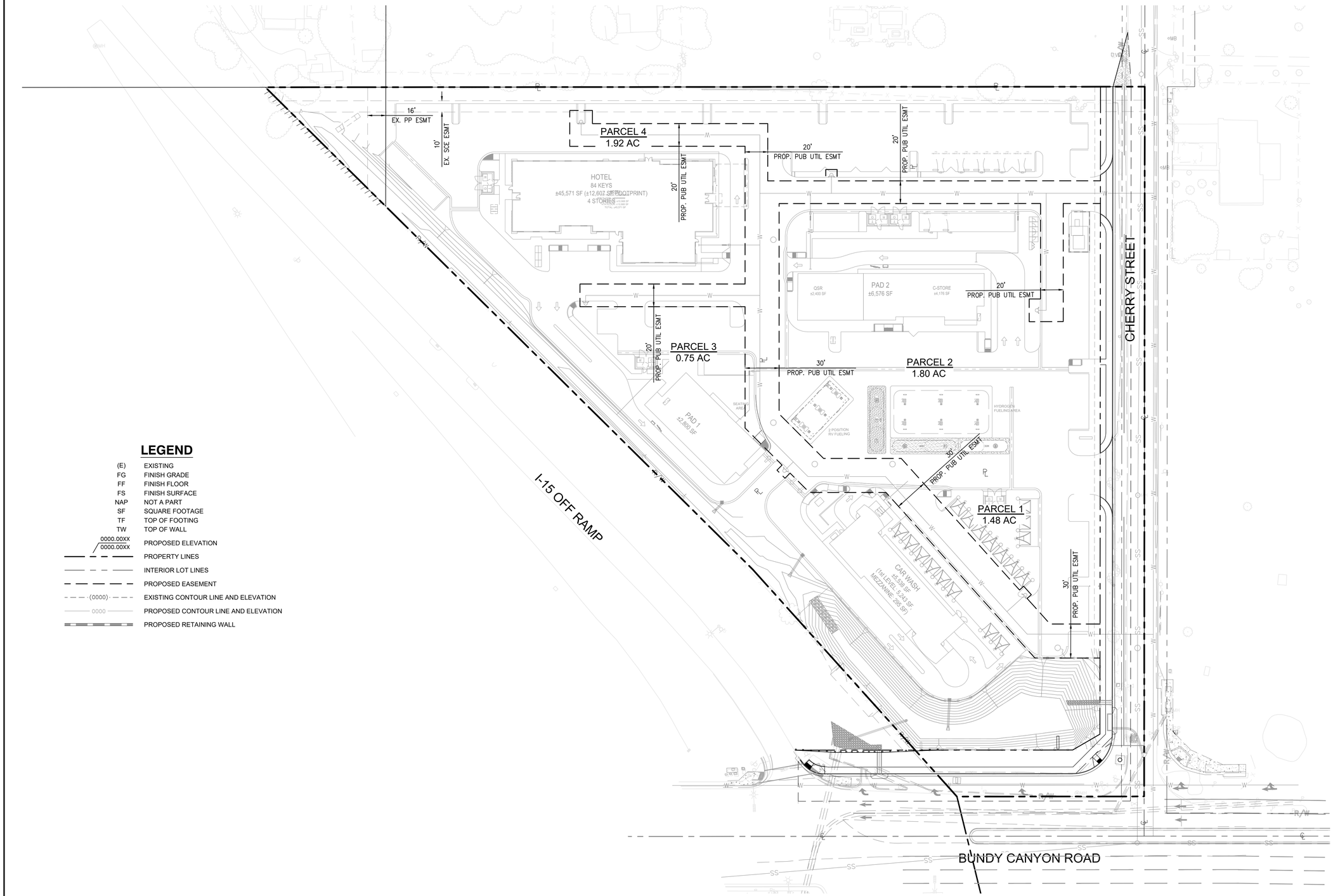

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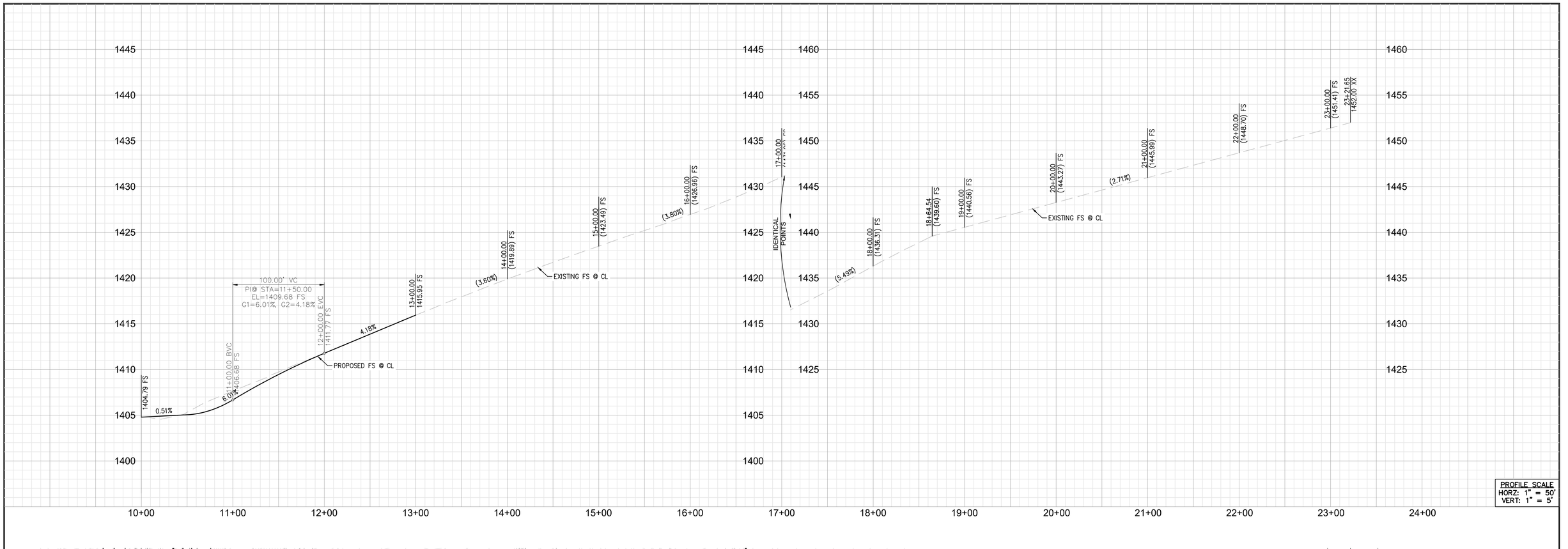

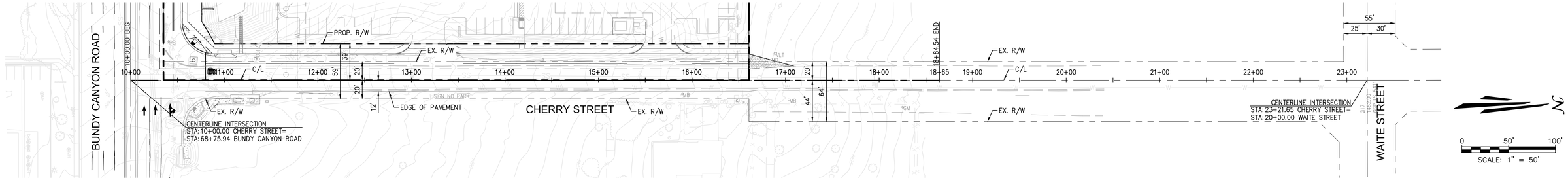

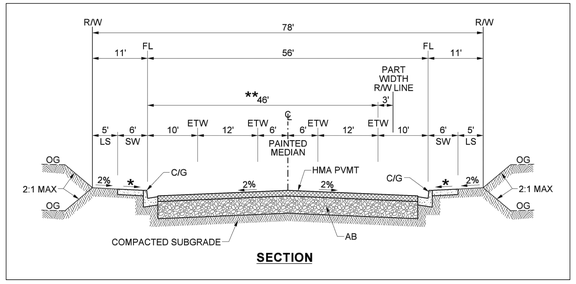

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CHERRY STREET CENTERLINE PROFILE

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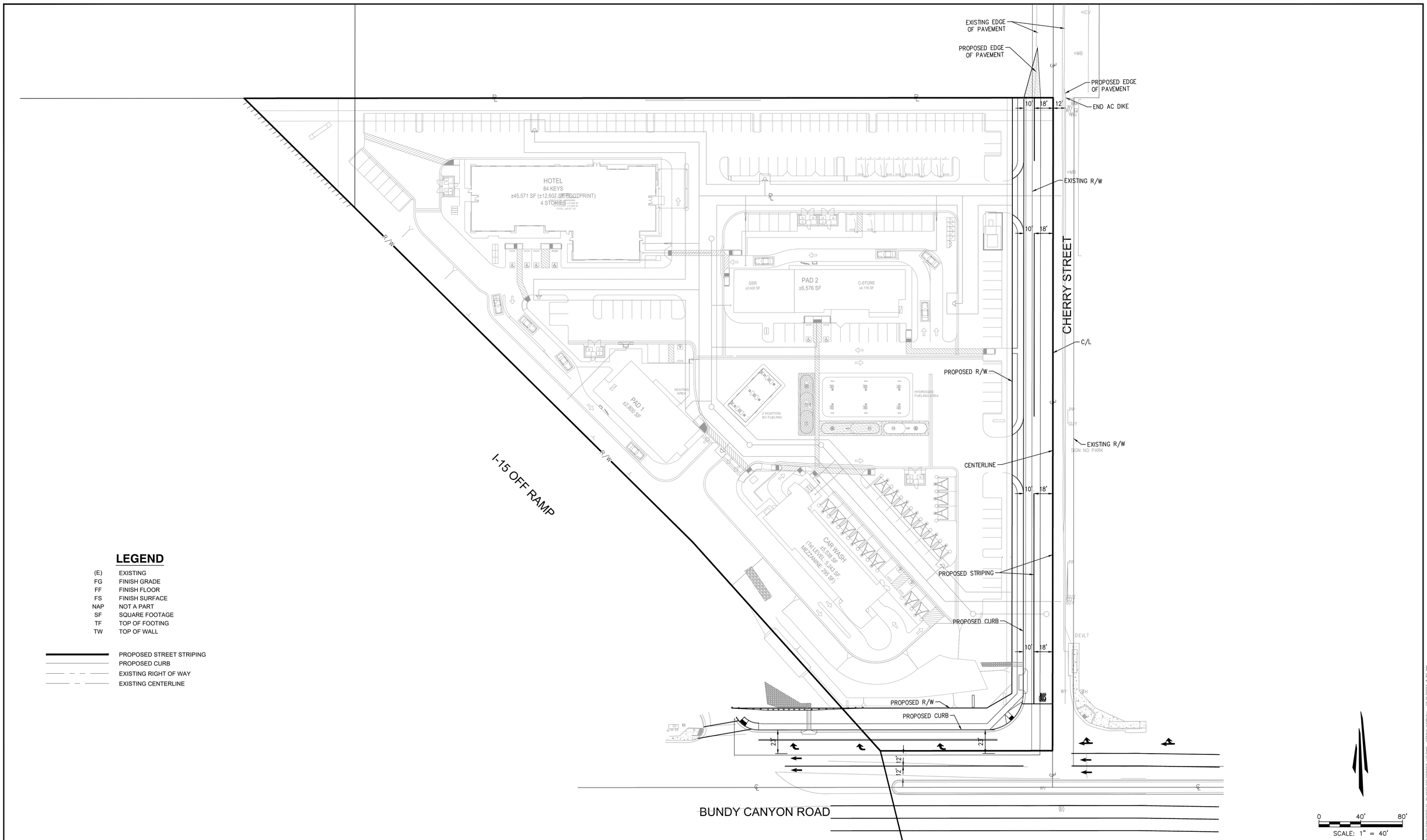

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TW	TOP OF WALL

PROPOSED STREET STRIPING
PROPOSED CURB
EXISTING RIGHT OF WAY
EXISTING CENTERLINE

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CITY OF WILDOMAR
CHERRY OUTPOST
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Appendix 2

Cherry Outpost Air Quality and Greenhouse Gas Emissions Technical Report

Cherry Outpost Project

Air Quality and Greenhouse Gas Emissions Technical Report

August 2024 | 03491.00013.001

Prepared for:

Cherry Outpost, LP
P.O. Box 1958
Corona, CA 92878

Prepared by:

HELIX Environmental Planning, Inc.
16485 Laguna Canyon Road,
Suite 150
Irvine, CA 92618

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AAM	annual arithmetic mean
AB	Assembly Bill
APS	alternative planning strategy
AQMP	Air Quality Management Plan
ATC	authority to construct
BMP	best management practice
C_2F_6	hexafluoroethane
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalRecycle	California Department of Resources Recycling and Recovery
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CF_4	tetrafluoromethane
CFC	chlorofluorocarbon
CH_4	methane
City	City of Wildomar
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
DPM	diesel particulate matter
EO	Executive Order
EVR	enhanced vapor recovery
GHG	greenhouse gas
GWP	global warming potential
H_2S	hydrogen sulfide
HFC	hydrofluorocarbon
I-	Interstate
IPCC	Intergovernmental Panel on Climate Change

ACRONYMS AND ABBREVIATIONS (cont.)

km	kilometer
kWh	kilowatt-hours
LCFS	Low Carbon Fuel Standard
LOS	level of service
LST	localized significance threshold
mg/m^3	milligrams per cubic meter
MMT	million metric tons
mph	miles per hour
MPO	metropolitan planning organization
MT	metric ton
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
Pb	lead
PFC	perfluorocarbon
PM	particulate matter
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
ppm	parts per million
PTO	permit to operate
ROG	reactive organic gas
RPS	renewable portfolio standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SF_6	hexafluoride
SIP	State Implementation Plan
SLCP	short-lived climate pollutant

ACRONYMS AND ABBREVIATIONS (cont.)

SO_2	sulfur dioxide
SO_X	sulfur oxides
SRA	source receptor area
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
USEPA	U.S. Environmental Protection Agency
VMT	vehicle miles traveled
VOC	volatile organic compound
WRI	World Resource Institute
WRCOG	Western Riverside Council of Governments

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EXECUTIVE SUMMARY

The Cherry Outpost Project (project) proposes a commercial development in the City of Wildomar (City) including a car wash, a gas station, a convenience store, two quick-serve restaurants with drive-throughs, and a 72-key hotel. Off-site roadway and storm drain improvements are also proposed as a component of the project. This report presents an assessment of potential air quality and greenhouse gas (GHG) emission impacts during construction and operation of the project.

The project would not generate population and employment growth beyond the levels assumed for the region. Pursuant to South Coast Air Quality Management District (SCAQMD) guidelines, the proposed project is considered consistent with the region's Air Quality Management Plan.

The project would result in emissions of criteria air pollutants during construction and operation. Operational sources of criteria air pollutant emissions include area sources and on-site energy use. The project is anticipated to reduce vehicle miles traveled in the region, thereby reducing mobile source emissions. Project emissions of criteria pollutants and precursors during construction and operation would remain below SCAQMD regional emissions thresholds. Impacts related to cumulatively considerable net increases of criteria pollutants in the region would be less than significant.

With implementation of mitigation measures AQ-1 and AQ-2, requiring construction equipment to be equipped with cleaner burning engines and enhanced fugitive dust control measures (increased water application) during site preparation and grading, construction and operation of the project would not result in exposure of sensitive receptors to significant quantities of toxic air contaminants or substantial localized criteria pollutant and precursor concentrations. Impacts related to exposure of sensitive receptors to substantial pollutant concentrations would be less than significant with mitigation.

The project would not generate other emissions (such as those leading to odors) that would affect a substantial number of people.

GHG emissions resulting from construction and operation of the project would not exceed the SCAQMD's proposed annual screening threshold of 3,000 metric tons of carbon dioxide equivalent for development projects. The project would not conflict with any applicable GHG emission reduction plans. Impacts related to GHG emissions and conflicts with GHG emission reduction plans and policies would be less than significant.

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1.0 INTRODUCTION

HELIX Environmental Planning, Inc. has conducted this report to provide an analysis of potential impacts related to air quality and greenhouse gas (GHG) emissions during construction and operation of the Cherry Outpost Project (project). This report details the methods and results of the analyses and has been prepared to comply with the California Environmental Quality Act (CEQA) and South Coast Air Quality Management District (SCAQMD) guidelines.

1.1 PROJECT LOCATION

The approximately 6.64-acre project site is located in the City of Wildomar (City) in western Riverside County, California, and is generally located east of Interstate (I-) 15 and west of I-215 (Figure 1, *Regional Location*). Specifically, the project site is located at the northwest intersection of Bundy Canyon Road and Cherry Street and is bordered to the west by the I-15 northbound onramp (Figure 2, *Aerial Photograph*). The project site comprises two undeveloped parcels with Assessor's Parcel Numbers (APNs) 366-290-008 and -007. Off-site areas within the existing paved right-of-way (ROW) along Bundy Canyon Road and Cherry Street would also be altered as part of the project.

1.2 PROJECT DESCRIPTION

The proposed project consists of a commercial development split among four proposed parcels (see Figure 3, *Site Plan*). The first parcel would contain a 5,724-square foot car wash building in the southern portion of the project site. The second parcel located on the east side of the project site would contain a 14-pump gas station, 4,176-square foot convenience store, and 2,375-square foot quick-serve restaurant with a drive through. A quick-serve restaurant with a drive-through is also proposed on parcel 3 at the western edge of the site and would comprise approximately 4,425 square feet of building space. The fourth parcel at the northern edge of the project site would contain a 72-key, four story hotel totaling 45,571 square feet of floor area. Access to the site would be provided by two driveways along Cherry Street. Off-site project components include widening of Bundy Canyon Road, street improvements to Cherry Street, and installation of a storm drain pipe.

The project site is currently zoned as Commercial within the Scenic Highway Commercial Zone. The General Plan Land Use Element designates the project site for Commercial Retail use. The proposed project uses are consistent with the existing zoning and land use designations for the site and no changes to these designations are proposed.

1.3 CONSTRUCTION ACTIVITIES AND PHASING

Construction of the project would begin in August 2025 and take approximately nine months to complete. General project construction activities are anticipated to include site preparation, grading, physical building construction, paving, and architectural coating application. Grading of the site would require the export of approximately 4,160 cubic yards of materials. Project construction would be required to implement all applicable fugitive dust best available control measures specified in Table 1 of the SCAQMD Rule 403, Fugitive Dust (SCAQMD 2005), including, but not limited to: the use of an on-site water truck to wet down exposed areas, maintaining a 12 percent moisture content to unpaved roads, and limiting vehicle speeds to 15 miles per hour (mph).

2.0 REGULATORY SETTING

2.1 AIR QUALITY

The project site is located within the south coast air basin (SCAB). Air quality in the SCAB is regulated by the U.S. Environmental Protection Agency (USEPA) at the federal level, by the California Air Resources Board (CARB) at the state level, and by the SCAQMD at the regional level.

2.1.1 Air Pollutants of Concern

2.1.1.1 Criteria Pollutants

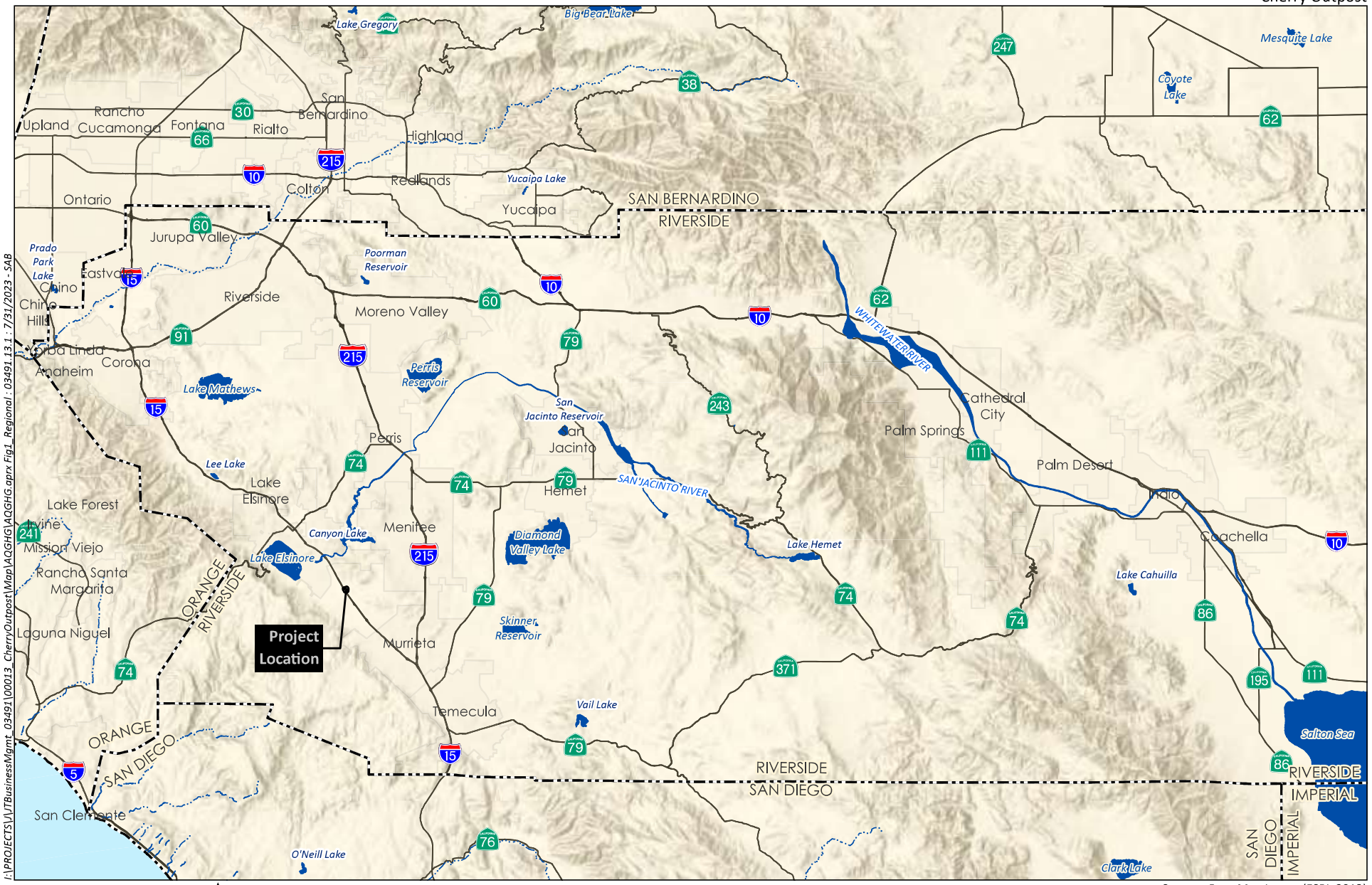
Criteria pollutants are defined by state and federal law as a risk to the health and welfare of the public. In general, criteria air pollutants include the following compounds:

- Ozone (O_3)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO_2)
- Particulate matter (PM), which is further subdivided:
  - Coarse PM, 10 microns or less in diameter (PM_{10})
  - Fine PM, 2.5 microns or less in diameter ($PM_{2.5}$)
- Sulfur dioxide (SO_2)
- Lead (Pb)

Criteria pollutants can be emitted directly from sources (primary pollutants; e.g., CO, SO_2, PM_{10}, $PM_{2.5}$, and lead), or they may be formed through chemical and photochemical reactions of precursor pollutants in the atmosphere (secondary pollutants; e.g., ozone, NO_2, PM_{10}, and $PM_{2.5}$). PM_{10} and $PM_{2.5}$ can be both primary and secondary pollutants. The principal precursor pollutants of concern are reactive organic gases ([ROGs] also known as volatile organic compounds [VOCs])[1] and nitrogen oxides (NO_X).

Specific adverse health effects on individuals or population groups induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables such as cumulative concentrations, local meteorology and atmospheric conditions, and the number and characteristics of exposed individuals (e.g., age, gender). Criteria pollutant precursors (ROG and NO_X) affect air quality on a regional scale, typically after significant delay and distance from the pollutant source emissions. Health effects related to ozone and NO_2 are, therefore, the product of emissions generated by numerous sources throughout a region. Emissions of criteria pollutants from vehicles traveling to or from a project site (mobile emissions) are distributed nonuniformly in location and time throughout the region, wherever the vehicles may travel. As such, specific health effects from these criteria pollutant emissions cannot be meaningfully correlated to the incremental contribution from a project.

[1] CARB defines and uses the term ROGs while the USEPA defines and uses the term VOCs. The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

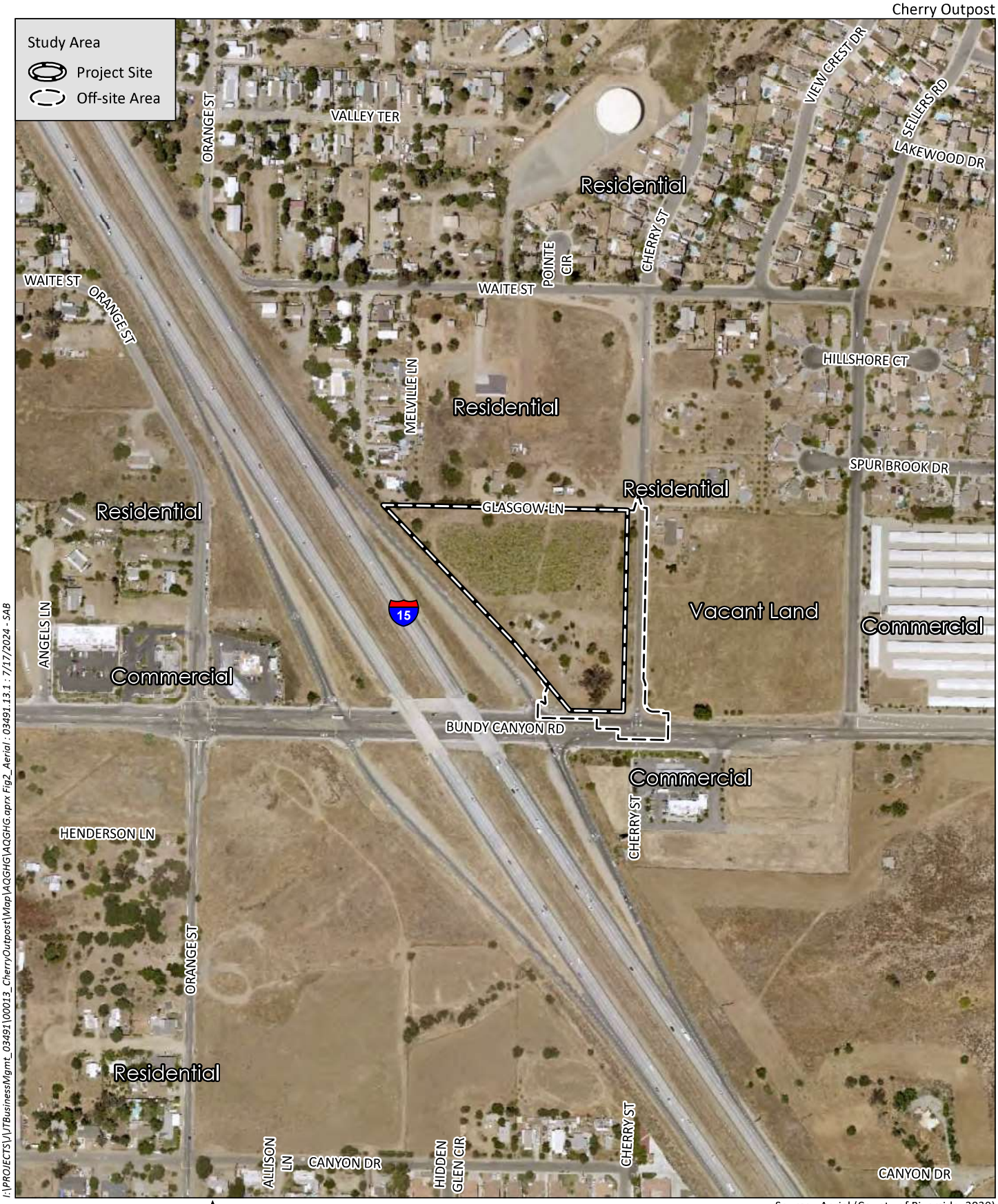


Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



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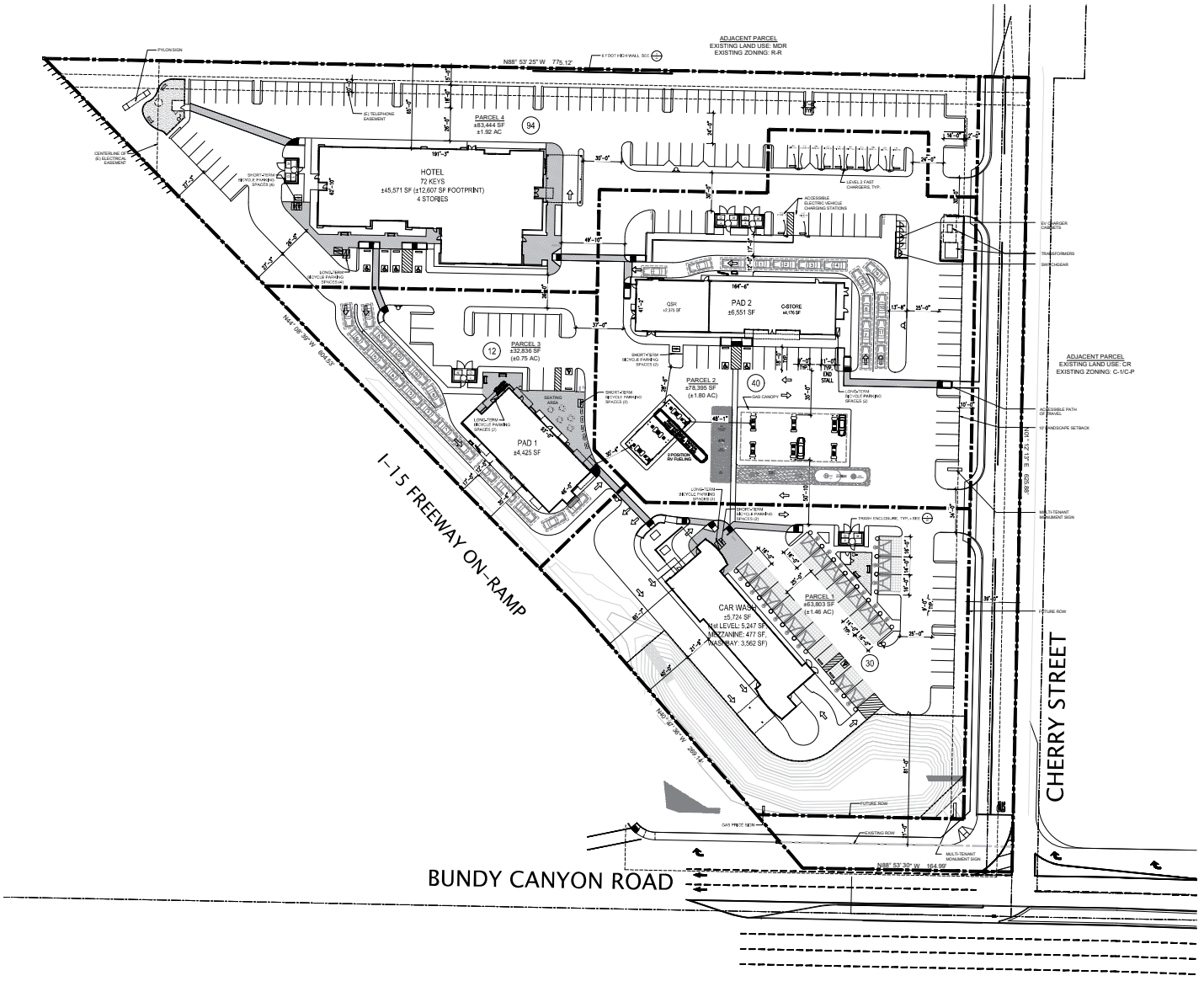
0 400 Feet

Source: Aerial (County of Riverside, 2020)

HELIX Environmental Planning

Aerial Photograph

Figure 2



Source: KGTY, 2024

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HELIX Environmental Planning

Site Plan

Figure 3

The following specific descriptions of health effects for each air pollutant associated with project construction and operation are based on information available through the USEPA (2023a) and CARB (2023a).

Ozone. Ozone is considered a photochemical oxidant, which is a chemical that is formed when VOCs and nitrogen oxides (NO_X), both by-products of fuel combustion, react in the presence of ultraviolet light. Ozone is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma, and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to ozone.

Reactive Organic Gases. ROGs (also known as VOCs) are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but by reactions of ROGs to form secondary pollutants such as ozone.

Carbon Monoxide. CO is a product of fuel combustion. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease and can also affect mental alertness and vision.

Nitrogen Dioxide. NO_2 is also a by-product of fuel combustion and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen monoxide with oxygen. NO_2 is a respiratory irritant and may affect those with existing respiratory illness, including asthma. NO_2 can also increase the risk of respiratory illness.

Respirable Particulate Matter and Fine Particulate Matter. PM_{10} refers to particulate matter with an aerodynamic diameter of 10 microns or less. $PM_{2.5}$ refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in these size ranges has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, fuel combustion, tire and brake wear, construction operations, and windblown dust. PM_{10} and $PM_{2.5}$ can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. $PM_{2.5}$ is considered to have the potential to lodge deeper in the lungs. Diesel particulate matter (DPM) is classified as a carcinogen by CARB.

Sulfur Dioxide. SO_2 is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Lead in the atmosphere occurs as particulate matter. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Lead has the potential to cause gastrointestinal, central nervous system, kidney, and blood diseases upon prolonged exposure. Lead is also classified as a probable human carcinogen. Because emissions of lead are found only in projects that are permitted by the local air district, lead is not an air pollutant of concern for the proposed project.

2.1.1.2 Toxic Air Contaminants

The Health and Safety Code (Section 39655[a]) defines a toxic air contaminant (TAC) as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Clean Air Act (CAA; 42 United States Code Section 7412[b]) is a TAC. Under State law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is referred to as DPM. Almost all DPM is 10 microns or less in diameter, and 90 percent of DPM is 2.5 microns or less in diameter (CARB 2023b). Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. In 1998, CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM has a notable effect on California's population—it is estimated that about 70 percent of total known cancer risk related to air toxics in California is attributable to DPM (CARB 2023b).

2.1.2 Federal Air Quality Regulations

2.1.2.1 Federal Clean Air Act

Air quality is defined by ambient air concentrations of specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the public. The USEPA is responsible for enforcing the CAA of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several criteria pollutants. Table 1, *Ambient Air Quality Standards*, shows the federal and state ambient air quality standards for these pollutants.

Table 1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	Federal Standards Primary[1]	Federal Standards Secondary[2]
O_3	1 Hour	0.09 ppm (180 µg/m^3)	–	–
	8 Hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	Same as Primary
PM_{10}	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
	AAM	20 µg/m^3	–	Same as Primary
$PM_{2.5}$	24 Hour	–	35 µg/m^3	Same as Primary
	AAM	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
CO	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–

Pollutant	Averaging Time	California Standards	Federal Standards Primary[1]	Federal Standards Secondary[2]
NO_2	1 Hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	–
	AAM	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
SO_2	1 Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/m^3)	–	–
Lead	30-day Avg.	1.5 µg/m^3	–	–
	Calendar Quarter	–	1.5 µg/m^3	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m^3	Same as Primary
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	No Federal Standards
Sulfates	24 Hour	25 µg/m^3	No Federal Standards	No Federal Standards
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	No Federal Standards	No Federal Standards
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	No Federal Standards	No Federal Standards

Source: CARB 2016

[1] National Primary Standards: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

[2] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

O_3 = ozone; ppm: parts per million; µg/m^3 = micrograms per cubic meter; PM_{10} = particulate matter 10 microns or less in diameter; AAM = Annual Arithmetic Mean; $PM_{2.5}$ = fine particulate matter 2.5 microns or less in diameter; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide; km = kilometer; – = No Standard

The USEPA has classified air basins (or portions thereof) as being in "attainment," "nonattainment," "maintenance," or "unclassified" for each criteria air pollutant, based on whether the NAAQS have been achieved. Upon attainment of a standard for which an area was previously designated nonattainment, the area will be classified as a maintenance area. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. The project site is located within the Riverside County portion of the SCAB and, as such, is in an area designated as a nonattainment area for certain pollutants that are regulated under the CAA. Table 2, *South Coast Air Basin Attainment Status*, lists the federal and state attainment status of the SCAB for the criteria pollutants. With respect to federal air quality standards, the USEPA classifies the SCAB as in attainment for PM_{10}, CO, NO_2, SO_2, and lead, and in nonattainment for 8-hour ozone and $PM_{2.5}$. While the SCAB has attained lead standards as a whole, it is considered a partial nonattainment area based on local monitoring locations where lead concentrations exceeded the NAAQS from 2007 to 2009. However, the SCAB, including near-source monitors have achieved the NAAQS from 2012 through 2020 and the project site is not within an area where lead concentrations have historically exceeded the NAAQS (SCAQMD 2022).

Table 2
SOUTH COAST AIR BASIN ATTAINMENT STATUS

Criteria Pollutant	Federal Designation	California Designation
Ozone (O_3) (1-hour)	(No federal standard)	Nonattainment
Ozone (O_3) (8-hour)	Extreme Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment (Maintenance)	Attainment
Respirable Particulate Matter (PM_{10})	Attainment (Maintenance)	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Serious Nonattainment	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment (Maintenance)	Attainment
Sulfur Dioxide (SO_2)	Unclassifiable/Attainment	Attainment
Lead	Unclassifiable/Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Attainment
Visibility	(No federal standard)	Attainment

Source: SCAQMD 2022

2.1.3 California Air Quality Regulations

2.1.3.1 California Clean Air Act

The federal CAA allows states to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB is responsible for the coordination and administration of both federal and state air pollution control programs within California, including establishment of the California Ambient Air Quality Standards (CAAQS). CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In addition to the CAAQS set for the criteria air pollutants regulated by the Federal CAA, CARB has established CAAQS for additional pollutants (see Table 1), including sulfates, hydrogen sulfide (H_2S), vinyl chloride and visibility-reducing particles. Table 2 provides the state attainment status of the SCAB for the criteria pollutants. Under state designations, the SCAB is currently in attainment for CO, NO_2, SO_2, and lead, and in nonattainment for ozone, PM_{10}, and $PM_{2.5}$.

2.1.3.2 State Implementation Plan

The CAA requires areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain the NAAQS. The 1990 amendments to the CAA set deadlines for attainment based on the severity of an area's air pollution problem.

SIPs are not single documents—they are a compilation of new and previously submitted plans, programs (e.g., monitoring, modeling, permitting), district rules, state regulations and federal controls. Many of California's SIPs rely on a core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards the SIP revisions to the USEPA for

approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items that are included in the California SIP (CARB 2023c). At any one time, several California submittals are pending USEPA approval.

2.1.4 Local Regulations

2.1.4.1 South Coast Air Quality Management District

Air quality in the SCAB portion of Riverside County is regulated by the SCAQMD. As a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments, and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines when necessary.

Air Quality Management Plan

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs).

On December 2, 2022, the SCAQMD adopted the 2022 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and USEPA). The 2022 AQMP represents a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures. The plan seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, GHGs, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. Included in the 2022 AQMP are updated strategies and control measures to address the designation of the SCAB as an “extreme” nonattainment area for the 2015 NAAQS 8-hour ozone standard.

To meet the 2015 NAAQS ozone standard, an additional 67 percent reduction of NO_X will be required compared to the reductions forecast to occur by 2037 (as required by current adopted rules and regulations). Achieving the NO_X reductions will require extensive use of zero emission technologies across all stationary and mobile sources. The overwhelming majority of NO_X emissions are from heavy-duty trucks, ships and other State and federally regulated mobile sources that are mostly beyond the SCAQMD’s control. The region will not meet the NAAQS ozone standard absent significant federal action. In addition to federal action, the 2022 AQMP requires substantial reliance on future deployment of advanced technologies to meet the NAAQS ozone standard (SCAQMD 2022).

The 2022 AQMP, in combination with those from all other California nonattainment areas with serious (or worse) air quality problems, is submitted to CARB, which develops the California SIP. The SIP relies on the same information from SCAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The current federal and state attainment status for the SCAB is presented above, in Table 2.

Rules and Regulations

The following rules promulgated by the SCAQMD would be applicable to construction and/or operation of the project.

Rule 401 – Visible Emissions: Limits the allowable opacity of air contaminant emissions from any single source (SCAQMD 2001).

Rule 402 – Nuisance: Prohibits the discharge of air contaminants, including odors, which cause injury, detriment, nuisance, or annoyance to any considerable number of persons (SCAQMD 1976).

Rule 403 – Fugitive Dust: Requires actions to prevent, reduce or mitigate anthropogenic fugitive dust emissions, including emissions from construction activities. Project construction would be required to implement all applicable fugitive dust best available control measures specified in Table 1 in the rule (SCAQMD 2005).

Rule 1113 – Architectural Coating: Establishes VOC limits for architectural coatings (e.g., paints, stains, preservatives). Effective January 1, 2019, building interior and exterior paint is limited to a maximum VOC content of 50 grams per liter (SCAQMD 2016).

2.2 GREENHOUSE GASES

2.2.1 Climate Change Overview

Global climate change refers to changes in average climatic conditions on Earth including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The temperature record shows a decades-long trend of warming, with 2016 global surface temperatures ranking as the warmest year on record since 1880. The newest release in long-term warming trends announced the last nine consecutive years (2014-2022) have been the warmest nine years on record. During 2022, an increase of 1.6 degrees Fahrenheit compared to the 1951-1980 average ranked as the fifth warmest year since 1880 (National Aeronautics and Space Administration 2023). GHG and aerosol emissions from human activities are the most significant driver of observed climate change since 1750 (United Nations Intergovernmental Panel on Climate Change [IPCC] 2021). The IPCC Fifth Assessment Report constructed several emission trajectories of GHG emissions needed to stabilize global temperatures and climate change impacts. The statistical models showed a "high confidence" that temperature increase caused by anthropogenic GHG emissions could be kept to less than two degrees Celsius relative to pre-industrial levels if atmospheric concentrations were stabilized at about 450 parts per million (ppm) carbon dioxide equivalent (CO_2e) by the year 2100 (IPCC 2014). As of the Sixth Assessment Report published in 2022, the IPCC determined warming would "likely" exceed 1.5 degrees Celsius and would become difficult to limit to 2 degrees Celsius if it is not already limited by 2030 (IPCC 2022).

2.2.2 Types of Greenhouse Gases

The GHGs defined under California's Assembly Bill (AB) 32 include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Carbon Dioxide. CO_2 is the most important and common anthropogenic GHG. CO_2 is an odorless, colorless GHG. Natural sources include the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of CO_2 include burning fuels, such as coal, oil, natural gas, and wood. Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. The atmospheric CO_2 concentration in 2010 was 390 ppm, 39 percent above the concentration at the start of the Industrial Revolution (approximately 280 ppm in 1750). As of April 2023, the CO_2 concentration exceeded 420 ppm (National Oceanic and Atmospheric Administration 2023).

Methane. CH_4 is the main component of natural gas used in homes. A natural source of methane is from the decay of organic matter. Geological deposits known as natural gas fields contain methane, which is extracted for fuel. Other sources are from decay of organic material in landfills, fermentation of manure, and cattle digestion.

Nitrous Oxide. N_2O is produced by both natural and human-related sources. N_2O is emitted during agricultural and industrial activities, as well as during the combustion of fossil fuels and solid waste. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic (fatty) acid production, and nitric acid production.

Fluorocarbons. Fluorocarbons are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. Chlorofluorocarbons (CFCs) are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere (the level of air at Earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, their production was stopped as required by the 1989 Montreal Protocol.

Sulfur Hexafluoride. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semi-conductor manufacturing, and as a tracer gas for leak detection.

GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHG emissions to disperse around the globe. Because GHG emissions vary widely in the power of their climatic effects, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, a gas with a GWP of 10 is 10 times more potent than CO_2 over 100 years. CO_2e is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e.

The atmospheric lifetime and GWP of selected GHGs are summarized in Table 3, *Global Warming Potentials and Atmospheric Lifetimes*. As indicated below, GWPs range from 1 to 22,800. Although the IPCC has released their Fifth and Sixth Assessment Reports with updated GWPs, CARB reports the Statewide GHG inventory using the Fourth Assessment Report GWPs, which is consistent with

international reporting standards. By applying the Fourth Assessment Report GWP ratios, project-related equivalent mass of CO_2, denoted as CO_2e emissions can be tabulated in metric tons (MT) per year.

Table 3
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50-200	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
HFC-134a	14	1,430
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Source: IPCC 2007
IPCC = Intergovernmental Panel on Climate Change; GWP = global warming potential; HFC = hydrofluorocarbon; PFC = perfluorocarbon

2.2.3 Federal Greenhouse Gas Regulations

2.2.3.1 Federal Clean Air Act

The U.S. Supreme Court ruled on April 2, 2007, in Massachusetts v. U.S. Environmental Protection Agency, that CO_2 is an air pollutant, as defined under the CAA, and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, HFC, PFC, and SF_6) threaten the public health and welfare of the American people (USEPA 2023b). This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA).

On June 30, 2022, the U.S. Supreme Court decision published in West Virginia v. U.S. Environmental Protection Agency overturned the USEPA's Clean Power Plan rule which cited Section 111(d) of the CAA for authority to set limits on CO_2 emissions from existing coal- and natural-gas-fired power plants. The June 30, 2022 decision does not overturn the April 2, 2007 decision; however, it may limit the USEPA's authority to develop rules limiting GHG emissions without clear congressional authorization.

2.2.3.2 Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The USEPA and the NHTSA worked together on developing a national program of regulations to reduce GHG emissions and to improve fuel economy of light-duty vehicles. The USEPA established the first-ever national GHG emissions standards under the CAA, and the NHTSA established Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking that established standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025.

In December 2021, USEPA issued a new rule formally adopting standards previously proposed in August 2021 for model years 2023 and 2024 and finalizing more stringent standards than previously proposed for model years 2025 and 2026. The rule assumes a 17 percent electric vehicle market penetration by 2026. Although this is a departure from the NHTSA CAFE standards, USEPA did coordinate with NHTSA during development of the new standards. On April 12, 2023, USEPA announced new, more ambitious proposed standards to further reduce harmful air pollutant emissions from light-duty and medium-duty vehicles starting with model year 2027. The proposal builds upon USEPA's final standards for federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026 and leverages advances in clean car technology to result in benefits to Americans ranging from reducing climate pollution, to improving public health, to saving drivers money through reduced fuel and maintenance costs. The proposed standards would phase in over model years 2027 through 2032.

2.2.4 California Greenhouse Gas Regulations

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, renewable energy and energy procurement, building energy, mobile sources, solid waste, water, and other state regulations and goals. The following text describes executive orders (EOs), legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

2.2.4.1 State Climate Change Targets

Executive Order S-3-05

On June 1, 2005, EO S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Assembly Bill 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB was directed by AB 32 to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions. California statewide GHG emissions dropped below the 2020 GHG limit in 2014 and have remained below the 2020 GHG limit for all reported years since.

Executive Order B-30-15

On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28 nation European Union. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

Senate Bill 32

Senate Bill (SB) 32, Amendments to the California Global Warming Solutions Action of 2006, extends California's GHG emission reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EO S-3-05 of 80 percent below 1990 emissions levels by 2050.

Assembly Bill 1279

Approved by Governor Newsom on September 16, 2022, AB 1279, the California Climate Crisis Act, declares the policy of the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels. AB 1279 anticipates achieving these policies through direct GHG emissions reductions, removal of CO_2 from the atmosphere (carbon capture), and almost complete transition away from fossil fuels.

Senate Bill 905

Approved by Governor Newsom on September 16, 2022, SB 905, Carbon sequestration: Carbon Capture, Removal, Utilization, and Storage Program, requires CARB to establish a Carbon Capture, Removal, Utilization, and Storage Program to evaluate the efficacy, safety, and viability of carbon capture, utilization, or storage technologies and CO_2 removal technologies and facilitate the capture and sequestration of CO_2 from those technologies, where appropriate. SB 905 is an integral part of achieving the state policies mandated in AB 1279.

California Air Resources Board: Scoping Plan

The Scoping Plan is a strategy CARB develops and updates at least one every five years, as required by AB 32. It lays out the transformations needed across California society and economy to reduce emissions and reach climate targets. The current 2022 Scoping Plan is the third update to the original plan that was adopted in 2008. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 mandate of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business as usual. The 2008 Scoping Plan included a mix of incentives, regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California's GHG emission targets (CARB 2008). The 2013 Scoping Plan assessed progress toward achieving the 2020 mandate and made the case for addressing short-lived climate pollutants (SLCPs; CARB 2014). The 2017 Scoping Plan also assessed the progress toward achieving the 2020 limit and provided a technologically feasible and cost-effective path to achieving the SB 32 mandate of reducing GHGs by at least 40 percent below 1990 levels by 2030 (CARB 2017).

On December 15, 2022, CARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). The 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels; further reductions in SLCPs; support for

sustainable development; increased action on natural and working lands to reduce emissions and sequester carbon; and the capture and storage of carbon (CARB 2022a).

2.2.4.2 Renewable Energy and Energy Procurement

Senate Bill 1078

SB 1078 (Sher) (September 2002) established the Renewable Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently revised as described below.

Senate Bill 1368

SB 1368 (September 2006) required the California Energy Commission (CEC) to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission.

Assembly Bill 1109

Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting, to reduce electricity consumption 50 percent for indoor residential lighting and 25 percent for indoor commercial lighting.

Executive Order S-14-08

EO S-14-08 (November 2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. The California Natural Resources Agency (CNRA), through collaboration with the CEC and California Department of Fish and Wildlife (formerly the California Department of Fish and Game), was directed to lead this effort.

Executive Order S-21-09 and Senate Bill X1-2

EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with the California Public Utilities Commission and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, statutes of 2011) signed by Governor Brown in April 2011.

SB X1-2 expanded the RPS by establishing a renewable energy target of 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

SB X1-2 applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet the renewable energy goals previously listed.

Senate Bill 350

Approved by Governor Brown on October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard eligible resources, including solar, wind, biomass, and geothermal. In addition, large utilities are required to develop and submit Integrated Resource Plans to detail how each entity will meet their customers resource needs, reduce GHG emissions, and increase the use of clean energy.

Senate Bill 100

Approved by Governor Brown on September 10, 2018, SB 100 extends the renewable electricity procurement goals and requirements of SB 350. SB 100 requires that all retail sale of electricity to California end-use customers be procured from 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045.

Senate Bill 1020

SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers come from eligible renewable energy resources and zero-carbon resources:

- 90 percent by December 31, 2035;
- 95 percent by December 31, 2040; and
- 100 percent by December 31, 2045.

2.2.4.3 Building Energy

California Energy Code

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for space and water heating) results in GHG emissions.

The standards include a basic set of mandatory requirements that apply to all buildings. Other requirements can be achieved through the prescriptive approach or performance approach. The prescriptive approach is comprised of specific components designed to meet a prescribed minimum building efficiency. Alternatively, the performance approach allows the use of an energy simulation model to determine when a proposed building's design features would bring it into compliance with energy efficiency standards.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2022 Title 24 standards went into effect on January 1, 2023. The 2022 update to the Building Energy Efficiency Standards encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, strengthens ventilation standards, and more (CEC 2022).

California Green Building Standards Code

The California Green Building Standards Code (CALGreen; CCR Title 24, Part 11) is a code with mandatory requirements for all nonresidential buildings (including industrial buildings) and residential buildings for which no other state agency has authority to adopt green building standards. The current 2022 CALGreen Standards for new construction of, and additions and alterations to, residential and nonresidential buildings went into effect on January 1, 2023 (California Building Standards Commission 2022).

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

CALGreen contains requirements for storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

2.2.4.4 Mobile Sources

Assembly Bill 1493 and Advanced Clean Cars

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009), while providing vehicle manufacturers with new compliance flexibility. The amendments also prepared California to merge its rules with the federal CAFE rules for passenger vehicles (CARB 2013).

In January 2012, CARB approved Advanced Clean Cars I, a new emissions-control program for model years 2017 through 2025 including low emissions vehicle and zero-emissions vehicle criteria. The Advanced Clean Cars II regulations were adopted in 2022, imposing the next level of low-emission and zero-emission vehicle standards for model years 2026 through 2035 that contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality targets.

By 2035 all new passenger cars, trucks, and SUVs sold in California will be zero emissions. The Advanced Clean Cars II regulations take the state's already growing zero-emission vehicle market and robust motor vehicle emission control rules and augments them to meet more aggressive tailpipe emissions standards and ramp up to 100 percent zero-emission vehicles.

Executive Order S-01-07

This EO, signed by Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California and directs CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB approved the LCFS as a discrete early action item with a regulation adopted and implemented in April 2010. Although challenged in 2011, the Ninth Circuit reversed the District Court's opinion and rejected arguments that implementing LCFS violates the interstate commerce clause in September 2013. CARB is therefore continuing to implement the LCFS statewide.

Senate Bill 375

SB 375, the Sustainable Communities and Climate Protection Act of 2008, supports the State's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities.

Under the Sustainable Communities Act, CARB sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established these targets for 2020 and 2035 for each region covered by one of the State's metropolitan planning organizations (MPOs). CARB periodically reviews and updates the targets, as needed.

Each of California's MPOs must prepare a Sustainable Communities Strategy (SCS) as an integral part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. CARB must review the adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, would meet the regional GHG emission targets. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate alternative planning strategy (APS) to meet the targets. The APS is not a part of the RTP. Qualified projects consistent with an approved SCS or APS categorized as "transit priority projects" would receive incentives to streamline CEQA processing. SCAG is the County's local MPO and has responded to the requirements of SB 375 with the preparation of an RTP/SCS (SCAG 2020).

Senate Bill 743

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changes transportation impact analysis as part of CEQA compliance. These changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for land use projects and plans in California. Further, parking impacts will not be considered significant impacts on the environment for select development projects within infill areas with nearby frequent transit service. According to the legislative intent contained in SB 743, these changes to current practice were necessary to balance the needs of congestion management more appropriately with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions.

Executive Order N-79-20

EO N-79-20, signed by Governor Newsom on September 23, 2020, establishes three goals for implementation of zero emissions vehicles in California: first, 100 percent of in-state sales of new passenger cars and trucks will be zero-emissions by 2035; second, 100 percent of medium- and heavy-duty vehicles in the state will be zero-emissions vehicles by 2045 for all operations where feasible, and by 2035 for drayage trucks; and third, 100 percent of off-road vehicles and equipment will be zero emissions by 2035 where feasible.

2.2.4.5 Solid Waste

Assembly Bill 939

In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board to oversee a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25 percent by 1995 and 50 percent by the year 2000.

Assembly Bill 341

The state legislature enacted AB 341 (California Public Resource Code Section 42649.2), amending the Integrated Waste Management Act to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops and in August 2015 published a discussion document titled AB 341 Report to the Legislature, which identifies five priority strategies that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020, legislative and regulatory recommendations, and an evaluation of program effectiveness (CalRecycle 2019).

Assembly Bill 1826

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

Senate Bill 1383

SB 1383 (Chapter 395, Statutes of 2016) establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. CalRecycle was granted the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025 (CalRecycle 2019).

2.2.4.6 Water

Executive Order B-29-15

In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Executive Order B-37-16

Issued May 2016, EO B-37-16 directed the State Water Resources Control Board (SWRCB) to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The SWRCB also developed a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25 percent reduction called for in EO B-29-15. The SWRCB and Department of Water Resources were required to develop new, permanent water use targets that build upon the existing state law requirements that the state achieve a 20 percent reduction in urban water usage by 2020. EO B-37-16 also specifies that the SWRCB permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.

Executive Order N-10-21

In response to a state of emergency due to severe drought conditions, EO N-10-21 (July 2021) called on all Californians to voluntarily reduce their water use by 15 percent from their 2020 levels. Actions suggested in EO N-10-21 include reducing landscape irrigation, running dishwashers and washing machines only when full, finding and fixing leaks, installing water-efficient showerheads, taking shorter showers, using a shut-off nozzle on hoses, and taking cars to commercial car washes that use recycled water.

2.2.4.7 Other State Actions

Senate Bill 97

SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (Governor's Office of Planning and Research 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a)). The Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance-based standards" (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

Executive Order S-13-08

EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009, and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014. To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016. In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency.

2.2.5 Regional GHG Emission Policies and Plans

2.2.5.1 SCAG Regional Transportation Plan/Sustainable Communities Strategy

SCAG is the regional planning agency and MPO for the counties of Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial, and addresses regional issues relating to transportation, the economy, community development, and the environment. As required by SB 375, SCAG prepares its RTP/SCS for long-range regional planning related to mobility and housing. The land use, housing, and transportation strategies included in the SCS are intended to achieve GHG emission reduction targets.

On September 3, 2020, SCAG's Regional Council unanimously voted to approve and fully adopt the 2020–2045 RTP/SCS (Connect SoCal), which builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern (SCAG 2020). Connect SoCal outlines more than $638 billion in transportation system investments through 2045. It was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses, and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. CARB accepted the determination that the 2020-2045 RTP/SCS would meet the applicable 2035 GHG emissions reduction targets for automobiles and light trucks as established by CARB.

The SCAG RTP/SCS is updated every four years and the draft plan for Connect SoCal 2024 is available for public review and comment through Jan. 12, 2024. The draft Connect SoCal 2024 plan outlines a vision for a more resilient and equitable future, with policies and strategies for achieving the region's shared goals through 2050. The plan was developed through a four-year planning process involving rigorous technical analysis, extensive stakeholder engagement and robust policy discussions with local elected leaders.

2.2.5.2 Western Riverside Council of Governments Climate Action Plan

The twelve cities of the Western Riverside Council of Governments (WRCOG), which includes the City of Wildomar, adopted a Subregional Climate Action Plan (CAP) in September 2014. The WRCOG CAP provides a 2010 baseline inventory of GHG emissions for the subregion cities of 5,834,400 MT of CO_2e. The WRCOG CAP established a target of reducing subregional GHG emissions 15 percent below 2010 levels by 2020 and 49 percent below 2010 levels by 2035.

To achieve the 2020 reduction target, the WRCOG CAP identifies 14 State and regional measures, 3 local energy sector measures, 18 local transportation sector measures, and 2 solid waste sector measures. The WRCOG CAP does not identify GHG reduction measures for achieving goals beyond 2020, when the project would be implemented (WRCOG 2014).

3.0 EXISTING CONDITIONS

3.1 CLIMATE AND METEOROLOGY

The project site is in the SCAB, which consists of all or part of four counties: Los Angeles, San Bernardino, Riverside, and Orange. The distinctive climate of the SCAB is determined by its terrain and geographic location. The SCAB is a coastal plain with connecting broad valleys and low hills. It is bound by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light, average wind speeds.

The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. Winds in the project area are usually driven by the dominant land/ sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night, the wind generally slows and reverses direction traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons. The vertical dispersion of air pollutants in the SCAB is hampered by the presence of persistent temperature inversions. High pressure systems, such as the semi-permanent high-pressure zone in which the SCAB is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The basin-wide occurrence of inversions at 3,500 feet above mean sea level or less averages 191 days per year (SCAQMD 1993).

The predominant wind direction in the vicinity of the project is from the southwest, southeast, and northwest, and the average wind speed is approximately three mph (SCAQMD 2023a). The annual average maximum temperature in the project area is approximately 81°F, and the annual average minimum temperature is approximately 47°F. Total precipitation in the project area averages approximately 12 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer (Western Regional Climate Center 2016).

3.2 SENSITIVE RECEPTORS

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: adults over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptor locations. Examples of these sensitive receptor locations are residences, schools, hospitals, and daycare centers.

The closest existing sensitive receptor location to the project site is the single-family residence located north of the project site, with an outdoor use area approximately 45 feet from the project site boundary. An additional single-family residence is located to the east of Cherry Street and has an outdoor use area approximately 70 feet from the project site boundary (see Figure 2). The closest school to the project site is Elsinore High School, approximately 1,700 feet west of the project site.

3.3 AIR QUALITY

3.3.1 Criteria Pollutants

3.3.1.1 Attainment Designations

Attainment designations are discussed further in Section 2.1 and Table 2. The SCAB is a federal and state nonattainment area for 8-hour ozone and $PM_{2.5}$. The SCAB is also a state nonattainment area for 1-hour ozone and PM_{10}.

3.3.1.2 Monitored Air Quality

The SCAQMD maintains monitoring stations to measure ambient concentrations of pollutants in the SCAB. The nearest monitoring station, approximately three miles west of the project site, is the Lake Elsinore monitoring station. Table 4, *Air Quality Monitoring Data*, presents a summary of the ambient pollutant concentrations monitored at the Lake Elsinore air quality monitoring station during the most recent three years (2020 through 2022) for which the SCAQMD has reported data. The station measured acceptable levels of NO_2 in all years and of PM_{10} for 2021 and 2022. The state and federal ozone standards were violated multiple times each year and the PM_{10} federal standard was violated once in 2020. Insufficient data were available to report the number of exceedances of state PM_{10} standards and federal $PM_{2.5}$ standards.

Table 4
AIR QUALITY MONITORING DATA

Pollutant	2020	2021	2022
Ozone (O_3)			
Maximum 1-hour concentration (ppm)	0.130	0.118	0.121
Days above 1-hour state standard (>0.09 ppm)	18	18	17
Maximum 8-hour concentration (ppm)	0.100	0.097	0.091
Days above 8-hour state standard (>0.070 ppm)	54	44	37
Days above 8-hour federal standard (>0.070 ppm)	54	44	37
Respirable Particulate Matter (PM_{10})			
Maximum 24-hour concentration (µg/m^3)	192.4	90.0	91.8
Days above state standard (>50 µg/m^3)	*	*	*
Days above federal standard (>150 µg/m^3)	1	0	0
Fine Particulate Matter ($PM_{2.5}$)			
Maximum 24-hour concentration (µg/m^3)	41.6	28.8	16.2
Days above federal standard (>35 µg/m^3)	*	*	*
Annual average(µg/m^3)	7.2	6.9	5.8
Exceed state and federal annual standard (12 µg/m^3)	No	No	No

Pollutant	2020	2021	2022
Nitrogen Dioxide (NO_2)			
Maximum 1-hour concentration (ppm)	0.044	0.044	0.037
Days above state 1-hour standard (0.18 ppm)	0	0	0
Days above federal 1-hour standard (0.100 ppm)	0	0	0
Annual average (ppm)	0.007	0.007	0.007
Exceed annual federal standard (0.053 ppm)	No	No	No
Exceed annual state standard (0.030 ppm)	No	No	No

Source: CARB 2023d
*Indicates insufficient data available
ppm = parts per million, µg/m³ = micrograms per cubic meter

3.4 GREENHOUSE GASES

To evaluate and reduce the potential adverse impact of global climate change, international, state, and local organizations have conducted GHG inventories to estimate their levels of GHG emissions and removals. The following summarizes the results of these global, national, state, countywide, and local GHG inventories.

In 2019, total GHG emissions worldwide were estimated at 49,881 million metric tons (MMT) of CO_2e emissions (World Resource Institute [WRI] 2023). The U.S. contributed the second largest portion (11.7 percent) of global GHG emissions in 2019. The total for U.S. GHG emissions was 5,819 MMT CO_2e in 2019. On a national level, approximately 31 percent of U.S. GHG emissions were associated with transportation and about 34 percent were associated with electricity generation (WRI 2023).

CARB performs statewide GHG inventories. The inventory is divided into six broad sectors: agriculture and forestry, commercial, electricity generation, industrial, residential, and transportation. Emissions are quantified in MMT CO_2e. Table 5, *California Greenhouse Gas Emissions by Sector*, shows the estimated statewide GHG emissions for the years 1990, 2000, 2010, and 2020.

Table 5
CALIFORNIA GREENHOUSE GAS EMISSIONS BY SECTOR

Sector	Emissions (MMT CO_2e)			
	1990	2000	2010	2020
Agriculture and Forestry	18.9 (4%)	30.8 (7%)	33.6 (8%)	31.6 (9%)
Commercial	14.4 (3%)	14.6 (3%)	20.1 (5%)	22.0 (6%)
Electricity Generation	110.5 (26%)	105.2 (23%)	90.6 (20%)	59.8 (16%)
Industrial	105.3 (24%)	101.2 (22%)	97.9 (22%)	85.3 (23%)
Residential	29.7 (7%)	31.5 (7%)	32.1 (7%)	30.7 (8%)
Transportation	150.6 (35%)	178.5 (39%)	168.0 (38%)	139.9 (38%)
Unspecified Remaining	1.3 (<1%)	0.0 (0%)	0.0 (0%)	0.0 (0%)
TOTAL	430.7	461.9	442.3	369.2

Source: CARB 2007 and CARB 2022b
MMT = million metric tons; CO_2e = carbon dioxide equivalent

As shown in Table 5, statewide GHG emissions totaled approximately 431 MMT CO_2e in 1990, 462 MMT CO_2e in 2000, 442 MMT CO_2e in 2010, and 369 MMT CO_2e in 2020. Transportation-related emissions consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions.

The WRCOG CAP provided a 2010 baseline inventory of GHG emissions and concluded that emissions from the subregion cities totaled 5,834,400 MT of CO_2e. The 2010 emissions inventory for the WRCOG cities is presented in Table 6, *Western Riverside Council of Governments Greenhouse Gas Emissions by Sector*. While the sectors included in this inventory are somewhat different from those in the statewide inventory, the results similarly demonstrate that transportation related GHG emissions contributed the most, followed by emissions associated with energy use.

Table 6
WESTERN RIVERSIDE COUNCIL OF GOVERNMENTS GREENHOUSE GAS EMISSIONS BY SECTOR

Sector	2010 Baseline Emissions (MT CO_2e)	Percent of Total
Transportation	3,317,387	56.9%
Commercial/Industrial Energy	1,226,479	21.0%
Residential Energy	1,167,843	20.0%
Waste	112,161	1.9%
Wastewater	10,531	0.2%
TOTAL	5,834,400	100%

Source: WRCOG 2014
MT = metric tons; CO_2e = carbon dioxide equivalent

4.0 METHODOLOGY AND SIGNIFICANCE CRITERIA

4.1 METHODOLOGY

Criteria pollutant and GHG emissions for the project were calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The calculation methodology and default input data used in CalEEMod can be found in the CalEEMod User's Guide Appendices (CAPCOA 2022). The input data and subsequent construction and operation emission estimates for the proposed project are discussed below. CalEEMod output files for the project are included as Appendix A to this report.

4.1.1 Construction Emissions

4.1.1.1 Construction Activities

The quantity, duration, and intensity of construction activity influence the amount of construction emissions and related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction activity is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be

reduced because of: (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in CalEEMod; and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Construction emissions were estimated based on the timeline provided by the project applicant, which assumes construction would commence in August 2025 and last nine months. The length of each phase for on-site improvements was based on CalEEMod defaults, except for grading, which was increased to newly suggested CalEEMod defaults (Ramboll 2023), and building construction, which was decreased to achieve the nine-month construction schedule. The roadway improvements schedule was provided by the project engineer. Construction is assumed to occur six days per week with equipment operating up to eight hours per day. The construction schedule assumed in the modeling is shown in Table 7, *Anticipated Construction Schedule*.

Table 7
ANTICIPATED CONSTRUCTION SCHEDULE

Construction Activity	Construction Period Start	Construction Period End	Number of Working Days
Site Preparation	8/1/2025	8/12/2025	10
Grading	8/13/2025	9/16/2025	30
Building Construction	9/17/2025	3/14/2026	154
Paving	3/15/2026	4/7/2026	20
Architectural Coating	4/8/2026	4/30/2026	20
Roadway Widening – Grubbing and Land Clearing	8/1/2025	8/12/2025	10
Roadway Widening – Grading and Excavation	8/13/2025	9/16/2025	30
Roadway Widening – Drainage, Utilities, Sub-grade	9/17/2025	12/10/2026	73
Roadway Widening – Paving	1/15/2026	3/7/2026	45

Source: CalEEMod (complete data is provided in Appendix A).

4.1.1.2 Construction Off-Road Equipment

Construction would require the use of heavy off-road equipment. Construction equipment assumptions are based on default values in CalEEMod except for the addition of off-highway trucks during the site preparation and grading phases to account for the use of water trucks required for dust suppression. The number and hours of each piece of equipment required during building construction was increased proportionally to account for the reduced construction period. Table 8, *Construction Equipment Assumptions*, presents a summary of the equipment that is assumed to be involved in each stage of construction.

Table 8
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Equipment	Horsepower	Number	Hours/Day
Site Preparation			
Rubber Tired Dozers	367	3	8
Off-Highway Trucks	376	1	6
Tractors/Loaders/Backhoes	84	4	8

Equipment	Horsepower	Number	Hours/Day
Grading			
Excavators	36	1	8
Graders	148	1	8
Off-Highway Trucks	376	1	6
Rubber Tired Dozers	367	1	8
Tractors/Loaders/Backhoes	84	3	8
Building Construction			
Cranes	367	2	5.2
Forklifts	82	5	7.2
Generator Sets	14	2	6
Tractors/Loaders/Backhoes	84	4	7.8
Welders	46	2	6
Paving			
Pavers	81	2	8
Paving Equipment	89	2	8
Rollers	36	2	8
Architectural Coating			
Air Compressors	37	1	6
Roadway Widening – Grubbing and Land Clearing			
Crawler Tractors	87	1	8
Excavators	36	2	8
Signal Boards	6	1	8
Roadway Widening – Grading and Excavation			
Crawler Tractors	87	1	8
Excavators	36	3	8
Graders	148	2	8
Rollers	36	2	8
Rubber Tired Loaders	150	1	8
Scrapers	423	2	8
Signal Boards	6	1	8
Tractors/Loaders/Backhoes	84	4	8
Roadway Widening – Drainage, Utilities, Sub-grade			
Air Compressors	37	1	8
Generator Sets	14	1	8
Graders	148	1	8
Plate Compactors	8	1	8
Pumps	11	1	8
Rough Terrain Forklifts	96	1	8
Scrapers	423	1	8
Signal Boards	6	1	8
Tractors/Loaders/Backhoes	84	3	8
Roadway Widening – Paving			
Pavers	81	1	8
Paving Equipment	89	1	8
Rollers	36	2	8
Signal Boards	6	1	8
Tractors/Loaders/Backhoes	84	3	8

Source: CalEEMod (output is provided in Appendix A)

4.1.1.3 Construction On-Road Trips

Worker commute trips, haul truck trips, and vendor delivery trips were modeled based on CalEEMod defaults and the addition of suggested vendor trips (Ramboll 2023). Worker trips are anticipated to vary between 5 and 54 trips per day, depending on construction activity. Vendor delivery trips would occur 1 to 3 times per phase, except for building construction and roadway widening grading when vendor delivery trips would occur 11 times and 1 time per day, respectively. Soil export during grading would result in 17 one-way haul trips per day and asphalt import would require 29 one-way trips per day during paving. The CalEEMod default trip distances for worker, vendor, and haul trips were used in the model.

4.1.2 Operation Emissions

Operational emissions were estimated using CalEEMod. Operational sources of emissions include area, energy, mobile, solid waste, and water/wastewater sources. Operational emissions were calculated for 2027, the earliest anticipated full year of operation.

4.1.2.1 Area Source Emissions

Area sources include emissions from landscaping equipment, the use of consumer products, the reapplication of architectural coatings for maintenance, and hearths. Emissions associated with area sources were estimated using the CalEEMod default values except for hearths, as the project would not include wood burning stoves or fireplaces, or natural gas fireplaces. Per SCAQMD Rule 1113, architectural coatings for buildings would be limited to VOC contents of 50 grams per liter and for parking areas would be limited to VOC contents of 100 grams per liter.

4.1.2.2 Energy Emissions

The project would use electricity for lighting, heating, and cooling. Electricity would be supplied by Southern California Edison and natural gas would be supplied by Southern California Gas. Direct emissions from the burning of natural gas may result from furnaces, hot water heaters, and cooking appliances. Electricity generation typically entails the combustion of fossil fuels, including natural gas and coal, which is then transmitted to end users. A building's electricity use is thus associated with the off-site or indirect emission of GHGs at the source of electricity generation (power plant).

CalEEMod default energy values are based on the CEC-sponsored Commercial Sector Forecast and Residential Appliance Saturation Survey studies, which identify energy use by building type and climate zone (CAPCOA 2022). The emissions generated by production of this energy are based on the forecasted emission factors for Southern California Edison and Southern California Gas provided in CalEEMod. The project's energy demand uses the CalEEMod defaults for the proposed land uses, excluding the proposed car wash.

Information from professional car wash industry surveys and reports was used to estimate the energy requirements for the proposed car wash. The annual number vehicles washed for the project was estimated based on a 2015 industry survey which reported an average of approximately 80,000 vehicles per year for conveyor car washes (Professional Car Washing & Detailing 2017). Based on cost averages of $0.50 per vehicle for electricity and an average electricity cost of $.1026 per kilowatt-hour (kWh) for commercial customers in the U.S. in 2013, the energy requirements for the car wash were estimated to

be 4.87 kWh per vehicle (Car Wash Advisory 2014; U.S. Energy Information Administration 2023). In total, this would result in annual electricity use of approximately 389,864 kWh per year.

4.1.2.3 Vehicular (Mobile) Sources

Operational emissions from mobile source emissions are associated with vehicle trip generation and trip length. According to the project's traffic analysis, the project is anticipated to reduce vehicle miles traveled (VMT) in the region (Trames Solutions Inc. 2024). As a local-serving land use and commercial development under 50,000 square feet, the project is considered to have a less than significant impact on VMT. Comparable hotels to the one proposed by the project are located three miles to the north and six miles to the south. The addition of the proposed hotel along I-15 would reduce VMT required to access these hotels. Similarly, the addition of commercial uses in proximity to residential land uses tends to shorten trips, thereby reducing VMT. As the project is anticipated to reduce VMT in the region, mobile emissions in the vicinity would also be reduced. Therefore, the following analysis does not consider the generation of new vehicle trips travelling to the project site as resulting in new mobile emission for the region.

4.1.2.4 Solid Waste Sources

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. The default solid waste generation rates and gas treatment values from CalEEMod were used in this analysis.

4.1.2.5 Water and Wastewater Sources

The amount of water used, and wastewater generated, by a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat the water and wastewater. In addition to the indirect GHG emissions associated with energy use, wastewater treatment can directly emit both methane and nitrous oxide. Energy use related to water and wastewater sources for land uses other than the car wash were generated based on CalEEMod defaults.

According to a report on car wash profits, typical freshwater use for a car wash without water reclamation is up to 65 gallons per vehicle (Car Wash Advisory 2014). California AB 2230, signed by the Governor in 2012, requires that any conveyor car wash installed after 2013 reuse a minimum of 60 percent of the water previously used in the wash or rinse cycles. Therefore, the proposed car wash would reclaim at least 39 gallons per vehicle for a total water use of 26 gallons per vehicle. Based on 80,000 vehicles washed per year, the estimated water use for the proposed car wash would be 2,080,000 gallons per year.

4.1.3 Localized Significance Threshold Methodology

As part of the SCAQMD's environmental justice program, more attention has been focused on localized air quality effects. Also, while regional impact analysis is based on attaining or maintaining regional emissions standards, localized impact analysis compares the concentration of a pollutant at a receptor site to a health-based standard.

SCAQMD has developed a localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used by public agencies to determine whether a project

may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard; they are developed based on the ambient concentrations of that pollutant for each SRA (SCAQMD 2009). The LST methodology translates the concentration standards into emissions thresholds that are a function of project site area, source to receptor distance, and the location within the SCAB. The LST methodology is recommended to be limited to projects of 5 acres or less. For projects that exceed 5 acres, such as the proposed project, the 5-acre LST look-up values can be used as a screening tool for operational emissions to determine which pollutants require detailed analysis. This approach is conservative as it assumes that all on-site emissions would occur within a 5-acre area and over-predicts potential localized impacts (i.e., more pollutant emissions occurring within a smaller area and within closer proximity to potential sensitive receptors). For construction emissions for projects that exceed 5 acres, SCAQMD guidance allows the LST look-up table corresponding to the maximum acres per day disturbed during construction, as calculated by CalEEMod (SCAQMD 2023b). If a project exceeds the LST look up values, then the SCAQMD recommends that project-specific localized air quality modeling be performed.

The proposed project is within SRA 25, Lake Elsinore. The closest existing sensitive receptor location to the project site is a single-family development located to the north, approximately 45 feet from the limits of disturbance. Therefore, the LSTs in SRA 25 with receptors located within 25 meters (82 feet) are used in this analysis.

4.1.4 Dispersion Modeling

Where daily localized criteria pollutant emissions exceeded the SCAQMD LSTs, localized impacts were analyzed using dispersion modeling to determine if the SCAQMD construction period concentration thresholds would be exceeded. The emissions were calculated utilizing the CalEEMod output data for on-site emissions. Localized pollutant concentrations were modeled using Lakes AERMOD View version 12.0.0. The Lakes program utilizes USEPA's AERMOD gaussian air dispersion model version 23132. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the release heights of the emission sources (i.e., complex terrain). AERMOD is the USEPA's regulatory dispersion model specified in the Guideline for Air Quality Methods (Code of Federal Regulations, Title 40, Part 51). AERMOD is recommended for use by SCAQMD, which has established its own modeling guidance for the model. Modeling was completed using the methodology described in SMAQMD's LST Methodology (SCAQMD 2008a) and Modeling Guidance for AERMOD (SCAQMD 2023a). Dispersion modeling input calculation sheets and output reports are included in Appendix B to this report.

4.1.4.1 Source Parameters

On-site fugitive dust emissions were modeled as an area source defined as a single polygon encompassing the entire project site. In accordance with the LST Methodology, the areas source initial vertical dimension was set to one meter and the release height was set to zero (dust emissions primarily released at ground level from equipment blades and wheels).

In accordance with the LST methodology, on-site equipment exhaust emissions were modeled as a set of elevated volume sources. Corresponding to the 5-acre site methodology, the project modeling used adjacent volume sources with 20-meter by 20-meter horizontal dimensions to fill the project site (54 total volume sources). For each volume source, the initial vertical dimension was set to 1.4 meters and

the release height was set to 5 meters in accordance with the LST Methodology. Exhaust emissions were divided equally among the volume sources.

Per the CalEEMod default equipment use of 8 hours per day, 6 days per week per the project applicant, and LST Methodology guidance, variable emissions were used were used with emissions set to occur equally during the period from 8:00 a.m. to 4:00 p.m. Monday through Saturday.

4.1.4.2 Source Emissions

The standard dispersion model inputs for determining ground-level concentrations of pollutants are the maximum hourly and the average annual. The hourly PM_{10} and $PM_{2.5}$ emissions were calculated from the highest daily emissions reported by CalEEMod (during site preparation and roadway clearing and grubbing in 2025). Average annual emissions were calculated from the highest annual construction emissions reported by CalEEMod (for 2025), and assuming the work would commence on August 1 (as described above) with a total of 131 workdays during 2025.

4.1.4.3 Meteorological Data

The AERMOD dispersion modeling program requires the following hourly surface meteorological data: wind speed, wind direction, ambient temperature, and opaque cloud cover. These meteorological variables are used to estimate air dispersion of pollutants in the atmosphere. Wind speed determines how rapidly pollutants are diluted and influences the rise of the emission plume in the air, thus affecting downwind pollutant concentrations. Wind direction determines where pollutants will be transported. The opaque cloud cover and upper air sounding data are used in calculations to determine other important dispersion parameters including atmospheric stability (a measure of turbulence and the rate at which pollutants disperse laterally and vertically) and mixing height (the vertical depth of the atmosphere within which dispersion occurs). The greater the mixing height is, the larger the volume of atmosphere is available to dilute the pollutant concentration.

The SCAQMD provides pre-processed meteorological data suitable for use with AERMOD for projects within the SCAB. The available data set most representative of conditions in the project vicinity was from the Lake Elsinore station, approximately 4.7 miles northwest of the project site. The Lake Elsinore set includes 5 years of data collected from 2012 to 2016. A wind rose for the Lake Elsinore station shows an average wind speed of 3 mph with common wind directions from the southwest, southeast, and northwest. The wind rose graphic is included in Appendix B to this report.

4.1.4.4 Terrain Data

United States Geological Survey Digital Elevation Model files with a 30-meter resolution covering an area approximately one kilometer around the project site were used in the model to cover the analysis area. Terrain data were imported to the model using AERMAP (a terrain pre-processing program for AERMOD).

4.1.4.5 Receptor Modeling

To develop isopleths (linear contours showing equal levels of concentration), receptors were placed in a cartesian grid 500 meters by 500 meters (approximately 1,640 feet by 1,640 feet) in size, centered on the project site with a grid spacing of 20 meters (65 feet). This receptor grid placement is lower than the SCAQMD recommended maximum grid spacing of 30 meters for facilities between 4 and 10 acres

(SCAQMD 2023a). Because localized concentration of criteria pollutants beyond the project boundary are of primary concern, receptors were also placed along the project boundary at 10-meter (33 feet) intervals, and additional discrete receptors were placed in the outdoor use spaces closest to the project site for two residences (one approximately 45 feet north of the project site and another approximately 70 feet east of the project site across Cherry Street). In total, 758 receptor locations were included in the model to ensure smooth and accurate isopleths are yielded and the maximum pollutant concentrations at the project boundary and nearby residences are captured.

In accordance with SCAQMD modeling guidance, to account for urban heat island effects, urban dispersion coefficients were selected in the model using the population of Riverside County (SCAQMD 2023a).

4.2 SIGNIFICANCE CRITERIA

4.2.1 Air Quality

Thresholds used to evaluate potential air quality and odor impacts are based on applicable criteria in the State's CEQA Guidelines Appendix G. A significant air quality and/or odor impact could occur if the implementation of the proposed project would:

1. Conflict with or obstruct implementation of the SCAQMD AQMP, or applicable portions of the SIP;

2. Result in a cumulatively considerable net increase of any criteria pollutant for which the SCAB is non-attainment under an applicable NAAQS or CAAQS;

3. Expose sensitive receptors to substantial pollutant concentrations; or

4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent the most current technical information and attainment status in the SCAB. Table 9, *SCAQMD Thresholds of Significance*, presents the most current significance thresholds, including regional daily thresholds for short-term construction and long-term operational emissions; maximum incremental cancer risk and hazard indices for TACs; and maximum ambient concentrations for exposure of sensitive receptors to localized pollutants. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

Table 9
SCAQMD THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction	Operation
Mass Daily Thresholds (pounds per day)		
VOC	75	55
NO_X	100	55
CO	550	550
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
Lead	3	3
Toxic Air Contaminants		
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Ambient Air Quality for Criteria Pollutants		
NO_2	1-hour average ≥ 0.18 ppm Annual average ≥ 0.03 ppm (state) or ≥0.0534 ppm (federal)	
CO	1-hour average ≥ 20.0 ppm (state) or 35 ppm (federal) 8-hour average ≥ 9.0 ppm (state/federal)	
PM_{10}	24-hour average ≥ 10.4 µg/m^3 (construction) or ≥ 2.5 µg/m^3 (operation) Annual average ≥ 1.0 µg/m^3	
$PM_{2.5}$	24-hour average ≥ 10.4 µg/m^3 (construction) or ≥ 2.5 µg/m^3 (operation)	
SO_2	1-hour average ≥ 0.025 ppm (state) or ≥ 0.075 ppm (federal) 24-hour average ≥ 0.04 ppm	

Source: SCAQMD 2023c
VOC = volatile organic compound; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = respirable particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = fine particulate matter with a diameter of 2.5 microns or less; SO_X = sulfur oxides; TACs = toxic air contaminants; NO_2 = nitrogen dioxide; ppm = parts per million; µg/m^3 = micrograms per cubic meter

4.2.2 Greenhouse Gases

Given the relatively small levels of emissions generated by a typical development in relationship to the total amount of GHG emissions generated on a national or global basis, individual development projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant, cumulative impacts with respect to climate change. Therefore, the potential for a significant GHG emissions impact is limited to cumulative impacts.

According to Appendix G of the CEQA Guidelines, a project would have a significant environmental impact if it would:

(1) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

(2) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The determination of significance is governed by CEQA Guidelines 15064.4, entitled "Determining the Significance of Impacts from Greenhouse Gas Emissions." CEQA Guidelines Section 15064.4(a) states, "[t]he determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to … [use a quantitative model or qualitative model]" (emphasis added). In turn, CEQA Guidelines Section 15064.4(b) clarifies that a lead agency should consider "Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project." Therefore, consistent with CEQA Guidelines Section 15064.4, the GHG emissions analysis for the project appropriately relies upon a threshold based on the exercise of careful judgement and believed to be appropriate in the context of this project.

On December 5, 2008, the SCAQMD Governing Board adopted their Interim CEQA GHG Significance Threshold for Stationary Sources, Rules, and Plans for projects where the SCAQMD is the lead agency (SCAQMD 2008b). The SCAQMD's interim GHG significance threshold uses a tiered approach to determining significance. Tier 1 consists of evaluating whether the project qualifies for any applicable exemption under CEQA. Tier 2 consists of determining whether the project is consistent with a GHG emission reduction plan that may be part of a local general plan, for example. Tier 3 establishes a screening significance threshold level to determine significance using a 90 percent emission capture rate approach, which corresponds to 10,000 MT CO_2e emissions per year for stationary sources at industrial facilities. Tier 4, to be based on performance standards, is yet to be developed. Under Tier 5 the project proponent would allow offsets to reduce GHG emission impacts to less than the proposed screening level.

The SCAQMD has continued to consider adoption of significance thresholds for residential and commercial development projects. The most recent proposal issued in September 2010 uses the following tiered approach to evaluate potential GHG emission impacts from various uses. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e/year), commercial projects (1,400 MT CO_2e/year), and mixed-use projects (3,000 MT CO_2e/year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e/year would be used for all non-industrial projects. These thresholds have not been adopted by the SCAQMD or distributed for widespread public review and comment, and the working group tasked with developing the thresholds has not met since September 2010. The future schedule and likelihood of threshold adoption is uncertain.

As the City does not currently have any approved quantitative thresholds related to GHG emissions, the quantitative analysis provided herein relies upon the proposed SCAQMD screening threshold for general development projects of 3,000 MT CO_2e per year (SCAQMD 2010).

5.0 AIR QUALITY IMPACT ANALYSIS

This section evaluates potential direct impacts of the proposed project related to air pollutant emissions. Project-level air quality modeling was completed as part of this analysis. Complete modeling results are included as Appendix A of this report with detailed dispersion modeling results included as Appendix B.

5.1 ISSUE 1: CONFLICTS WITH AIR QUALITY PLANS

The SCAQMD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the SCAB is in nonattainment. Strategies to achieve these emissions reductions are developed in the AQMP, prepared by the SCAQMD for the region. SCAG has prepared the RTP/SCS, a long-range transportation plan that uses growth forecasts to project trends out over a 20-year period to identify regional transportation strategies to address mobility needs. These growth forecasts form the basis for the land use and transportation control portions of the AQMP. These documents are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. Both the RTP/SCS and AQMP are based, in part, on projections originating with County and City General Plans.

The two principal criteria for determining conformance to the AQMP are:

1. Whether the project would result in an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards; and

2. Whether the project would exceed the assumptions in the AQMP.

With respect to the first criterion, the analyses presented in Section 5.2, below, demonstrate that the project would not generate short-term or long-term emissions that could potentially cause an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards.

With respect to the second criterion, the project is consistent with the Commercial Retail use designated by the General Plan Land Use Element for the site. The project proposes commercial uses that are anticipated to reduce VMT in the area where residences currently exist. Implementation of the project would not result in population or employment increases that would exceed the growth projection assumptions in the AQMP.

Because the project would not generate population and employment growth beyond the levels assumed for the region, pursuant to SCAQMD guidelines, the proposed project is considered consistent with the region's AQMP. As such, proposed project-related emissions are accounted for in the AQMP, which is crafted to bring the basin into attainment for all criteria pollutants. Accordingly, the proposed project would be consistent with the emissions projections in the AQMP, thus resulting in a less than significant impact.

5.2 ISSUE 2: CUMULATIVELY CONSIDERABLE NET INCREASE OF NONATTAINMENT CRITERIA POLLUTANTS

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the SCAB. The region is a federal and/or state nonattainment area for ozone, PM_{10} and $PM_{2.5}$. In accordance with CEQA Guidelines Section 15064(h)(3), the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and State CAAs. If a project conflicts with the AQMP, which is intended to bring the SCAB into attainment for all criteria pollutants, that project can be considered cumulatively considerable. Additionally, if the mass regional emissions calculated for a project exceed the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable state and national ambient air quality standards, that project can be considered cumulatively considerable. As discussed in Issue 1, above, the project would not conflict with or obstruct implementation of the AQMP.

The project would generate criteria pollutants and precursors in the short-term during construction and in the long-term during operation. To determine whether a project would result in cumulatively considerable emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SCAQMD (as shown in Table 9).

5.2.1 Construction Emissions

The project's construction emissions were estimated using the CalEEMod model as described in Section 4.1.1. Additional details of phasing, construction equipment, and other input parameters, including CalEEMod data, are included in Appendix A.

The results of the calculations for project construction are shown in Table 10, *Maximum Daily Construction Emissions*. The data are presented as the maximum anticipated daily emissions for comparison with the SCAQMD thresholds. These calculations do not account for any fugitive dust control measures required by SCAQMD regulations.

Table 10
MAXIMUM DAILY CONSTRUCTION EMISSIONS

Activity	Pollutant Emissions (pounds/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Site Preparation	3.7	33.8	33.9	0.1	21.4	11.5
Grading	2.2	19.7	21.8	<0.1	8.5	4.3
Building Construction[1]	1.8	16.1	21.6	<0.1	1.1	0.7
Paving[1]	1.2	9.3	11.5	<0.1	1.1	0.5
Architectural Coating	16.8	0.9	1.5	<0.1	0.1	0.0
Roadway Widening – Grubbing and Land Clearing	0.5	4.3	5.3	<0.1	0.9	0.3
Roadway Widening – Grading and Excavation	3.9	32.8	40.0	0.1	5.7	1.9
Roadway Widening – Drainage, Utilities, Sub-grade[1]	2.0	17.3	22.0	<0.1	2.6	0.9

Activity	Pollutant Emissions (pounds/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Roadway Widening – Paving	0.9	7.6	12.8	<0.1	0.6	0.3
Maximum Daily Emissions[2]	**16.8**	**52.5**	**61.8**	**0.1**	**22.3**	**11.8**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix A)

[1] During these phases, maximum daily emissions of NO_X would occur during winter and maximum daily emissions of all other pollutants would occur during summer or would not be seasonally dependent.

[2] Maximum daily emissions of NO_X, CO, and SO_X would occur during concurrent grading of the project site and roadway widening area. Maximum daily emissions of PM_{10} and $PM_{2.5}$ would occur during concurrent site preparation and roadway grubbing/land clearing.

VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
SCAQMD = South Coast Air Quality Management District

As shown in Table 10, construction period emissions of criteria pollutants and precursors would not exceed the SCAQMD significance thresholds. Therefore, construction of the project would not result in a cumulatively considerable net increase of any criteria pollutant for which the SCAB is non-attainment and impacts would be less than significant.

5.2.2 Operation Emissions

The project's operation emissions were estimated using the CalEEMod model as described in Section 4.1.2. Mobile emissions were excluded from the estimation of project emissions since the project is anticipated to reduce regional VMT. The results of the calculations for project operation are shown in Table 11, *Maximum Daily Operation Emissions*. The data are presented as the maximum anticipated daily emissions for comparison with the SCAQMD thresholds.

Table 11
MAXIMUM DAILY OPERATION EMISSIONS

Source	Pollutant Emissions (pounds/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	2.0	<0.1	2.8	<0.1	<0.1	<0.1
Energy	0.1	1.2	1.0	<0.1	0.1	0.1
Total Maximum Daily Emissions[1]	**2.1**	**1.2**	**3.8**	**<0.1**	**0.1**	**0.1**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix A)

[1] Totals may not sum due to rounding.

VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
SCAQMD = South Coast Air Quality Management District

As shown in Table 11, emissions of criteria pollutants and precursors during project operation would not exceed the SCAQMD significance thresholds. Therefore, operation of the project would not result in a cumulatively considerable net increase of any criteria pollutant for which the SCAB is non-attainment and impacts would be less than significant.

5.3 ISSUE 3: IMPACTS TO SENSITIVE RECEPTORS

5.3.1 Construction Activities

Criteria Pollutants

The localized effects from the on-site portion of daily construction emissions were screened in accordance with the SCAQMD's LST method, described in Section 4.1.3. The proposed project is within SRA 25, Lake Elsinore. Consistent with the LST guidelines, when quantifying mass emissions for localized analysis, only emissions that occur on site are considered. Emissions related to off-site delivery/haul truck activity and construction worker trips are not considered in the evaluation of construction-related localized impacts, as these do not contribute to emissions generated on a project site. The closest existing sensitive receptor location to the project site is a single-family residence located on the north side of the project site, with outdoor use areas within 50 feet of the limits of disturbance of project construction.

Maximum on-site daily construction emissions of NO_X and CO would occur during concurrent grading of the project site and roadway widening area. Maximum on-site daily emissions of PM_{10}, and $PM_{2.5}$ would occur during concurrent site preparation and grubbing/land clearing of the roadway widening area. As shown in Table 8, above, site preparation would require the use of three rubber-tired dozers and grubbing/land clearing would require the use of one crawler tractor. The CalEEMod methodology for determining area disturbed per day during site preparation assumes 0.5 acre per day grading per dozer and per crawler tractor, resulting in 2 acres disturbed during project site preparation. Therefore, the LSTs in SRA 25 for project sites of 2 acres with receptors located within 25 meters (84 feet) were used for this screening. Table 12, *Maximum Localized Daily Construction Emissions*, compares the on-site construction emissions to the LSTs.

Table 12
MAXIMUM LOCALIZED DAILY CONSTRUCTION EMISSIONS

Activity	Pollutant Emissions (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation	33.7	32.4	21.1	11.4
Grading	18.3	20.1	7.9	4.2
Building Construction	15.6	19.4	0.6	0.6
Paving	7.1	9.9	0.3	0.3
Architectural Coating	0.9	1.1	<0.1	<0.1
Roadway Widening – Grubbing and Land Clearing	4.2	4.5	0.8	0.3
Roadway Widening – Grading and Excavation	32.6	36.9	5.2	1.7
Roadway Widening – Drainage, Utilities, Sub-grade	17.2	19.9	2.3	0.8
Roadway Widening – Paving	7.5	11.7	0.3	0.3

Activity	Pollutant Emissions (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions[1]	**50.9**	**57.0**	**21.9**	**11.7**
SCAQMD LST	*234*	*1,100*	*7*	*4*
Exceed LST?	***No***	***No***	***Yes***	***Yes***

Source: CalEEMod (output data is provided in Appendix A); SCAQMD 2009

[1] Maximum on-site daily emissions of NO_X and CO would occur during concurrent grading of the project site and roadway widening area. Maximum on-site daily emissions of PM_{10} and $PM_{2.5}$ would occur during concurrent site preparation and roadway grubbing/land clearing.

NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold

As shown in Table 12, localized emissions would remain below their respective SCAQMD LSTs for NO_X and CO. However, localized emissions of PM_{10} and $PM_{2.5}$ would exceed the LSTs. Therefore, dispersion modeling was completed using Lakes AERMOD, as described in Section 4.1.4, for maximum 24-hour average and average annual on-site construction emissions of PM_{10} and $PM_{2.5}$. The Lakes output reports, including concentration isopleth figures, are included in Appendix B to this report.

The maximum hourly (during site preparation in August 2025) and average annual (2025) PM_{10} and $PM_{2.5}$ on-site project construction emissions calculated from the CalEEMod results (Appendix A) are shown in Table 13, *Unmitigated Particulate Matter Emission Rates*. A printout of the emissions calculation sheet is included in Appendix B to this report.

Table 13
UNMITIGATED PARTICULATE MATTER EMISSION RATES

Period	Emissions per Period	Model Input (grams/second)
Average Annual Fugitive Dust PM_{10}	0.321 tons/year	0.0772
Average Annual Exhaust PM_{10}	0.085 tons/year	0.0204
Maximum Daily Fugitive Dust PM_{10}	20.18726 pounds/day	0.3179
Maximum Daily Exhaust PM_{10}	1.673 pounds/hour	0.0264
Maximum Daily Fugitive Dust $PM_{2.5}$	10.160 pounds/day	0.1600
Maximum Daily Exhaust Dust $PM_{2.5}$	1.540 pounds/day	0.0243

Source: CalEEMod

PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

The highest concentrations of PM_{10} and $PM_{2.5}$, calculated at the closest outdoor use space (i.e., front yard, back yard) for the three closest residences to the project site, without mitigation or consideration of any dust best management practices (BMPs), are compared to the SCAQMD project-level concentration thresholds in Table 14, *Unmitigated Localized Particulate Matter Concentrations*.

Table 14
UNMITIGATED LOCALIZED PARTICULATE MATTER CONCENTRATIONS

Residence	Calculated Concentration ($\mu g/m^3$)	SCAQMD Threshold ($\mu g/m^3$)	Exceed Threshold?
PM_{10} 24-hour Average			
33850 Paradise Lane	38.6	10.4	Yes
33805 Cherry Street	35.1	10.4	Yes

Residence	Calculated Concentration (µg/m³)	SCAQMD Threshold (µg/m³)	Exceed Threshold?
33890 Cherry Street	27.5	10.4	Yes
PM_{10} Annual Average			
33850 Paradise Lane	1.1	1.0	Yes
33805 Cherry Street	1.1	1.0	Yes
33890 Cherry Street	1.0	1.0	Yes
$PM_{2.5}$ 24-hour Average			
33850 Paradise Lane	19.9	10.4	Yes
33805 Cherry Street	18.8	10.4	Yes
33890 Cherry Street	14.2	10.4	Yes

Source: Lakes AERMOD View
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; µg/m³ = micrograms per cubic meter

As shown in Table 14, annual average PM_{10} and 24-hour average concentrations of PM_{10} and $PM_{2.5}$ would exceed the SCAQMD thresholds for ambient concentrations for all three analyzed residences. Impacts related to criteria pollutant emissions at sensitive receptors would be potentially significant.

Toxic Air Contaminants

Implementation of the project would result in the use of heavy-duty construction equipment, haul trucks, on-site generators, and construction worker vehicles. These vehicles and equipment could generate the TAC DPM. Generation of DPM from construction projects typically occurs in a localized area (e.g., at the project site) for a short period of time. Because construction activities and subsequent emissions vary depending on the phase of construction (e.g., grading, building construction), the construction-related emissions to which nearby receptors are exposed to would also vary throughout the construction period. During some equipment-intensive phases such as grading, construction-related emissions would be higher than other less equipment-intensive phases such as building construction. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at approximately 500 feet (CARB 2005).

The dose (of TAC) to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the extent of exposure a person has with the substance; a longer exposure period to a fixed quantity of emissions would result in higher health risks. Current models and methodologies for conducting cancer health risk assessments are associated with longer-term exposure periods (typically 30 years for individual residents based on guidance from OEHHA) and are best suited for evaluation of long duration TAC emissions with predictable schedules and locations. These assessment models and methodologies do not correlate well with the temporary and highly variable nature of construction activities. Cancer potency factors are based on animal lifetime studies or worker studies where there is consistent long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (OEHHA 2015). Considering this information, the highly dispersive nature of DPM, and the fact that construction activities would occur at various locations and varying intensities throughout the project site, it is not anticipated that construction of the project would expose sensitive receptors to substantial DPM concentrations.

5.3.2 Operational Activities

Criteria Pollutants

The localized effects from the on-site portion of daily operational emissions were screened in accordance with the SCAQMD's LST method, described in Section 4.1.3. The proposed project is within SRA 25, Lake Elsinore, and residences are located within 25 meters of the project site. Maximum daily operation emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ are shown in Table 15, *Maximum Localized Daily Operation Emissions*, for comparison with the LSTs in SRA 25 for project sites of 5 acres and receptors located within 25 meters (84 feet). This approach is conservative as it assumes that on-site emissions would occur within a 5-acre area and over-predicts potential localized impacts (i.e., more pollutant emissions occurring within a smaller area and within closer proximity to potential sensitive receptors).

Table 15
MAXIMUM LOCALIZED DAILY OPERATION EMISSIONS

Activity	Pollutant Emissions (pounds/day)			
	NO_X	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area	<0.1	2.8	<0.1	<0.1
Energy	1.2	1.0	0.1	0.1
Total Maximum Daily Emissions	**1.2**	**3.8**	**0.1**	**0.1**
SCAQMD LST	*371*	*1,965*	*4*	*2*
Exceed LST?	***No***	***No***	***No***	***No***

Source: CalEEMod (output data is provided in Appendix A); SCAQMD 2009
NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold

As shown in Table 15, project operation would not result in on-site emissions exceeding the SCAQMD operation LSTs and impacts related to criteria pollutant emissions during project operation would be less than significant.

CO Hotspots

Vehicle exhaust is the primary source of CO. In an urban setting, the highest CO concentrations are generally found within proximity to congested intersections. Under typical meteorological conditions, CO concentrations tend to decrease as distance from the emissions source (i.e., congested intersection) increases. Project-generated traffic has the potential of contributing to localized "hot spots" of CO off-site. Because CO is a byproduct of incomplete combustion, exhaust emissions are worse when fossil-fueled vehicles are operated inefficiently, such as in stop-and-go traffic or through heavily congested intersections, where the LOS is severely degraded.

The CARB also recommends evaluation of the potential for the formation of locally high concentrations of CO, known as CO hot spots. A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour CO ambient air standards. To verify that the project would not cause or contribute to a violation of the 1-hour and 8-hour CO standards, an evaluation of the potential for CO hot spots at nearby intersections was conducted.

The California Department of Transportation's Transportation Project-Level Carbon Monoxide Protocol (CO Protocol; California Department of Transportation 1997) was followed to determine whether a CO

hot spot is likely to form due to project-generated traffic. In accordance with the CO Protocol, CO hot spots are typically evaluated when: (a) the LOS of an intersection decreases to an LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors, such as residences, schools, hospitals, etc., are located in the vicinity of the affected intersection or roadway segment.

The project's traffic analysis evaluated whether there would be a change in the LOS at the intersections affected by the project (Trames Solutions Inc. 2024). According to the traffic analysis, the intersections of Orange Street at Bundy Canyon Road, I-15 Southbound ramps at Bundy Canyon Road, Cherry Street at Bundy Canyon Road, and Orange Street at Canyon Drive would operate at LOS E or F under the cumulative condition and experience an increase in delay from the project. The other intersections evaluated in the traffic analysis would operate at LOS D or better with the addition of project traffic (Trames Solutions Inc. 2024). Recommended signalization and striping improvements at the intersections anticipated to operate at LOS E and F are included in the traffic analysis; however, to provide a conservative analysis related to CO hotspots, it is assumed that intersection improvements would not be implemented prior to project opening. Therefore, a quantitative screening is provided below.

In the 2003 SCAQMD AQMP, the SCAQMD modeled the four highest volume intersections in the SCAB to determine the highest potential for a CO hotspot in the SCAB. The results of the SCAQMD's analysis are provided in Table 16, *Carbon Monoxide Modeling Results from the 2003 Air Quality Management Plan*, and illustrate that no intersections would exceed the federal or State one-hour standards or the federal eight-hour standard and one intersection would likely exceed the State eight-hour CO standard (Long Beach-Imperial) in 2003[2]. By 2004, all intersections were estimated to fall below all CO standards and be further reduced in 2005. This decrease over time is largely due to improved technologies and the use of progressively cleaner vehicles.

Table 16
CARBON MONOXIDE MODELING RESULTS FROM THE
2003 AIR QUALITY MANAGEMENT PLAN (ppm)

Intersection	Morning 1-Hour	Afternoon 1-Hour	Peak 1-Hour	2003 8-hour	2004 8-hour	2005 8-hour
Wilshire Ave at Veteran Ave	4.6	3.5	-	4.2	4.0	3.7
Sunset Ave at Highland Ave	4.0	4.5	-	3.9	3.7	3.5
La Cienega Blvd at Century Blvd	3.7	3.1	-	5.8	5.5	5.2
Long Beach Blvd at Imperial Hwy	3.0	3.1	1.2	9.3	8.8	8.4

Source: SCAQMD 2003
Note: The federal 1-hour standard is 35 ppm, the State 1-hour standard is 20 ppm; the federal 8-hour standard is 9 ppm and State 8-hour standard is 9.0 ppm.
ppm = parts per million

Due to the high level of urbanization in the Los Angeles area, where the highest volume intersections are located, and due to the continuing reduction in vehicle CO emissions, background CO concentrations are expected to be lower in the City than at any of the intersections in Table 16. When qualitatively comparing the CO modeling locations in the 2003 AQMP to those near the project site, several factors

[2] It should be noted that the federal 8-hour CO standard is 9 ppm and not 9.0 ppm. As such, all values less than 9.5 do not exceed the standard. Therefore, the 2003 concentration for Long Beach Blvd/Imperial Hwy of 9.3 is said to not exceed the federal 8-hour CO standard.

can be used to demonstrate that the City can be expected to have lower CO concentrations than in the attainment plan. The factors considered are traffic demand, emission variables, site variables, and meteorological variables. Table 17, *Traffic Volume Comparison*, provides a summary of the traffic volumes contained in the SCAQMD's modeling and the traffic volumes for the project-affected intersections for comparison.

Table 17
TRAFFIC VOLUME COMPARISON

Intersection	AM Peak Hour Intersection Volume	PM Peak Hour Intersection Volume
2003 AQMP		
Wilshire Ave at Veteran Ave	8,062	7,719
Sunset Ave at Highland Ave	6,614	7,374
La Cienega Blvd at Century Blvd	6,635	8,674
Long Beach Blvd at Imperial Hwy	4,212	5,514
Proposed Project		
Orange Street at Bundy Canyon Road	2,397	2,414
I-15 Southbound Ramps at Bundy Canyon Road	3,260	3,347
Cherry Street at Bundy Canyon Road	2,863	3,326
Orange Street at Canyon Drive	1,253	797

Source: SCAQMD 2003; Trames Solutions Inc. 2024
AQMP = Air Quality Management Plan

As shown in Table 17, total traffic volumes at the project-affected intersections are less than the SCAQMD AQMP modeled intersections; therefore, CO concentrations at the intersections anticipated to operate at LOS E or F with implementation of the project are anticipated to be less than those modeled for the AQMP. Therefore, air quality impacts related to the exposure of sensitive receptors to substantial pollutant concentrations due to intersection operations would be less than significant.

Toxic Air Contaminants

The new fuel facility would require authority to construct (ATC) and permit to operate (PTO) approval from the SCAQMD, which will review the facility design and location for compliance with SCAQMD standards for criteria pollutants and air quality. All tanks and dispensers would be equipped with the latest Phase I and Phase II Enhanced Vapor Recovery (EVR) air pollution control equipment technology per CARB regulations and associated Executive Orders. The Phase I EVR equipment controls the vapors in the return path from the tanks back to the tanker truck during offloading filling operations. Phase I EVR systems are 98 percent effective in controlling fugitive emissions from escaping into the environment. The Phase II EVR equipment, which also includes "in-station diagnostics," controls and monitors the vapors in the return path from the vehicles back to the tanks. Phase II EVR systems are 95 percent effective in controlling fugitive emissions from escaping into the environment. Therefore, operations expected to occur at the proposed project would not emit a significant quantity of toxic chemicals. In addition, CARB siting recommendations within the *Air Quality and Land Use Handbook* suggest sensitive receptors should not be placed within 50 feet of typical gas dispensing facilities. As shown on the site plan (Figure 3), the fuel dispensers would be located near the center of the project site more than 50 feet from the project boundary.

Other long-term operational emissions include toxic substances such as cleaning agents in use on-site, compliance with State and federal handling regulations would ensure that emissions remain below a level of significance. The use of such substances such as cleaning agents is regulated by the 1990 Federal CAA Amendments as well as State-adopted regulations for the chemical composition of consumer products. As such, project-related TAC emission impacts during operation would be less than significant.

5.3.3 Significance of Impacts

Construction and operation of the project would not result in significant localized concentrations of NO_X, CO, or TACs. However, localized concentrations of PM_{10} and $PM_{2.5}$ from project construction would exceed the SCAQMD thresholds for annual average and 24-hour average ambient concentrations. Therefore, construction of the project could expose sensitive receptors to substantial pollutant concentrations, and the impact would be potentially significant.

5.3.4 Mitigation Framework

The following mitigation would be required to reduce on-site project construction emissions of PM_{10} and $PM_{2.5}$.

AQ-1 **Tier 4 Construction Equipment**. Prior to issuing construction permits, the project applicant or designated representative shall provide to the City a comprehensive inventory of all diesel-powered off-road construction equipment, equal to or greater than 50 horsepower, that will be used on the project site during any portion of construction. The inventory shall include the horsepower rating, engine production year, and certification of the specified Tier standard. The City shall verify that all construction equipment is USEPA Tier Final certified or has been retrofitted with CARB approved diesel particulate matter reduction systems resulting in PM_{10} emissions meeting USEPA Tier 4 Final standards.

AQ-2 **Fugitive Dust Best Management Practices**. Prior to issuing construction permits, the City shall verify that project construction contract or construction documentation specify the requirement to implement all fugitive dust Best Available Control Measures listed in Table 1 of the SCAQMD Rule 403, and the following control measures are enhanced to require watering exposed surface a minimum of three times per day:

- Clearing and Grubbing Control Measure 02-1: Maintain stability of soil through pre-watering of site prior to clearing and grubbing. In addition, during dry weather, water exposed surfaces a minimum of three times per day during clearing and grubbing activities.

- Cut and Fill Control Measure 05-1: Pre-water soils prior to cut and fill activities (e.g., grading). In addition, during dry weather, water all exposed surfaces a minimum of three times per day during cut and fill activities.

5.3.5 Significance After Mitigation

On-site project construction emissions of PM_{10} and $PM_{2.5}$ would result from exhaust emissions from construction equipment and from fugitive dust resulting from use of construction equipment and movement of vegetation, debris, and soil. Mitigation measure AQ-1 would reduce construction

equipment exhaust PM emissions by requiring the use of USEPA certified Tier 4 Final diesel engines (or engines equipped with CARB approved retrofits resulting in equivalent emissions) for all diesel-powered equipment used on the project site with 50 or more horsepower. Tier 4 Final diesel engines reduce exhaust emissions of PM by 90 percent or more compared to Tier 0 engines. In addition to reducing localized concentrations of PM_{10} and $PM_{2.5}$, mitigation measure AQ-1 has the effect of reducing emissions of DPM during construction, reducing any associated health risks to nearby sensitive receptors. Mitigation measure AQ-2 would require implementation of standard construction fugitive dust BMPs and the requirement to water exposed surfaces a minimum of three times per day during site preparation and grading (the standard BMP is to water exposed surfaces twice per day). Per CalEEMod mitigation defaults, watering exposed surfaces three times per day reduces fugitive dust PM_{10} and $PM_{2.5}$ emissions from equipment use and material loading by 74 percent.

The maximum hourly (during site preparation in August 2025) PM_{10} and $PM_{2.5}$ on-site project construction emissions, with implementation of mitigation measures AQ-1 and AQ-2, are shown in Table 18, *Mitigated Particulate Matter Emission Rates*. A printout of the emissions calculation sheet is included in Appendix B to this report.

Table 18
MITIGATED PARTICULATE MATTER EMISSION RATES

Period	Emissions per Period	Model Input (grams/second)
Average Annual Fugitive Dust PM_{10}	0.083 tons/year	0.0201
Average Annual Exhaust PM_{10}	0.021 tons/year	0.0050
Maximum Daily Fugitive Dust PM_{10}	5.249 pounds/day	0.0827
Maximum Daily Exhaust PM_{10}	0.177 pounds/day	0.0028
Maximum Daily Fugitive Dust $PM_{2.5}$	2.642 pounds/day	0.0416
Maximum Daily Exhaust $PM_{2.5}$	0.173 pounds/day	0.0272

Source: CalEEMod
PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter;

The highest concentrations of PM_{10} and $PM_{2.5}$ calculated at the closest outdoor use space (i.e., front yard, back yard) for the three closest residences to the project site, with implementation of mitigation measures AQ-1 and AQ-2, are compared to the SCAQMD project-level concentration thresholds in Table 19, *Mitigated Localized Particulate Matter Concentrations*.

Table 19
MITIGATED LOCALIZED PARTICULATE MATTER CONCENTRATIONS

Residence	Calculated Concentration ($\mu g/m^3$)	SCAQMD Threshold ($\mu g/m^3$)	Exceed Threshold?
PM_{10} 24-hour Average			
33850 Paradise Lane	9.9	10.4	No
33805 Cherry Street	9.1	10.4	No
33890 Cherry Street	7.0	10.4	No
PM_{10} Annual Average			
33850 Paradise Lane	0.3	1.0	No
33805 Cherry Street	0.3	1.0	No
33890 Cherry Street	0.2	1.0	No

Residence	Calculated Concentration (µg/m³)	SCAQMD Threshold (µg/m³)	Exceed Threshold?
$PM_{2.5}$ 24-hour Average			
33850 Paradise Lane	5.0	10.4	No
33805 Cherry Street	4.7	10.4	No
33890 Cherry Street	3.6	10.4	No

Source: Lakes AERMOD View
µg/m³ = micrograms per cubic meter; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

As shown in Table 19, annual average PM_{10} and 24-hour average PM_{10} and $PM_{2.5}$ concentrations from construction emissions on the project site would not exceed the SCAQMD thresholds for ambient concentrations for exposure of sensitive receptors to localized pollutants. Therefore, with implementation of mitigation measure AQ-1 and AQ-2, the project would not expose sensitive receptors to substantial pollutant concentrations, including localized criteria pollutants, CO hotpots, and TACs. Impacts would be less than significant with mitigation incorporated.

5.4 ISSUE 4: OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS)

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting activities, refineries, landfills, dairies, and fiberglass molding operations (SCAQMD 1993). The project proposes construction of a car wash, gas station, convenience market, drive-through restaurants, and a hotel. The proposed project does not include any of the uses typically associated with odor complaints. Operation of the project would not result in odor-generating emissions and impacts would be less than significant.

Emissions from construction equipment, such as diesel exhaust, and coatings, may generate odors; however, these odors would be temporary, intermittent, and not expected to affect a substantial number of people. Additionally, noxious odors would be confined to the immediate vicinity of construction equipment. Furthermore, short-term construction-related odors are expected to cease upon the drying of coatings and buildout of the project. Therefore, the project would not create objectionable odors affecting a substantial number of people, and the impact would be less than significant.

6.0 GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

This section evaluates potential impacts of the proposed project related to the generation of GHG emissions. Complete modeling results are included as Appendix A of this report.

6.1 ISSUE 1: GREENHOUSE GAS EMISSIONS

6.1.1 Construction Emissions

Project construction GHG emissions were estimated using the CalEEMod model as described in Section 4.1.1. Additional details of phasing, construction equipment, and other input parameters, including CalEEMod data, are included in Appendix A.

Emissions of GHGs related to the construction of the project would be temporary. As shown in Table 20, *Construction Greenhouse Gas Emissions*, total GHG emissions associated with construction of the project are estimated at 742 MT CO_2e. For construction emissions, SCAQMD guidance recommends that the emissions be amortized (i.e., averaged) over 30 years and added to operational emissions. Averaged over 30 years, the proposed construction activities would contribute approximately 25 MT CO_2e emissions per year.

Table 20
CONSTRUCTION GREENHOUSE GAS EMISSIONS

Year	Emissions (MT CO_2e)
2025	543.6
2026	198.2
Total[1]	**741.8**
Amortized Construction Emissions[2]	*24.7*

Source: CalEEMod (output data is provided in Appendix A)
[1] Totals may not sum due to rounding.
[2] Construction emissions are amortized over 30 years in accordance with SCAQMD guidance.
MT = metric tons; CO_2e = carbon dioxide equivalent

6.1.2 Operational Emissions

The project's operational GHG emissions were estimated for the first full year of project operation, 2027, using CalEEMod model as described in Section 4.1.2. Mobile emissions were excluded from the estimation of project emissions since the project is anticipated to reduce regional VMT. The project's annual GHG emissions, including amortized annual construction emissions, are shown in Table 21, *Operational Greenhouse Gas Emissions*, for comparison with the SCAQMD screening threshold of 3,000 MT CO_2e. Appendix A contains the CalEEMod output files for the project.

Table 21
OPERATIONAL GREENHOUSE GAS EMISSIONS

Emission Sources	2027 Emissions (MT CO_2e)
Area	1.3
Energy	693.0
Refrigerants	157.7
Water	16.5
Waste	49.9

Emission Sources	2027 Emissions (MT CO_2e)
Construction (Annualized over 30 years)	24.7
Project Total[1]	943.0
SCAQMD Screening Threshold	**3,000**
Exceed Threshold?	**No**

Source: CalEEMod (output data is provided in Appendix A)
[1] Totals may not sum due to rounding.
MT = metric tons; CO_2e = carbon dioxide equivalent;
SCAQMD = South Coast Air Quality Management District

As shown in Table 21, the project emissions, including amortized construction emissions, would not exceed the proposed SCAQMD GHG screening threshold of 3,000 MT CO_2e per year. The project would not generate GHG emissions that would have a significant impact on the environment and impacts would be less than significant.

6.2 ISSUE 2: CONFLICT WITH APPLICABLE PLANS ADOPTED FOR THE PURPOSE OF REDUCING GREENHOUSE GAS EMISSIONS

There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall State plan and policy is AB 32, the California Global Warming Solutions Act of 2006. The initial quantitative goal of AB 32 was to reduce GHG emissions to 1990 levels by 2020. SB 32 would require further reductions of 40 percent below 1990 levels by 2030 and AB 1297 would require additional reductions to 85 percent below 1990 levels by 2045. Because the project's operational year is post-2020, the project aims to reach the quantitative goals set by SB 32 and AB 1297. Statewide plans and regulations such as GHG emissions standards for vehicles, the LCFS, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the statewide level; as such, compliance at the project level is not addressed. Therefore, the proposed project would not conflict with those plans and regulations.

6.2.1 Consistency with CARB's Scoping Plan

The CARB Scoping Plan, approved in 2008 and updated in 2014, 2017, and 2022, provides a framework for actions to reduce California's GHG emissions and requires CARB and other State agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to individual projects, nor is it intended to be used for project-level evaluations. Under the Scoping Plan, however, there are several statewide regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other State agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy use, high-GWP GHGs in consumer products) and changes to the vehicle fleet (e.g., LCFS), among others. The proposed project would not conflict with implementation of the measures identified in the Scoping Plan.

6.2.2 Consistency with SCAG's RTP/SCS

The SCAG RTP/SCS, Connect SoCal, provides long-range regional strategies for smart growth that would assist the region in attaining GHG emissions reductions goals. Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporate best practices for achieving the state-mandated reductions in GHG emissions at the regional level through reduced per-capita VMT. The strategies identified in the 2020-2045 RTP/SCS include: Focus Growth Near Destinations

& Mobility Options, Promote Diverse Housing Choices, Leverage Technology Innovations, Support Implementation of Sustainability Policies, and Promote a Green Region. These strategies identify how the SCAG region can achieve GHG reductions and promote smart growth. While consistency with these strategies supports implementation of the regional SCS and associated GHG emissions, Connect SoCal does not set forth specific measures to be implemented at the project level. Rather, a project's consistency with the identified smart growth principles and support for VMT reductions can be seen to support regional implementation of the RTP/SCS.

The project does not propose new public transit facilities or housing options related to the housing and technology strategies of Connect SoCal. Rather, the project would provide commercial amenities near existing residential land uses that lack public transportation options. Construction of commercial uses near these residences would reduce VMT by shortening trip lengths (Trames Solutions Inc. 2024). In addition, the project would implement GHG reduction measures identified in the WRCOG CAP, as described further below. Therefore, the project would provide VMT reductions and sustainability features consistent with the strategy of Connect SoCal to reduce GHG emissions. The project would not conflict with implementation of Connect SoCal, the SCAG's RTP/SCS.

6.2.3 Consistency with WRCOG Climate Action Plan

The WRCOG CAP established a local target of reducing subregional GHG emissions 15 percent below 2010 levels by 2020 and 49 percent below 2010 levels by 2035 (WRCOG 2014). The WRCOG CAP does not include GHG reduction measures for goals beyond 2020 and is therefore not directly applicable to the proposed project. The CAP does not include thresholds for determining the significance of a project's GHG emissions, nor does it include a checklist or other methodology for determining consistency of a project with the goals and measures in the CAP. As measures to achieve the emissions reductions target for 2035 have not yet been identified, the project's consistency with applicable measures required to achieve the 2020 reduction target is discussed below in Table 22, *Project Consistency with the WRCOG CAP*. Many measures identified in the WRCOG CAP apply to private and public agencies. As such, these measures do not apply to the project specifically and are not discussed below.

Table 22
PROJECT CONSISTENCY WITH THE WRCOG CAP

GHG Reduction Measures	Project Consistency
State and Regional Energy Measures	
Measure SR-2: 2013 California Building Energy Efficiency Standards (Title 24, Part 6) – Mandatory energy efficiency standards for buildings.	**Consistent**. The California Building Energy Efficiency Standards have been updated with the 2022 version effective January 1, 2023. The project would comply with the applicable Title 24, Part 6 requirements, which are designed to result in energy efficient buildings.
State Solid Waste Measures	
Measure SR-13: Construction & Demolition Waste Diversion – Mandatory requirement to divert 50% of construction and demolition waste from the landfill waste stream.	**Consistent**. The project would be required to comply with CALGreen, which currently requires the diversion of 65 percent of non-hazardous construction and demolition waste from the landfill.

GHG Reduction Measures	Project Consistency
Local Energy Measures	
Measure E-3: Shade Trees – Strategically plant trees to reduce the urban heat island effect.	**Consistent**. In accordance with Wildomar Municipal Code Section 17.188.070.E, the project would be required to shade 50 percent of the total parking area, as over 50 parking spaces are proposed.
Local Transportation Measures	
Measure T-1: Bicycle Infrastructure Improvements – Expand on-street and off-street bicycle infrastructure, including bicycle lanes and bicycle trails.	**Consistent**. In accordance with Wildomar Municipal Code Section 17.188.060.B, 1 bicycle space for every 33 patron parking spaces and 1 bicycle space for every 25 employee parking spaces would be required. The project is required to provide at least 184 parking stalls and would be required to provide 13 bicycle parking spaces (6 for patrons and 7 for employees). The project currently proposes 20 bicycle parking spaces, including a mixture of short- and long-term bicycle parking options.
Measure T-2: Bicycle Parking– Provide additional options for bicycle parking.	
Measure T-3: End of Trip Facilities – Encourage use of non-motorized transportation modes by providing appropriate facilities and amenities for commuters.	**Not Applicable**. The WRCOG CAP recommends requiring the installation of end of trip facilities where more than 50,000 square feet of commercial space is proposed. The proposed commercial uses total less than 50,000 square feet and do not require implementation of end of trip facilities.
Measure T-8: Density – Improve jobs-housing balance and reduce vehicle miles traveled by increasing household and employment densities.	**Consistent.** The project proposes commercial uses in proximity to residential uses and is anticipated to reduce VMT.
Measure T-9: Mixed-Use Development – Provide for a variety of development types and uses.	**Consistent.** The project proposes commercial uses in proximity to residential uses where there are limited commercial amenities.

Source: WRCOG 2014

As shown in Table 22, the project would be consistent with applicable goals from the WRCOG CAP. The project would not conflict with applicable GHG emission reduction plans including CARB's Scoping Plan, SCAG's RTP/SCS, and the WRCOG CAP. Impacts would be less than significant.

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Appendix A

CalEEMod Output

Cherry Outpost and Bundy Canyon Road Widening Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Cherry Outpost and Bundy Canyon Road Widening
Construction Start Date	8/1/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	9.20
Location	33.62821210512077, -117.27209524617696
County	Riverside-South Coast
City	Wildomar
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5576
EDFZ	11
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.26

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Convenience Market (24 hour)	4.20	1000sqft	0.10	4,200	0.00	—	—	—

Gasoline/Service Station	14.0	Pump	0.05	1,976	0.00	—	—	—
Fast Food Restaurant with Drive Thru	2.40	1000sqft	0.06	2,400	0.00	—	—	—
Hotel	72.0	Room	2.40	45,571	0.00	—	—	—
Fast Food Restaurant with Drive Thru	4.40	1000sqft	0.10	4,400	0.00	—	—	—
Automobile Care Center	5.70	1000sqft	0.13	5,700	0.00	—	—	—
Parking Lot	2.85	Acre	2.85	0.00	4,000	—	—	—
Road Widening	0.10	Mile	0.60	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.8	16.8	52.5	61.8	0.12	2.28	20.6	22.3	2.10	10.3	11.8	—	13,642	13,642	0.53	0.33	5.62	13,755
Mit.	16.8	16.8	12.0	73.1	0.12	0.41	5.64	5.82	0.40	2.73	2.91	—	13,642	13,642	0.53	0.33	5.62	13,755
% Reduced	—	—	77%	-18%	—	82%	73%	74%	81%	73%	75%	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.52	3.80	33.4	42.6	0.08	1.34	2.38	3.72	1.23	0.36	1.59	—	8,676	8,676	0.35	0.33	0.12	8,726
Mit.	1.88	1.68	10.0	50.1	0.08	0.35	1.20	1.55	0.33	0.23	0.56	—	8,676	8,676	0.35	0.33	0.12	8,726
% Reduced	58%	56%	70%	-18%	—	74%	50%	58%	73%	35%	65%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.74	1.46	12.8	15.6	0.03	0.53	2.03	2.57	0.49	0.69	1.18	—	3,261	3,261	0.13	0.06	0.58	3,283
Mit.	1.19	1.16	3.40	18.3	0.03	0.12	0.73	0.85	0.11	0.23	0.34	—	3,261	3,261	0.13	0.06	0.58	3,283
% Reduced	31%	20%	74%	-17%	—	78%	64%	67%	77%	67%	71%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.32	0.27	2.34	2.86	0.01	0.10	0.37	0.47	0.09	0.13	0.22	—	540	540	0.02	0.01	0.10	544
Mit.	0.22	0.21	0.62	3.33	0.01	0.02	0.13	0.16	0.02	0.04	0.06	—	540	540	0.02	0.01	0.10	544
% Reduced	31%	20%	74%	-17%	—	78%	64%	67%	77%	67%	71%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year																		
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	7.23	6.05	52.5	61.8	0.12	2.28	20.6	22.3	2.10	10.3	11.8	—	13,642	13,642	0.53	0.32	5.62	13,755
2026	16.8	16.8	9.33	11.5	0.03	0.36	0.72	1.08	0.33	0.19	0.52	—	3,671	3,671	0.11	0.33	4.70	3,777
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2025	4.52	3.80	33.4	42.6	0.08	1.34	2.38	3.72	1.23	0.36	1.59	—	8,676	8,676	0.35	0.14	0.10	8,726
2026	3.10	2.60	22.8	33.6	0.05	0.87	0.72	1.56	0.80	0.19	0.97	—	6,239	6,239	0.23	0.33	0.12	6,279
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.74	1.46	12.8	15.6	0.03	0.53	2.03	2.57	0.49	0.69	1.18	—	3,262	3,262	0.13	0.06	0.58	3,283
2026	1.48	1.39	4.11	5.86	0.01	0.16	0.15	0.30	0.14	0.04	0.18	—	1,185	1,185	0.04	0.04	0.32	1,197
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.32	0.27	2.34	2.86	0.01	0.10	0.37	0.47	0.09	0.13	0.22	—	540	540	0.02	0.01	0.10	544
2026	0.27	0.25	0.75	1.07	< 0.005	0.03	0.03	0.06	0.03	0.01	0.03	—	196	196	0.01	0.01	0.05	198

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year																		
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.16	1.95	12.0	73.1	0.12	0.41	5.64	5.82	0.40	2.73	2.91	—	13,642	13,642	0.53	0.32	5.62	13,755
2026	16.8	16.8	4.56	12.2	0.03	0.14	0.72	0.85	0.13	0.19	0.32	—	3,671	3,671	0.11	0.33	4.70	3,777
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.88	1.68	10.0	50.1	0.08	0.35	1.20	1.55	0.33	0.23	0.56	—	8,676	8,676	0.35	0.14	0.10	8,726
2026	1.45	1.29	7.70	37.3	0.05	0.27	0.72	0.95	0.25	0.19	0.42	—	6,239	6,239	0.23	0.33	0.12	6,279
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.62	0.56	3.40	18.3	0.03	0.12	0.73	0.85	0.11	0.23	0.34	—	3,262	3,262	0.13	0.06	0.58	3,283
2026	1.19	1.16	1.50	6.50	0.01	0.05	0.15	0.20	0.05	0.04	0.08	—	1,185	1,185	0.04	0.04	0.32	1,197
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.11	0.10	0.62	3.33	0.01	0.02	0.13	0.16	0.02	0.04	0.06	—	540	540	0.02	0.01	0.10	544
2026	0.22	0.21	0.27	1.19	< 0.005	0.01	0.03	0.04	0.01	0.01	0.02	—	196	196	0.01	0.01	0.05	198

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.20	2.10	1.25	3.82	0.01	0.10	0.00	0.10	0.10	0.00	0.10	99.0	4,221	4,320	10.3	0.07	953	5,550
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.71	1.64	1.22	1.03	0.01	0.09	0.00	0.09	0.09	0.00	0.09	99.0	4,209	4,308	10.3	0.07	953	5,539
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.05	1.95	1.24	2.94	0.01	0.10	0.00	0.10	0.10	0.00	0.10	99.0	4,217	4,316	10.3	0.07	953	5,546
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.37	0.36	0.23	0.54	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	16.4	698	715	1.71	0.01	158	918

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	2.07	2.03	0.02	2.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.5
Energy	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	4,166	4,166	0.39	0.03	—	4,186
Water	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Waste	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	95

Total	2.20	2.10	1.25	3.82	0.01	0.10	0.00	0.10	0.10	0.00	0.10	99.0	4,221	4,320	10.3	0.07	953	5,550
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.57	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	4,166	4,166	0.39	0.03	—	4,186
Water	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Waste	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953
Total	1.71	1.64	1.22	1.03	0.01	0.09	0.00	0.09	0.09	0.00	0.09	99.0	4,209	4,308	10.3	0.07	953	5,539
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.91	1.89	0.02	1.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.87	7.87	< 0.005	< 0.005	—	7.90
Energy	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	4,166	4,166	0.39	0.03	—	4,186
Water	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Waste	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953
Total	2.05	1.95	1.24	2.94	0.01	0.10	0.00	0.10	0.10	0.00	0.10	99.0	4,217	4,316	10.3	0.07	953	5,546
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.35	0.34	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.30	1.30	< 0.005	< 0.005	—	1.31
Energy	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	690	690	0.06	0.01	—	693
Water	—	—	—	—	—	—	—	—	—	—	—	2.14	7.25	9.38	0.22	0.01	—	16.5
Waste	—	—	—	—	—	—	—	—	—	—	—	14.2	0.00	14.2	1.42	0.00	—	49.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	158	158
Total	0.37	0.36	0.23	0.54	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	16.4	698	715	1.71	0.01	158	918

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	2.07	2.03	0.02	2.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.5
Energy	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	4,166	4,166	0.39	0.03	—	4,186
Water	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Waste	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953	
Total	2.20	2.10	1.25	3.82	0.01	0.10	0.00	0.10	0.10	0.00	0.10	99.0	4,221	4,320	10.3	0.07	953	5,550
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.57	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	4,166	4,166	0.39	0.03	—	4,186
Water	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Waste	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953	
Total	1.71	1.64	1.22	1.03	0.01	0.09	0.00	0.09	0.09	0.00	0.09	99.0	4,209	4,308	10.3	0.07	953	5,539
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.91	1.89	0.02	1.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.87	7.87	< 0.005	< 0.005	—	7.90
Energy	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	4,166	4,166	0.39	0.03	—	4,186
Water	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Waste	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	30

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953
Total	2.05	1.95	1.24	2.94	0.01	0.10	0.00	0.10	0.10	0.00	0.10	99.0	4,217	4,316	10.3	0.07	953	5,546
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.35	0.34	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.30	1.30	< 0.005	< 0.005	—	1.31
Energy	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	690	690	0.06	0.01	—	693
Water	—	—	—	—	—	—	—	—	—	—	—	2.14	7.25	9.38	0.22	0.01	—	16.5
Waste	—	—	—	—	—	—	—	—	—	—	—	14.2	0.00	14.2	1.42	0.00	—	49.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	158	158
Total	0.37	0.36	0.23	0.54	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	16.4	698	715	1.71	0.01	158	918

3. Construction Emissions Details

3.1. Grubbing & Land Clearing (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.49	4.22	4.50	0.01	0.24	—	0.24	0.22	—	0.22	—	632	632	0.03	0.01	—	634
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	17.3	17.3	< 0.005	< 0.005	—	17.4
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.88
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.77	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.52	143
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.59	3.59	< 0.005	< 0.005	0.01	3.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Grubbing & Land Clearing (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.23	1.83	4.47	0.01	0.06	—	0.06	0.05	—	0.05	—	632	632	0.03	0.01	—	634
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.01	0.01	0.05	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	17.3	17.3	< 0.005	< 0.005	—	17.4
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.87	2.87	< 0.005	< 0.005	—	2.88
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.77	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.52	143
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.59	3.59	< 0.005	< 0.005	0.01	3.65
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading & Excavation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.39	3.69	32.6	36.9	0.07	1.46	—	1.46	1.35	—	1.35	—	7,645	7,645	0.31	0.06	—	7,671
Dust From Material Movement	—	—	—	—	—	—	3.71	3.71	—	0.40	0.40	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	0.30	2.68	3.03	0.01	0.12	—	0.12	0.11	—	0.11	—	628	628	0.03	0.01	—	631
Dust From Material Movement	—	—	—	—	—	—	0.31	0.31	—	0.03	0.03	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.49	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	104	104	< 0.005	< 0.005	—	104
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.18	0.18	3.09	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	564	564	0.02	0.02	2.07	572
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.09	32.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.1	43.1	< 0.005	< 0.005	0.07	43.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.52	2.52	< 0.005	< 0.005	< 0.005	2.63
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.14	7.14	< 0.005	< 0.005	0.01	7.24
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Grading & Excavation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.22	7.68	45.7	0.07	0.29	—	0.29	0.28	—	0.28	—	7,645	7,645	0.31	0.06	—	7,671
Dust From Material Movement	—	—	—	—	—	—	0.97	0.97	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.10	0.63	3.75	0.01	0.02	—	0.02	0.02	—	0.02	—	628	628	0.03	0.01	—	631
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.02	0.12	0.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	104	104	< 0.005	< 0.005	—	104
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22	0.18	0.18	3.09	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	564	564	0.02	0.02	2.07	572
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.6	30.6	< 0.005	< 0.005	0.09	32.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.02	0.20	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.1	43.1	< 0.005	< 0.005	0.07	43.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.52	2.52	< 0.005	< 0.005	< 0.005	2.63
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.14	7.14	< 0.005	< 0.005	0.01	7.24
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Drainage, Utilities, & Sub-grade (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.25	1.88	17.2	19.9	0.04	0.69	—	0.69	0.64	—	0.64	—	4,090	4,090	0.17	0.03	—	4,104
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.25	1.88	17.2	19.9	0.04	0.69	—	0.69	0.64	—	0.64	—	4,090	4,090	0.17	0.03	—	4,104
Dust From Material Movement	—	—	—	—	—	—	1.59	1.59	—	0.17	0.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.38	3.44	3.98	0.01	0.14	—	0.14	0.13	—	0.13	—	818	818	0.03	0.01	—	821
Dust From Material Movement	—	—	—	—	—	—	0.32	0.32	—	0.03	0.03	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.63	0.73	< 0.005	0.03	—	0.03	0.02	—	0.02	—	135	135	0.01	< 0.005	—	136
Dust From Material Movement	—	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.12	0.12	2.12	0.00	0.00	0.36	0.36	0.00	0.08	0.08	—	388	388	0.02	0.01	1.42	393
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.13	1.60	0.00	0.00	0.36	0.36	0.00	0.08	0.08	—	356	356	0.02	0.01	0.04	361
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.2	72.2	< 0.005	< 0.005	0.12	73.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.9	11.9	< 0.005	< 0.005	0.02	12.1

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Drainage, Utilities, & Sub-grade (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.73	4.66	24.5	0.04	0.17	—	0.17	0.17	—	0.17	—	4,090	4,090	0.17	0.03	—	4,104
Dust From Material Movement	—	—	—	—	—	—	0.41	0.41	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.73	4.66	24.5	0.04	0.17	—	0.17	0.17	—	0.17	—	4,090	4,090	0.17	0.03	—	4,104
Dust From Material Movement	—	—	—	—	—	—	0.41	0.41	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.16	0.15	0.93	4.91	0.01	0.03	—	0.03	0.03	—	0.03	—	818	818	0.03	0.01	—	821
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.03	0.03	0.17	0.90	< 0.005	0.01	—	0.01	0.01	—	0.01	—	135	135	0.01	< 0.005	—	136
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.12	0.12	2.12	0.00	0.00	0.36	0.36	0.00	0.08	0.08	—	388	388	0.02	0.01	1.42	393
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.13	1.60	0.00	0.00	0.36	0.36	0.00	0.08	0.08	—	356	356	0.02	0.01	0.04	361
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.34	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	72.2	72.2	< 0.005	< 0.005	0.12	73

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.9	11.9	< 0.005	< 0.005	0.02	12.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Roadway Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.81	7.53	11.7	0.02	0.30	—	0.30	0.28	—	0.28	—	1,768	1,768	0.07	0.01	—	1,774
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.93	1.44	< 0.005	0.04	—	0.04	0.03	—	0.03	—	218	218	0.01	< 0.005	—	219
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.02	0.02	0.17	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.1	36.1	< 0.005	< 0.005	—	36.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	254	254	< 0.005	0.01	0.02	257
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.7	31.7	< 0.005	< 0.005	0.05	32.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.24	5.24	< 0.005	< 0.005	0.01	5.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Roadway Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	0.40	2.47	12.4	0.02	0.10	—	0.10	0.10	—	0.10	—	1,768	1,768	0.07	0.01	—	1,774
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.31	1.53	< 0.005	0.01	—	0.01	0.01	—	0.01	—	218	218	0.01	< 0.005	—	219
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.1	36.1	< 0.005	< 0.005	—	36.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.09	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	254	254	< 0.005	0.01	0.02	257
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.7	31.7	< 0.005	< 0.005	0.05	32.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.24	5.24	< 0.005	< 0.005	0.01	5.31
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.34	3.65	33.7	32.4	0.06	1.44	—	1.44	1.32	—	1.32	—	6,294	6,294	0.26	0.05	—	6,316
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.92	0.89	< 0.005	0.04	—	0.04	0.04	—	0.04	—	172	172	0.01	< 0.005	—	173

Dust From Material Movement	—	—	—	—	—	—	0.54	0.54	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.17	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.6
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.09	1.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.04	286
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.06	3.06	< 0.005	< 0.005	0.01	3.21
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.19	7.19	< 0.005	< 0.005	0.01	7.29
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.21

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.59	0.59	3.08	33.2	0.06	0.12	—	0.12	0.12	—	0.12	—	6,294	6,294	0.26	0.05	—	6,316
Dust From Material Movement	—	—	—	—	—	—	5.11	5.11	—	2.63	2.63	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.08	0.91	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	172	172	0.01	< 0.005	—	173
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.6	28.6	< 0.005	< 0.005	—	28.6
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.09	1.54	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.04	286
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.06	3.06	< 0.005	< 0.005	0.01	3.21
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.19	7.19	< 0.005	< 0.005	0.01	7.29
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.09
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.19	1.19	< 0.005	< 0.005	< 0.005	1.21
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.47	2.08	18.3	20.1	0.04	0.79	—	0.79	0.73	—	0.73	—	3,958	3,958	0.16	0.03	—	3,972
Dust From Material Movement	—	—	—	—	—	—	7.09	7.09	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.17	1.51	1.65	< 0.005	0.07	—	0.07	0.06	—	0.06	—	325	325	0.01	< 0.005	—	326
Dust From Material Movement	—	—	—	—	—	—	0.58	0.58	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.27	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	53.9	53.9	< 0.005	< 0.005	—	54.0

Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.35	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	247	247	0.01	0.01	0.91	250
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.06	3.06	< 0.005	< 0.005	0.01	3.21
Hauling	0.05	0.02	1.32	0.32	0.01	0.02	0.31	0.34	0.02	0.09	0.11	—	1,194	1,194	0.02	0.19	2.55	1,254
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.03	19.1
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Hauling	< 0.005	< 0.005	0.12	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.2	98.2	< 0.005	0.02	0.09	103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.12	3.12	< 0.005	< 0.005	0.01	3.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.01	17.0

3.12. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48	0.46	2.70	22.7	0.04	0.10	—	0.10	0.10	—	0.10	—	3,958	3,958	0.16	0.03	—	3,972
Dust From Material Movement	—	—	—	—	—	—	1.84	1.84	—	0.89	0.89	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.22	1.87	< 0.005	0.01	—	0.01	0.01	—	0.01	—	325	325	0.01	< 0.005	—	326
Dust From Material Movement	—	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.04	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	53.9	53.9	< 0.005	< 0.005	—	54.0
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.35	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	247	247	0.01	0.01	0.91	250
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.06	3.06	< 0.005	< 0.005	0.01	3.21
Hauling	0.05	0.02	1.32	0.32	0.01	0.02	0.31	0.34	0.02	0.09	0.11	—	1,194	1,194	0.02	0.19	2.55	1,254
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.9	18.9	< 0.005	< 0.005	0.03	19.1
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.26
Hauling	< 0.005	< 0.005	0.12	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	98.2	98.2	< 0.005	0.02	0.09	103
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.12	3.12	< 0.005	< 0.005	0.01	3.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.01	17.0

3.13. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.01	1.68	15.6	19.4	0.03	0.64	—	0.64	0.59	—	0.59	—	3,573	3,573	0.14	0.03	—	3,586
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.01	1.68	15.6	19.4	0.03	0.64	—	0.64	0.59	—	0.59	—	3,573	3,573	0.14	0.03	—	3,586
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	3.88	4.84	0.01	0.16	—	0.16	0.15	—	0.15	—	889	889	0.04	0.01	—	893
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.71	0.88	< 0.005	0.03	—	0.03	0.03	—	0.03	—	147	147	0.01	< 0.005	—	148
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.11	1.99	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	364	364	0.02	0.01	1.34	369
Vendor	0.01	0.01	0.35	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	322	322	0.01	0.05	0.91	338

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.12	1.51	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	334	334	0.02	0.01	0.03	338
Vendor	0.01	0.01	0.37	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	322	322	0.01	0.05	0.02	337
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	84.3	84.3	< 0.005	< 0.005	0.14	85.4
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	80.2	80.2	< 0.005	0.01	0.10	84.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.02	14.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.02	13.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.72	4.73	22.3	0.03	0.17	—	0.17	0.16	—	0.16	—	3,573	3,573	0.14	0.03	—	3,586
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80	0.72	4.73	22.3	0.03	0.17	—	0.17	0.16	—	0.16	—	3,573	3,573	0.14	0.03	—	3,586
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	0.18	1.18	5.56	0.01	0.04	—	0.04	0.04	—	0.04	—	889	889	0.04	0.01	—	893
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.22	1.01	< 0.005	0.01	—	0.01	0.01	—	0.01	—	147	147	0.01	< 0.005	—	148
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.11	1.99	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	364	364	0.02	0.01	1.34	369
Vendor	0.01	0.01	0.35	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	322	322	0.01	0.05	0.91	338
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.12	1.51	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	334	334	0.02	0.01	0.03	338

Vendor	0.01	0.01	0.37	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	322	322	0.01	0.05	0.02	337
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	84.3	84.3	< 0.005	< 0.005	0.14	85.4
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	80.2	80.2	< 0.005	0.01	0.10	84.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	13.9	13.9	< 0.005	< 0.005	0.02	14.1
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.3	13.3	< 0.005	< 0.005	0.02	13.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.91	1.60	14.7	19.3	0.03	0.56	—	0.56	0.52	—	0.52	—	3,573	3,573	0.14	0.03	—	3,585
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.33	0.27	2.52	3.32	0.01	0.10	—	0.10	0.09	—	0.09	—	612	612	0.02	< 0.005	—	615
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.46	0.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	101	101	< 0.005	< 0.005	—	102
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.11	1.40	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	327	327	0.01	0.01	0.03	331
Vendor	0.01	0.01	0.35	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	317	317	0.01	0.05	0.02	332
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.8	56.8	< 0.005	< 0.005	0.09	57.6
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.4	54.4	< 0.005	0.01	0.06	57.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.40	9.40	< 0.005	< 0.005	0.01	9.53
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.00	9.00	< 0.005	< 0.005	0.01	9.43
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	0.70	4.67	22.3	0.03	0.16	—	0.16	0.15	—	0.15	—	3,573	3,573	0.14	0.03	—	3,585
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.12	0.80	3.83	0.01	0.03	—	0.03	0.03	—	0.03	—	612	612	0.02	< 0.005	—	615
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.70	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	101	101	< 0.005	< 0.005	—	102
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.10	0.11	1.40	0.00	0.00	0.34	0.34	0.00	0.08	0.08	—	327	327	0.01	0.01	0.03	331
Vendor	0.01	0.01	0.35	0.11	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	317	317	0.01	0.05	0.02	332
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.8	56.8	< 0.005	< 0.005	0.09	57.6
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	54.4	54.4	< 0.005	0.01	0.06	57.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.40	9.40	< 0.005	< 0.005	0.01	9.53
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.00	9.00	< 0.005	< 0.005	0.01	9.43
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	1.08	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	207	207	0.01	0.01	0.70	210
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.01	3.01	< 0.005	< 0.005	0.01	3.16
Hauling	0.08	0.03	2.15	0.53	0.01	0.04	0.52	0.56	0.04	0.15	0.18	—	1,950	1,950	0.04	0.31	3.99	2,048

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.01	3.01	< 0.005	< 0.005	< 0.005	3.15
Hauling	0.08	0.03	2.23	0.54	0.01	0.04	0.52	0.56	0.04	0.15	0.18	—	1,951	1,951	0.04	0.31	0.10	2,045
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.02	10.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	< 0.005	< 0.005	0.12	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	107	107	< 0.005	0.02	0.09	112
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.75	1.75	< 0.005	< 0.005	< 0.005	1.77
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.02	18.6

3.18. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.38	2.35	10.6	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.38	2.35	10.6	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.37	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.13	0.58	< 0.005	0.01	—	0.01	0.01	—	0.01	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.06	1.08	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	207	207	0.01	0.01	0.70	210
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.01	3.01	< 0.005	< 0.005	0.01	3.16
Hauling	0.08	0.03	2.15	0.53	0.01	0.04	0.52	0.56	0.04	0.15	0.18	—	1,950	1,950	0.04	0.31	3.99	2,048

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.01	3.01	< 0.005	< 0.005	< 0.005	3.15
Hauling	0.08	0.03	2.23	0.54	0.01	0.04	0.52	0.56	0.04	0.15	0.18	—	1,951	1,951	0.04	0.31	0.10	2,045
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.6	10.6	< 0.005	< 0.005	0.02	10.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	< 0.005	< 0.005	0.12	0.03	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	107	107	< 0.005	0.02	0.09	112
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.75	1.75	< 0.005	< 0.005	< 0.005	1.77
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	17.7	17.7	< 0.005	< 0.005	0.02	18.6

3.19. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	16.6	16.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	0.91	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	71.2	71.2	< 0.005	< 0.005	0.24	72.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.01	3.01	< 0.005	< 0.005	0.01	3.16
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.63	3.63	< 0.005	< 0.005	0.01	3.68
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.20. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	16.6	16.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	0.91	0.91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.17	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	71.2	71.2	< 0.005	< 0.005	0.24	72.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.01	3.01	< 0.005	< 0.005	0.01	3.16
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.63	3.63	< 0.005	< 0.005	0.01	3.66

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.60	0.60	< 0.005	< 0.005	< 0.005	0.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	128	128	0.01	< 0.005	—	129
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	—	14.1	14.1	< 0.005	< 0.005	—	14.2

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	226	226	0.02	< 0.005	—	228
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	1,864	1,864	0.18	0.02	—	1,875
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	370	370	0.04	< 0.005	—	372
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	103	103	0.01	< 0.005	—	104
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,705	2,705	0.26	0.03	—	2,721
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	128	128	0.01	< 0.005	—	129
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	—	14.1	14.1	< 0.005	< 0.005	—	14.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	226	226	0.02	< 0.005	—	228
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	1,864	1,864	0.18	0.02	—	1,875
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	370	370	0.04	< 0.005	—	372
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	103	103	0.01	< 0.005	—	104

Total	—	—	—	—	—	—	—	—	—	—	—	—	2,705	2,705	0.26	0.03	—	2,721
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	21.2	21.2	< 0.005	< 0.005	—	21.3
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	—	2.33	2.33	< 0.005	< 0.005	—	2.35
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	37.5	37.5	< 0.005	< 0.005	—	37.7
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	309	309	0.03	< 0.005	—	310
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	61.2	61.2	0.01	< 0.005	—	61.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	17.1	17.1	< 0.005	< 0.005	—	17.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	448	448	0.04	0.01	—	450

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	128	128	0.01	< 0.005	—	129

Gasolin Station	—	—	—	—	—	—	—	—	—	—	—	—	14.1	14.1	< 0.005	< 0.005	—	14.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	226	226	0.02	< 0.005	—	228
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	1,864	1,864	0.18	0.02	—	1,875
Automo bile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	370	370	0.04	< 0.005	—	372
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	103	103	0.01	< 0.005	—	104
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,705	2,705	0.26	0.03	—	2,721
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	128	128	0.01	< 0.005	—	129
Gasolin e/Servic e Station	—	—	—	—	—	—	—	—	—	—	—	—	14.1	14.1	< 0.005	< 0.005	—	14.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	226	226	0.02	< 0.005	—	228
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	1,864	1,864	0.18	0.02	—	1,875
Automo bile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	370	370	0.04	< 0.005	—	372

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	103	103	0.01	< 0.005	—	104
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,705	2,705	0.26	0.03	—	2,721
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	21.2	21.2	< 0.005	< 0.005	—	21.3
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	—	2.33	2.33	< 0.005	< 0.005	—	2.35
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	37.5	37.5	< 0.005	< 0.005	—	37.7
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	309	309	0.03	< 0.005	—	310
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	61.2	61.2	0.01	< 0.005	—	61.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	17.1	17.1	< 0.005	< 0.005	—	17.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	448	448	0.04	0.01	—	450

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience Market (24 hour)	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Gasoline/Service Station	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Fast Food Restaurant with Drive Thru	0.02	0.01	0.21	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	249	249	0.02	< 0.005	—	249
Hotel	0.11	0.05	0.98	0.82	0.01	0.07	—	0.07	0.07	—	0.07	—	1,168	1,168	0.10	< 0.005	—	1,171
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,461	1,461	0.13	< 0.005	—	1,465
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Gasoline/Service Station	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.4	21.4	< 0.005	< 0.005	—	21.4

Fast Food Restaurant with Drive Thru	0.02	0.01	0.21	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	249	249	0.02	< 0.005	—	249
Hotel	0.11	0.05	0.98	0.82	0.01	0.07	—	0.07	0.07	—	0.07	—	1,168	1,168	0.10	< 0.005	—	1,171
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,461	1,461	0.13	< 0.005	—	1,465
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.74	3.74	< 0.005	< 0.005	—	3.75
Gasoline/Service Station	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.54	3.54	< 0.005	< 0.005	—	3.55
Fast Food Restaurant with Drive Thru	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	41.2	41.2	< 0.005	< 0.005	—	41.3
Hotel	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	193	193	0.02	< 0.005	—	194
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	242	242	0.02	< 0.005	—	242

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.6	22.6	< 0.005	< 0.005	—	22.7
Gasoline/Service Station	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Fast Food Restaurant with Drive Thru	0.02	0.01	0.21	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	249	249	0.02	< 0.005	—	249
Hotel	0.11	0.05	0.98	0.82	0.01	0.07	—	0.07	0.07	—	0.07	—	1,168	1,168	0.10	< 0.005	—	1,171
Automobile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,461	1,461	0.13	< 0.005	—	1,465
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.6	22.6	< 0.005	< 0.005	—	22.7

Gasolin Station	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.4	21.4	< 0.005	< 0.005	—	21.4
Fast Food Restaurant with Drive Thru	0.02	0.01	0.21	0.17	< 0.005	0.02	—	0.02	0.02	—	0.02	—	249	249	0.02	< 0.005	—	249
Hotel	0.11	0.05	0.98	0.82	0.01	0.07	—	0.07	0.07	—	0.07	—	1,168	1,168	0.10	< 0.005	—	1,171
Automo bile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.13	0.07	1.22	1.03	0.01	0.09	—	0.09	0.09	—	0.09	—	1,461	1,461	0.13	< 0.005	—	1,465
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.74	3.74	< 0.005	< 0.005	—	3.75
Gasolin e/Servic e Station	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.54	3.54	< 0.005	< 0.005	—	3.55
Fast Food Restaurant with Drive Thru	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	41.2	41.2	< 0.005	< 0.005	—	41.3
Hotel	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	193	193	0.02	< 0.005	—	194
Automo bile Care Center	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Total	0.02	0.01	0.22	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	242	242	0.02	< 0.005	—	242

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.38	1.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.19	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.50	0.46	0.02	2.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.5
Total	2.07	2.03	0.02	2.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.38	1.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.19	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.57	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.30	1.30	< 0.005	< 0.005	—	1.31
Total	0.35	0.34	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.30	1.30	< 0.005	< 0.005	—	1.31

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.38	1.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.19	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.50	0.46	0.02	2.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.5
Total	2.07	2.03	0.02	2.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.5	11.5	< 0.005	< 0.005	—	11.5

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.38	1.38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.19	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.57	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.25	0.25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.30	1.30	< 0.005	< 0.005	—	1.31
Total	0.35	0.34	< 0.005	0.35	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.30	1.30	< 0.005	< 0.005	—	1.31

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.60	2.01	2.60	0.06	< 0.005	—	4.58
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.28	0.94	1.22	0.03	< 0.005	—	2.15
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	3.96	13.3	17.3	0.41	0.01	—	30.4
Hotel	—	—	—	—	—	—	—	—	—	—	—	4.08	13.8	17.8	0.42	0.01	—	31.4
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	3.99	13.4	17.4	0.41	0.01	—	30.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.32	0.32	< 0.005	< 0.005	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.60	2.01	2.60	0.06	< 0.005	—	4.58
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.28	0.94	1.22	0.03	< 0.005	—	2.15
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	3.96	13.3	17.3	0.41	0.01	—	30.4

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Hotel	—	—	—	—	—	—	—	—	—	—	—	4.08	13.8	17.8	0.42	0.01	—	31.4
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	3.99	13.4	17.4	0.41	0.01	—	30.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.32	0.32	< 0.005	< 0.005	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.10	0.33	0.43	0.01	< 0.005	—	0.76
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.05	0.16	0.20	< 0.005	< 0.005	—	0.36
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.65	2.21	2.86	0.07	< 0.005	—	5.03
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.68	2.28	2.95	0.07	< 0.005	—	5.19
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	0.66	2.22	2.88	0.07	< 0.005	—	5.07
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.05	0.05	< 0.005	< 0.005	—	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	2.14	7.25	9.38	0.22	0.01	—	16.5

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.60	2.01	2.60	0.06	< 0.005	—	4.58
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.28	0.94	1.22	0.03	< 0.005	—	2.15
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	3.96	13.3	17.3	0.41	0.01	—	30.4
Hotel	—	—	—	—	—	—	—	—	—	—	—	4.08	13.8	17.8	0.42	0.01	—	31.4
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	3.99	13.4	17.4	0.41	0.01	—	30.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.32	0.32	< 0.005	< 0.005	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.60	2.01	2.60	0.06	< 0.005	—	4.58
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.28	0.94	1.22	0.03	< 0.005	—	2.15

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	3.96	13.3	17.3	0.41	0.01	—	30.4
Hotel	—	—	—	—	—	—	—	—	—	—	—	4.08	13.8	17.8	0.42	0.01	—	31.4
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	3.99	13.4	17.4	0.41	0.01	—	30.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.32	0.32	< 0.005	< 0.005	—	0.32
Total	—	—	—	—	—	—	—	—	—	—	—	12.9	43.8	56.7	1.33	0.03	—	99.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	0.10	0.33	0.43	0.01	< 0.005	—	0.76
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.05	0.16	0.20	< 0.005	< 0.005	—	0.36
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.65	2.21	2.86	0.07	< 0.005	—	5.03
Hotel	—	—	—	—	—	—	—	—	—	—	—	0.68	2.28	2.95	0.07	< 0.005	—	5.19
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	0.66	2.22	2.88	0.07	< 0.005	—	5.07
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.05	0.05	< 0.005	< 0.005	—	0.05
Total	—	—	—	—	—	—	—	—	—	—	—	2.14	7.25	9.38	0.22	0.01	—	16.5

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	6.80	0.00	6.80	0.68	0.00	—	23.8
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	4.07	0.00	4.07	0.41	0.00	—	14.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	42.2	0.00	42.2	4.22	0.00	—	148
Hotel	—	—	—	—	—	—	—	—	—	—	—	21.2	0.00	21.2	2.12	0.00	—	74.3
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	41.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	6.80	0.00	6.80	0.68	0.00	—	23.8
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	4.07	0.00	4.07	0.41	0.00	—	14.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	42.2	0.00	42.2	4.22	0.00	—	148
Hotel	—	—	—	—	—	—	—	—	—	—	—	21.2	0.00	21.2	2.12	0.00	—	74.3
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	41.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	1.13	0.00	1.13	0.11	0.00	—	3.94
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.36
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	6.99	0.00	6.99	0.70	0.00	—	24.5

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Hotel	—	—	—	—	—	—	—	—	—	—	—	3.52	0.00	3.52	0.35	0.00	—	12.3
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	1.94	0.00	1.94	0.19	0.00	—	6.80
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	14.2	0.00	14.2	1.42	0.00	—	49.9

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	6.80	0.00	6.80	0.68	0.00	—	23.8
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	4.07	0.00	4.07	0.41	0.00	—	14.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	42.2	0.00	42.2	4.22	0.00	—	148
Hotel	—	—	—	—	—	—	—	—	—	—	—	21.2	0.00	21.2	2.12	0.00	—	74.3
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	41.1

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	6.80	0.00	6.80	0.68	0.00	—	23.8
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	4.07	0.00	4.07	0.41	0.00	—	14.2
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	42.2	0.00	42.2	4.22	0.00	—	148
Hotel	—	—	—	—	—	—	—	—	—	—	—	21.2	0.00	21.2	2.12	0.00	—	74.3
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	11.7	0.00	11.7	1.17	0.00	—	41.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	86.1	0.00	86.1	8.60	0.00	—	301
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	1.13	0.00	1.13	0.11	0.00	—	3.94
Gasoline/Service Station	—	—	—	—	—	—	—	—	—	—	—	0.67	0.00	0.67	0.07	0.00	—	2.36

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	6.99	0.00	6.99	0.70	0.00	—	24.5
Hotel	—	—	—	—	—	—	—	—	—	—	—	3.52	0.00	3.52	0.35	0.00	—	12.3
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	1.94	0.00	1.94	0.19	0.00	—	6.80
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	14.2	0.00	14.2	1.42	0.00	—	49.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	871	871
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.6	10.6
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	71.2	71.2

Automobile	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	871	871
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.6	10.6
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	71.2	71.2
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	144	144
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.76	1.76
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.8	11.8
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	158	158

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	871	871
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.6	10.6
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	71.2	71.2
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	871	871

Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10.6	10.6
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	71.2	71.2
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	953	953
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Convenience Market (24 hour)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	144	144
Fast Food Restaurant with Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.76	1.76
Hotel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.8	11.8
Automobile Care Center	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	158	158

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species																		
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	8/1/2025	8/12/2025	6.00	10.0	—
Grading & Excavation	Linear, Grading & Excavation	8/13/2025	9/16/2025	6.00	30.0	—
Drainage, Utilities, & Sub-grade	Linear, Drainage, Utilities, & Sub-Grade	9/17/2025	12/10/2025	6.00	73.0	—
Roadway Paving	Linear, Paving	1/15/2026	3/7/2026	6.00	45.0	—
Site Preparation	Site Preparation	8/1/2025	8/12/2025	6.00	10.0	—
Grading	Grading	8/13/2025	9/16/2025	6.00	30.0	—
Building Construction	Building Construction	9/17/2025	3/14/2026	6.00	154	—
Paving	Paving	3/15/2026	4/7/2026	6.00	20.0	—
Architectural Coating	Architectural Coating	4/8/2026	4/30/2026	6.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Grading & Excavation	Crawler Tractors	Diesel	Average	1.00	8.00	87.0	0.43
Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Grading & Excavation	Graders	Diesel	Average	2.00	8.00	148	0.41
Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Grading & Excavation	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Grading & Excavation	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Drainage, Utilities, & Sub-grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Drainage, Utilities, & Sub-grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Drainage, Utilities, & Sub-grade	Graders	Diesel	Average	1.00	8.00	148	0.41
Drainage, Utilities, & Sub-grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Drainage, Utilities, & Sub-grade	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Drainage, Utilities, & Sub-grade	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	96.0	0.40

Drainage, Utilities, & Sub-grade	Scrapers	Diesel	Average	1.00	8.00	423	0.48
Drainage, Utilities, & Sub-grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Drainage, Utilities, & Sub-grade	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Roadway Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Roadway Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Roadway Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Roadway Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Roadway Paving	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Site Preparation	Off-Highway Trucks	Diesel	Average	1.00	6.00	376	0.38
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Grading	Off-Highway Trucks	Diesel	Average	1.00	6.00	376	0.38
Building Construction	Cranes	Diesel	Average	2.00	5.20	367	0.29
Building Construction	Forklifts	Diesel	Average	5.00	7.20	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	2.00	6.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	4.00	7.80	84.0	0.37
Building Construction	Welders	Diesel	Average	2.00	6.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grubbing & Land Clearing	Crawler Tractors	Diesel	Tier 4 Final	1.00	8.00	87.0	0.43
Grubbing & Land Clearing	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Grading & Excavation	Crawler Tractors	Diesel	Tier 4 Final	1.00	8.00	87.0	0.43
Grading & Excavation	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Grading & Excavation	Graders	Diesel	Tier 4 Final	2.00	8.00	148	0.41
Grading & Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Grading & Excavation	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	150	0.36
Grading & Excavation	Scrapers	Diesel	Tier 4 Final	2.00	8.00	423	0.48
Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Grading & Excavation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Drainage, Utilities, & Sub-grade	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Drainage, Utilities, & Sub-grade	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Drainage, Utilities, & Sub-grade	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Drainage, Utilities, & Sub-grade	Plate Compactors	Diesel	Average	1.00	8.00	8.00	0.43
Drainage, Utilities, & Sub-grade	Pumps	Diesel	Average	1.00	8.00	11.0	0.74
Drainage, Utilities, & Sub-grade	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	8.00	96.0	0.40

Drainage, Utilities, & Sub-grade	Scrapers	Diesel	Tier 4 Final	1.00	8.00	423	0.48
Drainage, Utilities, & Sub-grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Drainage, Utilities, & Sub-grade	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Roadway Paving	Pavers	Diesel	Tier 4 Final	1.00	8.00	81.0	0.42
Roadway Paving	Paving Equipment	Diesel	Tier 4 Final	1.00	8.00	89.0	0.36
Roadway Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Roadway Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Roadway Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Final	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Site Preparation	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	6.00	376	0.38
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 4 Final	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Grading	Off-Highway Trucks	Diesel	Tier 4 Final	1.00	6.00	376	0.38
Building Construction	Cranes	Diesel	Tier 4 Final	2.00	5.20	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	5.00	7.20	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	2.00	6.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	7.80	84.0	0.37
Building Construction	Welders	Diesel	Average	2.00	6.00	46.0	0.45
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	0.10	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	17.5	18.5	LDA,LDT1,LDT2
Grading	Vendor	0.10	10.2	HHDT,MHDT
Grading	Hauling	17.3	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	25.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	0.10	10.2	HHDT,MHDT
Paving	Hauling	28.8	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.16	18.5	LDA,LDT1,LDT2

Architectural Coating	Vendor	0.10	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Grubbing & Land Clearing	—	—	—	—
Grubbing & Land Clearing	Worker	10.0	18.5	LDA,LDT1,LDT2
Grubbing & Land Clearing	Vendor	0.00	10.2	HHDT,MHDT
Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Grading & Excavation	—	—	—	—
Grading & Excavation	Worker	40.0	18.5	LDA,LDT1,LDT2
Grading & Excavation	Vendor	1.00	10.2	HHDT,MHDT
Grading & Excavation	Hauling	0.00	20.0	HHDT
Grading & Excavation	Onsite truck	—	—	HHDT
Drainage, Utilities, & Sub-grade	—	—	—	—
Drainage, Utilities, & Sub-grade	Worker	27.5	18.5	LDA,LDT1,LDT2
Drainage, Utilities, & Sub-grade	Vendor	0.00	10.2	HHDT,MHDT
Drainage, Utilities, & Sub-grade	Hauling	0.00	20.0	HHDT
Drainage, Utilities, & Sub-grade	Onsite truck	—	—	HHDT
Roadway Paving	—	—	—	—
Roadway Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Roadway Paving	Vendor	0.00	10.2	HHDT,MHDT
Roadway Paving	Hauling	0.00	20.0	HHDT
Roadway Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2

Site Preparation	Vendor	0.10	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	17.5	18.5	LDA,LDT1,LDT2
Grading	Vendor	0.10	10.2	HHDT,MHDT
Grading	Hauling	17.3	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	25.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	10.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	0.10	10.2	HHDT,MHDT
Paving	Hauling	28.8	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.16	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.10	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Grubbing & Land Clearing	—	—	—	—
Grubbing & Land Clearing	Worker	10.0	18.5	LDA,LDT1,LDT2
Grubbing & Land Clearing	Vendor	0.00	10.2	HHDT,MHDT
Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Grubbing & Land Clearing	Onsite truck	—	—	HHDT

Grading & Excavation	—	—	—	—
Grading & Excavation	Worker	40.0	18.5	LDA,LDT1,LDT2
Grading & Excavation	Vendor	1.00	10.2	HHDT,MHDT
Grading & Excavation	Hauling	0.00	20.0	HHDT
Grading & Excavation	Onsite truck	—	—	HHDT
Drainage, Utilities, & Sub-grade	—	—	—	—
Drainage, Utilities, & Sub-grade	Worker	27.5	18.5	LDA,LDT1,LDT2
Drainage, Utilities, & Sub-grade	Vendor	0.00	10.2	HHDT,MHDT
Drainage, Utilities, & Sub-grade	Hauling	0.00	20.0	HHDT
Drainage, Utilities, & Sub-grade	Onsite truck	—	—	HHDT
Roadway Paving	—	—	—	—
Roadway Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Roadway Paving	Vendor	0.00	10.2	HHDT,MHDT
Roadway Paving	Hauling	0.00	20.0	HHDT
Roadway Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name					
Architectural Coating	0.00	0.00	96,371	32,124	7,449

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grubbing & Land Clearing	—	—	0.60	0.00	—
Grading & Excavation	—	—	0.60	0.00	—
Drainage, Utilities, & Sub-grade	—	—	0.60	0.00	—
Site Preparation	—	—	15.0	0.00	—
Grading	—	4,160	8.00	0.00	—
Paving	0.00	0.00	0.00	0.00	2.85

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Convenience Market (24 hour)	0.00	0%
Gasoline/Service Station	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Hotel	0.00	0%
Fast Food Restaurant with Drive Thru	0.00	0%
Automobile Care Center	0.00	0%
Parking Lot	2.85	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	88.1	349	0.03	< 0.005
2026	29.4	346	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	210,182	70,061	7,449

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Convenience Market (24 hour)	134,735	346	0.0330	0.0040	70,496
Gasoline/Service Station	14,861	346	0.0330	0.0040	66,702
Fast Food Restaurant with Drive Thru	112,368	346	0.0330	0.0040	364,988
Hotel	1,964,964	346	0.0330	0.0040	3,644,849
Fast Food Restaurant with Drive Thru	126,414	346	0.0330	0.0040	410,612
Automobile Care Center	389,864	346	0.0330	0.0040	0.00
Parking Lot	108,752	346	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Convenience Market (24 hour)	134,735	346	0.0330	0.0040	70,496
Gasoline/Service Station	14,861	346	0.0330	0.0040	66,702
Fast Food Restaurant with Drive Thru	112,368	346	0.0330	0.0040	364,988
Hotel	1,964,964	346	0.0330	0.0040	3,644,849

Fast Food Restaurant with Drive Thru	126,414	346	0.0330	0.0040	410,612
Automobile Care Center	389,864	346	0.0330	0.0040	0.00
Parking Lot	108,752	346	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Convenience Market (24 hour)	311,105	0.00
Gasoline/Service Station	146,101	0.00
Fast Food Restaurant with Drive Thru	971,308	0.00
Hotel	2,130,809	0.00
Fast Food Restaurant with Drive Thru	1,092,721	0.00
Automobile Care Center	2,080,000	0.00
Parking Lot	0.00	63,423

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Convenience Market (24 hour)	311,105	0.00
Gasoline/Service Station	146,101	0.00
Fast Food Restaurant with Drive Thru	971,308	0.00
Hotel	2,130,809	0.00
Fast Food Restaurant with Drive Thru	1,092,721	0.00
Automobile Care Center	2,080,000	0.00
Parking Lot	0.00	63,423

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Convenience Market (24 hour)	12.6	—
Gasoline/Service Station	7.55	—
Fast Food Restaurant with Drive Thru	27.6	—
Hotel	39.4	—
Fast Food Restaurant with Drive Thru	50.7	—
Automobile Care Center	21.8	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Convenience Market (24 hour)	12.6	—
Gasoline/Service Station	7.55	—
Fast Food Restaurant with Drive Thru	27.6	—
Hotel	39.4	—
Fast Food Restaurant with Drive Thru	50.7	—
Automobile Care Center	21.8	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Convenience Market (24 hour)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

Convenience Market (24 hour)	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Hotel	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Hotel	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Hotel	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Convenience Market (24 hour)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Convenience Market (24 hour)	Supermarket refrigeration and condensing units	R-404A	3,922	26.5	16.5	16.5	18.0

Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Hotel	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Hotel	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Hotel	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Fast Food Restaurant with Drive Thru	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
Fast Food Restaurant with Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
Fast Food Restaurant with Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Automobile Care Center	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.1	annual days of extreme heat
Extreme Precipitation	3.95	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	16.0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0
AQ-PM	48.2
AQ-DPM	79.4
Drinking Water	31.7
Lead Risk Housing	30.9
Pesticides	0.00
Toxic Releases	13.9
Traffic	85.2
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	0.00
Solid Waste	52.9
Sensitive Population	—
Asthma	51.6

Cardio-vascular	98.9
Low Birth Weights	9.64
Socioeconomic Factor Indicators	—
Education	63.6
Housing	34.2
Linguistic	—
Poverty	58.0
Unemployment	11.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	42.12755037
Employed	35.14692673
Median HI	50.10907224
Education	—
Bachelor's or higher	22.22507378
High school enrollment	100
Preschool enrollment	33.37610676
Transportation	—
Auto Access	86.34672142
Active commuting	12.62671628
Social	—
2-parent households	53.70204029
Voting	38.53458232
Neighborhood	—
Alcohol availability	85.05068651

Park access	2.194276915
Retail density	8.263826511
Supermarket access	2.399589375
Tree canopy	1.822148082
Housing	—
Homeownership	87.02681894
Housing habitability	43.77005004
Low-inc homeowner severe housing cost burden	14.34620814
Low-inc renter severe housing cost burden	24.27819838
Uncrowded housing	47.26036186
Health Outcomes	—
Insured adults	31.25882202
Arthritis	0.0
Asthma ER Admissions	50.8
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	22.8
Cognitively Disabled	64.4
Physically Disabled	37.2
Heart Attack ER Admissions	0.8
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	56.4

Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	3.2
SLR Inundation Area	0.0
Children	69.7
Elderly	44.5
English Speaking	55.9
Foreign-born	42.3
Outdoor Workers	22.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	85.4
Traffic Density	81.0
Traffic Access	23.0
Other Indices	—
Hardship	60.1
Other Decision Support	—
2016 Voting	54.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	39.0
Healthy Places Index Score for Project Location (b)	38.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Per project applicant, construction will begin in August 2025and last 9 months. Demolition phase removed, grading phase suggested in CalEEMod memo of 30 days for sites over 5 acres applied, and default building phase duration reduced from 230 days to complete schedule in 9 months. Roadway widening schedule provided by project engineer.
Operations: Vehicle Data	Trip generation provided by Trames Solutions. Pass-by trips subtracted to generate project trip generation rates.
Operations: Energy Use	Car wash electricity use per Car Wash Advisory report and USEIA electricity pricing information.
Operations: Water and Waste Water	Water use based on Car Wash Advisory report of up to 65 gallons per car with 60% reclamation in accordance with AB 2230.
Operations: Refrigerants	Removed refrigeration from automobile center as project proposes conveyor car wash.
Construction: Dust From Material Movement	Grading quantity provided by project applicant
Construction: Architectural Coatings	SCAQMD Rule 1113
Construction: Off-Road Equipment	Building construction equipment adjusted to result in same number of total construction hours per equipment in 154 days as under 230-day default period. Water truck added as off-highway truck for dust suppression during site preparation and grading. Roadway widening equipment defaults maintained, 1 signal board designated given length.

Construction: Trips and VMT	Vendor trips added per suggested defaults in CalEEMod memo. Asphalt hauling trips calculated based on 2.85 acre parking area, 1 foot depth of paving, and haul truck capacity of 16 CY.
Land Use	Default square footages adjusted per site plan.
Operations: Architectural Coatings	SCAQMD Rule 1113

Appendix B

Dispersion Modeling

Cherry Outpost PM Dispersion Modeling Emissions

Area Source (m^2)	26322.5
Number Volume Sources	54
grams per pound	453.5924
Work days in 2025	131

Fugitive Dust Emissions (Areas Source), Unmitigated

	tons/year	Total lb/day	Total lb/hr	Total lb/s	Total g/s	g/s m^2
2025 Average Annual PM10	0.32102	4.90112	6.1264E-01	1.7018E-04	7.7191E-02	2.9325E-06
Maximum Daily PM10		20.18726	2.5234E+00	7.0095E-04	3.1794E-01	1.2079E-05
Maximum Daily PM2.5		10.15970	1.2700E+00	3.5277E-04	1.6001E-01	6.0789E-06

Exhaust Emissions (Volume Sources), Unmitigated

	tons/year	Total lb/day	Total lb/hr	Total lb/s	Total g/s	Per Source g/s
2025 Average Annual PM10	0.08481	1.29482	1.6185E-01	4.4959E-05	2.0393E-02	3.7765E-04
Maximum Daily PM10		1.673722	2.0922E-01	5.8115E-05	2.6361E-02	4.8816E-04
Maximum Daily PM2.5		1.53982	1.9248E-01	5.3466E-05	2.4252E-02	4.4911E-04

Fugitive Dust Emissions (Areas Source), Mitigated

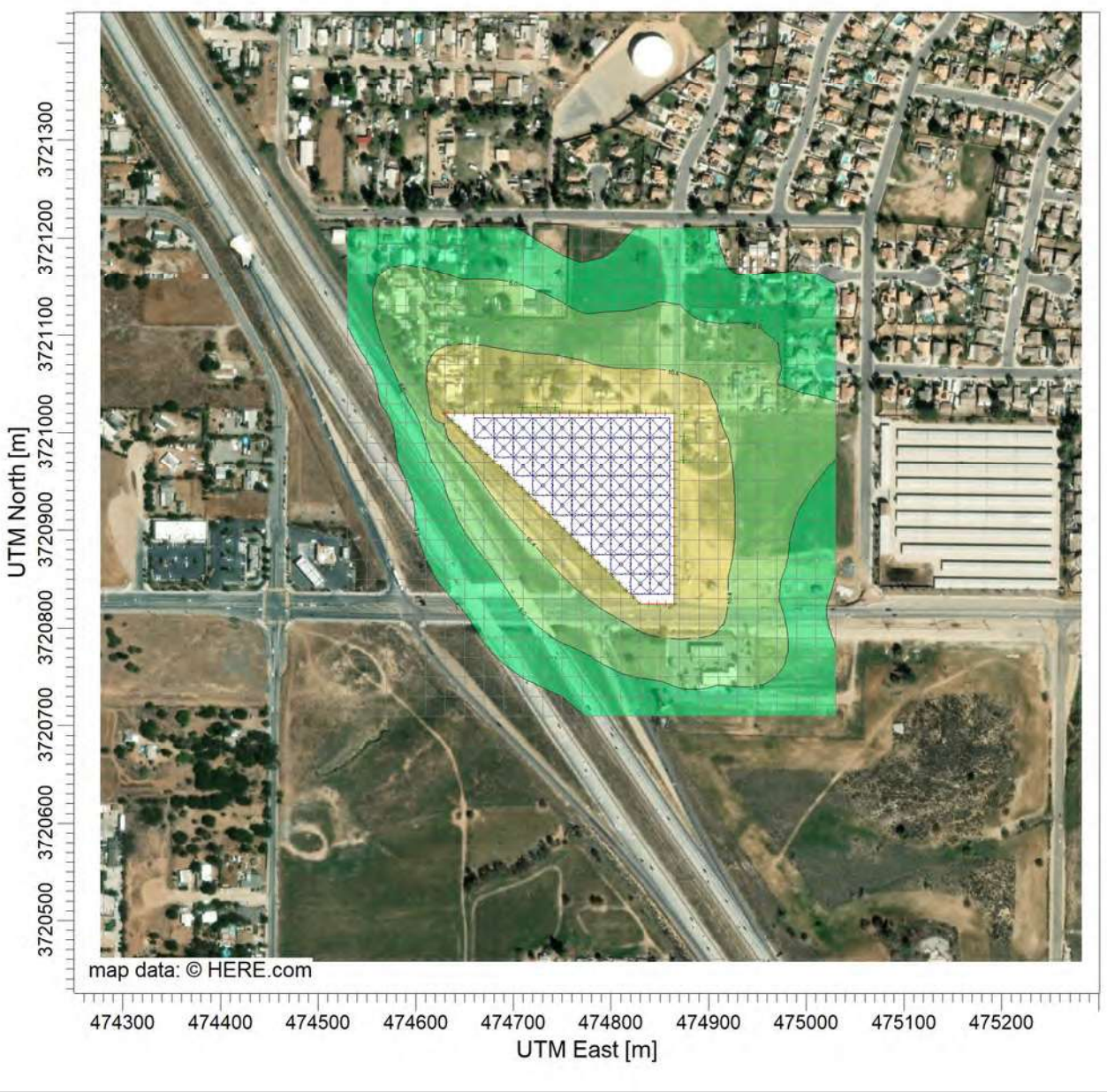
	tons/year	Total lb/day	Total lb/hr	Total lb/s	Total g/s	Per Source g/s
2025 Average Annual PM10	0.08347	1.27429	1.5929E-01	4.4246E-05	2.0070E-02	7.6246E-07
Maximum Daily PM10		5.24869	6.5609E-01	1.8225E-04	8.2665E-02	3.1405E-06
Maximum Daily PM2.5		2.64152	3.3019E-01	9.1720E-05	4.1603E-02	1.5805E-06

Exhaust Emissions (Volume Sources), Mitigated

	tons/year	Total lb/day	Total lb/hr	Total lb/s	Total g/s	Per Source g/s
2025 Average Annual PM10	0.02072	0.31641	3.9551E-02	1.0986E-05	4.9833E-03	9.2284E-05
Maximum Daily PM10		0.17675	2.2094E-02	6.1371E-06	2.7838E-03	5.1551E-05
Maximum Daily PM2.5		0.17262	2.1577E-02	5.9936E-06	2.7187E-03	5.0346E-05

PROJECT TITLE:

Cherry Outpost Maximum 24-Hour Average PM10, Unmitigated



COMMENTS:

SOURCES:

55

RECEPTORS:

758

OUTPUT TYPE:

Concentration

MAX:

51.1 ug/m^3

COMPANY NAME:

MODELER:

DATE:

8/5/2024

SCALE: 1:6,849

0 0.2 km

PROJECT NO.:

PROJECT TITLE:

Cherry Outpost Maximum 24-Hour Average PM10, Mitigated



COMMENTS:

Mitigation to require watering exposed areas 3 times daily and Tier 4 Final engines for construction equipment.

SOURCES:

55

RECEPTORS:

758

OUTPUT TYPE:

Concentration

MAX:

13.1 ug/m^3

COMPANY NAME:

MODELER:

DATE:

8/5/2024

SCALE: 1:6,849

0 0.2 km

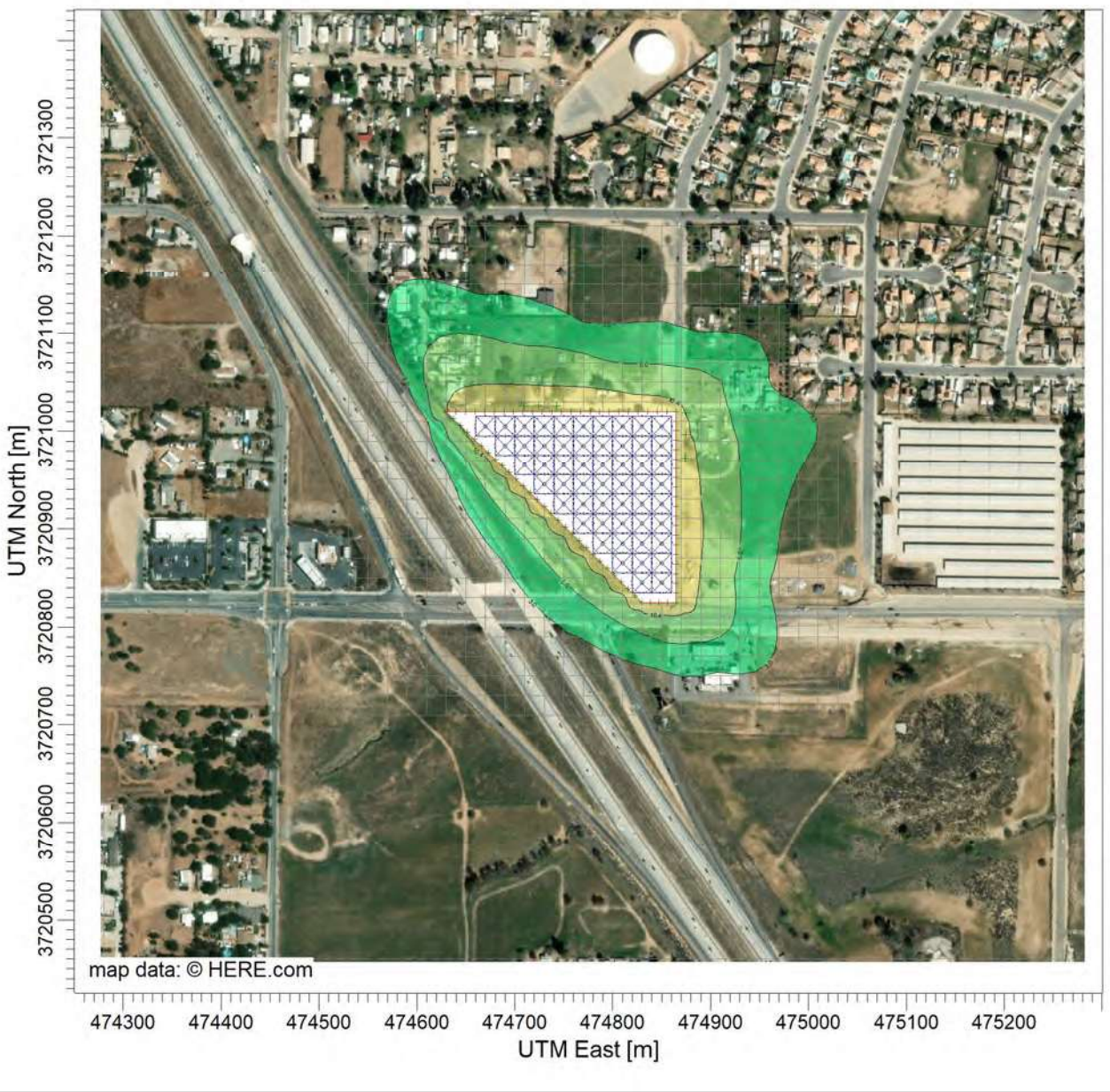
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\MartinR\Desktop\Cherry Outpost Dispersion\Cherry Outpost Dispersion.isc

PROJECT TITLE:

Cherry Outpost Maximum 24-Hour Average PM2.5, Unitigated



COMMENTS:

SOURCES:

55

RECEPTORS:

758

OUTPUT TYPE:

Concentration

MAX:

26.3 ug/m^3

COMPANY NAME:

MODELER:

DATE:

8/5/2024

SCALE: 1:6,849

0 0.2 km

PROJECT NO.:

PROJECT TITLE:

Cherry Outpost Maximum 24-Hour Average PM2.5, Mitigated



COMMENTS:

Mitigation to require watering exposed areas 3 times daily and Tier 4 Final engines for construction equipment.

SOURCES:

55

RECEPTORS:

758

OUTPUT TYPE:

Concentration

MAX:

6.64 ug/m^3

COMPANY NAME:

MODELER:

DATE:

8/5/2024

SCALE: 1:6,918

0 0.2 km

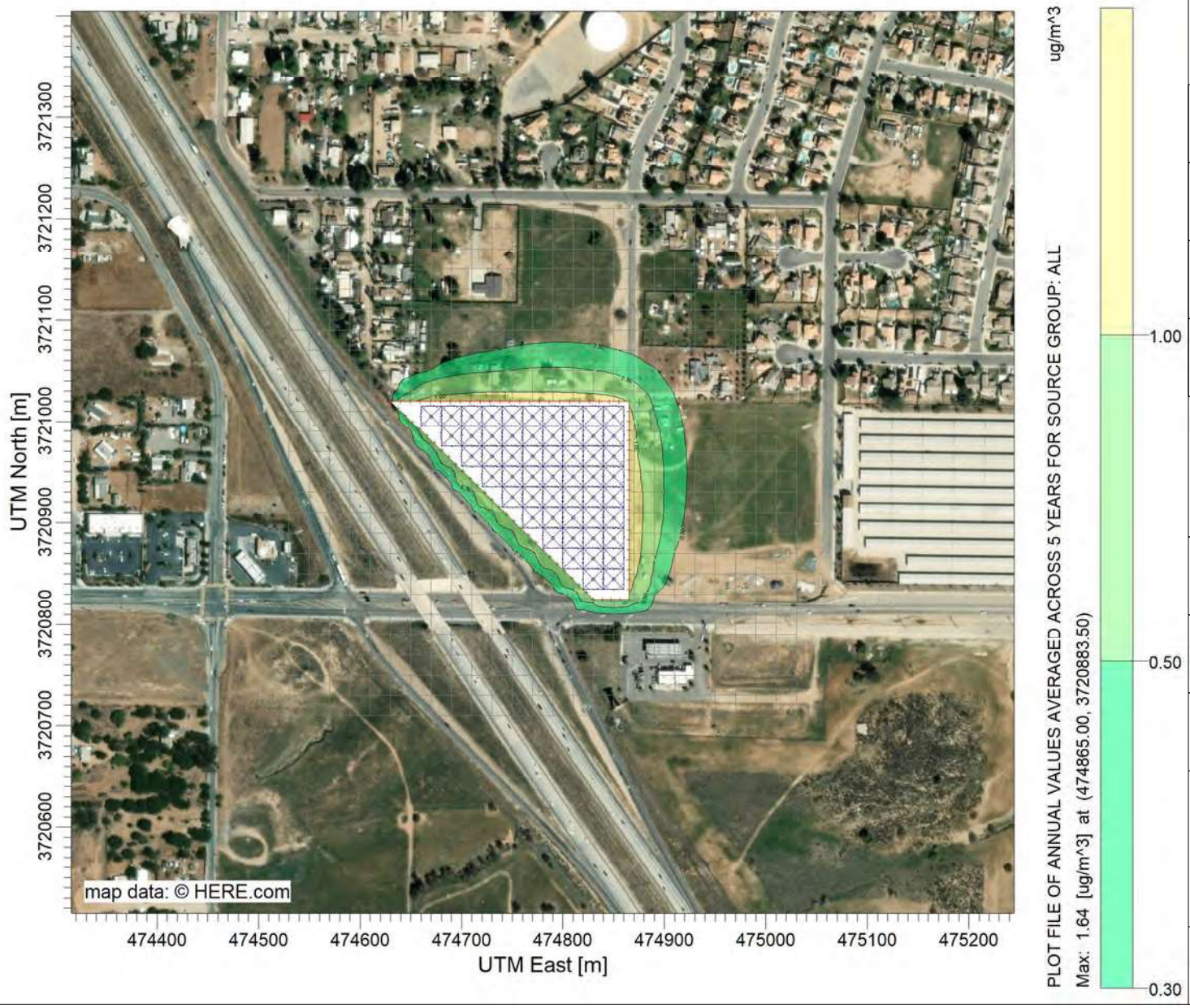
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\MartinR\Desktop\Cherry Outpost Dispersion\Cherry Outpost Dispersion.isc

PROJECT TITLE:

Cherry Outpost Average Annual PM10, Unmitigated



COMMENTS:

SOURCES:

55

RECEPTORS:

758

OUTPUT TYPE:

Concentration

MAX:

1.64 ug/m^3

COMPANY NAME:

MODELER:

DATE:

8/5/2024

SCALE: 1:6,058

0 0.1 km

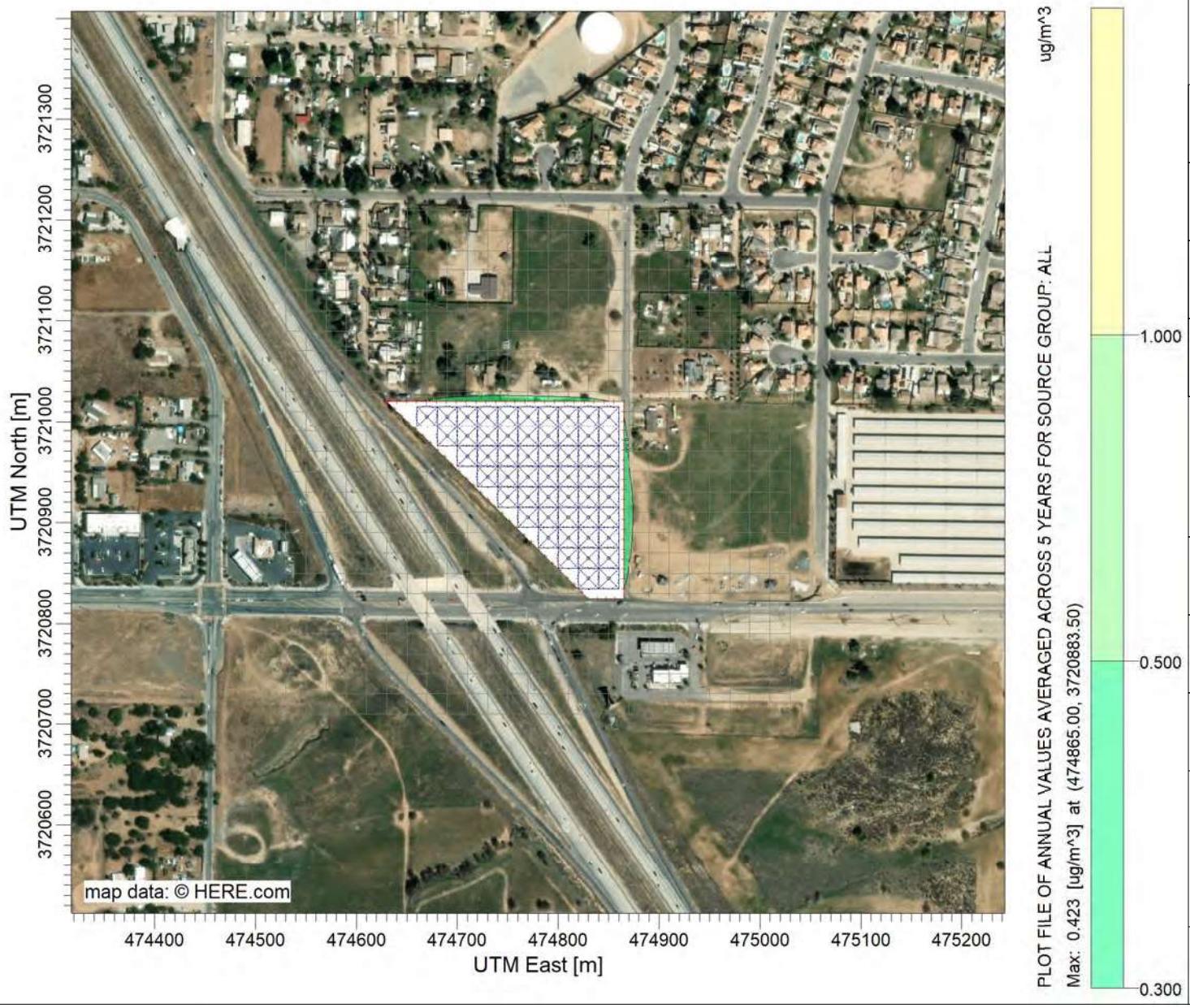
PROJECT NO.:

AERMOD View - Lakes Environmental Software

C:\Users\MartinR\Desktop\Cherry Outpost Dispersion\Cherry Outpost Dispersion.isc

PROJECT TITLE:

Cherry Outpost Average Annual PM10, Mitigated



COMMENTS:

Mitigation to require watering exposed areas 3 times daily and Tier 4 Final engines for construction equipment.

SOURCES:

55

RECEPTORS:

758

OUTPUT TYPE:

Concentration

MAX:

0.423 ug/m^3

COMPANY NAME:

MODELER:

DATE:

8/5/2024

SCALE: 1:6,092

0 0.1 km

PROJECT NO.:

Cherry Outpost Dispersion Model Results: 24-Hour PM10, Unmitigated

AERMOD plot file for receptors near three closest residences
AEEMOD (23132)
AERMET (16216)
MODELING OPTIONS USED: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL FOR A TOTAL OF 693 RECEPTORS.
FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	RANK	DATE(CONC)
33890 Cherry Street									
474874.06	3720972.29	27.463	432.66	742.00	2.00	24-HR	ALL	1ST	16122224
474874.36	3720996.91	22.471	433.65	742.00	2.00	24-HR	ALL	1ST	16122224
474874.96	3721018.67	19.490	434.78	742.00	2.00	24-HR	ALL	1ST	16120924
33805 Cherry Street									
474709.06	3721025.79	35.057	429.64	742.00	2.00	24-HR	ALL	1ST	14120324
474724.08	3721025.98	34.208	430.15	742.00	2.00	24-HR	ALL	1ST	14120324
474742.81	3721025.59	33.533	430.75	742.00	2.00	24-HR	ALL	1ST	14120324
33850 Paradise Lane									
474659.38	3721020.00	38.645	428.31	742.00	2.00	24-HR	ALL	1ST	14120324
474649.58	3721020.00	35.309	428.15	742.00	2.00	24-HR	ALL	1ST	14120324
474639.79	3721020.00	29.123	428.00	742.00	2.00	24-HR	ALL	1ST	14120324

Cherry Outpost Dispersion Model Results: 24-Hour PM10, Mitigated

AERMOD plot file for receptors near three closest residences
AEEMOD (23132)
AERMET (16216)
MODELING OPTIONS USED: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL FOR A TOTAL OF 693 RECEPTORS.
FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	RANK	DATE(CONC)
33890 Cherry Street									
474874.06	3720972.29	6.990	432.66	742.00	2.00	24-HR	ALL	1ST	16122224
474874.36	3720996.91	5.724	433.65	742.00	2.00	24-HR	ALL	1ST	16122224
474874.96	3721018.67	4.983	434.78	742.00	2.00	24-HR	ALL	1ST	16120924
33805 Cherry Street									
474709.06	3721025.79	9.120	429.64	742.00	2.00	24-HR	ALL	1ST	14120324
474724.08	3721025.98	9.203	430.15	742.00	2.00	24-HR	ALL	1ST	14120324
474742.81	3721025.59	9.359	430.75	742.00	2.00	24-HR	ALL	1ST	14120324
33850 Paradise Lane									
474659.38	3721020.00	9.891	428.31	742.00	2.00	24-HR	ALL	1ST	14120324
474649.58	3721020.00	9.066	428.15	742.00	2.00	24-HR	ALL	1ST	14120324
474639.79	3721020.00	7.490	428.00	742.00	2.00	24-HR	ALL	1ST	14120324

Cherry Outpost Dispersion Model Results: 24-Hour PM2.5, Unmitigated

AERMOD plot file for receptors near three closest residences
AEEMOD (23132)
AERMET (16216)
MODELING OPTIONS USED: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL FOR A TOTAL OF 693 RECEPTORS.
FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	RANK	DATE(CONC)
33890 Cherry Street									
474874.06	3720972.29	14.228	432.66	742.00	2.00	24-HR	ALL	1ST	16122224
474874.36	3720996.91	11.627	433.65	742.00	2.00	24-HR	ALL	1ST	16122224
474874.96	3721018.67	10.037	434.78	742.00	2.00	24-HR	ALL	1ST	16120924
33805 Cherry Street									
474709.06	3721025.79	18.586	429.64	742.00	2.00	24-HR	ALL	1ST	14120324
474724.08	3721025.98	18.809	430.15	742.00	2.00	24-HR	ALL	1ST	14120324
474742.81	3721025.59	19.174	430.75	742.00	2.00	24-HR	ALL	1ST	14120324
33850 Paradise Lane									
474659.38	3721020.00	19.871	428.31	742.00	2.00	24-HR	ALL	1ST	14120324
474649.58	3721020.00	18.080	428.15	742.00	2.00	24-HR	ALL	1ST	14120324
474639.79	3721020.00	14.879	428.00	742.00	2.00	24-HR	ALL	1ST	14120324

Cherry Outpost Dispersion Model Results: 24-Hour PM2.5, Mitigated

AERMOD plot file for receptors near three closest residences
AEEMOD (23132)
AERMET (16216)
MODELING OPTIONS USED: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL FOR A TOTAL OF 693 RECEPTORS.
FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	RANK	DATE(CONC)
33890 Cherry Street									
474874.06	3720972.29	3.566	432.66	742.00	2.00	24-HR	ALL	1ST	16122224
474874.36	3720996.91	2.919	433.65	742.00	2.00	24-HR	ALL	1ST	16122224
474874.96	3721018.67	2.535	434.78	742.00	2.00	24-HR	ALL	1ST	16120924
33805 Cherry Street									
474709.06	3721025.79	4.655	429.64	742.00	2.00	24-HR	ALL	1ST	14120324
474724.08	3721025.98	4.701	430.15	742.00	2.00	24-HR	ALL	1ST	14120324
474742.81	3721025.59	4.784	430.75	742.00	2.00	24-HR	ALL	1ST	14120324
33850 Paradise Lane									
474659.38	3721020.00	5.029	428.31	742.00	2.00	24-HR	ALL	1ST	14120324
474649.58	3721020.00	4.600	428.15	742.00	2.00	24-HR	ALL	1ST	14120324
474639.79	3721020.00	3.796	428.00	742.00	2.00	24-HR	ALL	1ST	14120324

Cherry Outpost Dispersion Model Results: Annual PM10, Unmitigated

AERMOD plot file for receptors near three closest residences
AEEMOD (23132)
AERMET (16216)
MODELING OPTIONS USED: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL FOR A TOTAL OF 693 RECEPTORS.
FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS
33890 Cherry Street								
474874.06	3720972.29	0.961	432.66	742.00	2.00	ANNUAL	ALL	5
474874.36	3720996.91	0.857	433.65	742.00	2.00	ANNUAL	ALL	5
474874.96	3721018.67	0.677	434.78	742.00	2.00	ANNUAL	ALL	5
33805 Cherry Street								
474709.06	3721025.79	1.108	429.64	742.00	2.00	ANNUAL	ALL	5
474724.08	3721025.98	1.136	430.15	742.00	2.00	ANNUAL	ALL	5
474742.81	3721025.59	1.187	430.75	742.00	2.00	ANNUAL	ALL	5
33850 Paradise Lane								
474659.38	3721020.00	1.069	428.31	742.00	2.00	ANNUAL	ALL	5
474649.58	3721020.00	0.878	428.15	742.00	2.00	ANNUAL	ALL	5
474639.79	3721020.00	0.599	428.00	742.00	2.00	ANNUAL	ALL	5

Cherry Outpost Dispersion Model Results: Annual PM10, Mitigated

AERMOD plot file for receptors near three closest residences
AEEMOD (23132)
AERMET (16216)
MODELING OPTIONS USED: RegDFAULT CONC ELEV FLGPOL URBAN ADJ_U*
PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL FOR A TOTAL OF 693 RECEPTORS.
FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS
33890 Cherry Street								
474874.06	3720972.29	0.248	432.66	742.00	2.00	ANNUAL	ALL	5
474874.36	3720996.91	0.221	433.65	742.00	2.00	ANNUAL	ALL	5
474874.96	3721018.67	0.175	434.78	742.00	2.00	ANNUAL	ALL	5
33805 Cherry Street								
474709.06	3721025.79	0.286	429.64	742.00	2.00	ANNUAL	ALL	5
474724.08	3721025.98	0.293	430.15	742.00	2.00	ANNUAL	ALL	5
474742.81	3721025.59	0.306	430.75	742.00	2.00	ANNUAL	ALL	5
33850 Paradise Lane								
474659.38	3721020.00	0.277	428.31	742.00	2.00	ANNUAL	ALL	5
474649.58	3721020.00	0.228	428.15	742.00	2.00	ANNUAL	ALL	5
474639.79	3721020.00	0.155	428.00	742.00	2.00	ANNUAL	ALL	5

Source Pathway - Source Inputs

AERMOD

Source Pathway - Source Inputs

AERMOD

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	474850.00	3721005.00	433.94	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL2	474830.00	3721005.00	433.28	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL3	474810.00	3721005.00	432.61	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL4	474790.00	3721005.00	431.95	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL5	474770.00	3721005.00	430.64	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL6	474750.00	3721005.00	429.64	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL7	474730.00	3721005.00	428.98	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL8	474710.00	3721005.00	428.31	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL9	474690.00	3721005.00	427.97	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL10	474670.00	3721005.00	427.97	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL11	474850.00	3720985.00	432.61	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL12	474830.00	3720985.00	431.95	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL13	474810.00	3720985.00	431.28	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL14	474790.00	3720985.00	430.61	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL15	474770.00	3720985.00	429.75	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL16	474750.00	3720985.00	428.98	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL17	474730.00	3720985.00	428.31	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL18	474710.00	3720985.00	427.64	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL19	474690.00	3720985.00	427.30	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL20	474850.00	3720965.00	431.28	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL21	474830.00	3720965.00	430.85	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL22	474810.00	3720965.00	430.31	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL23	474790.00	3720965.00	429.64	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL24	474770.00	3720965.00	428.98	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL25	474750.00	3720965.00	428.43	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL26	474730.00	3720965.00	428.00	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL27	474710.00	3720965.00	427.10	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL28	474850.00	3720945.00	429.98	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL29	474830.00	3720945.00	429.95	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL30	474810.00	3720945.00	429.62	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL31	474790.00	3720945.00	428.98	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL32	474770.00	3720945.00	428.31	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL33	474750.00	3720945.00	427.96	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL34	474730.00	3720945.00	427.94	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL35	474850.00	3720925.00	429.31	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL36	474830.00	3720925.00	428.84	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL37	474810.00	3720925.00	428.51	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL38	474790.00	3720925.00	428.31	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL39	474770.00	3720925.00	427.64	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL40	474750.00	3720925.00	427.08	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL41	474850.00	3720905.00	428.64	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL42	474830.00	3720905.00	427.74	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL43	474810.00	3720905.00	427.40	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL44	474790.00	3720905.00	427.64	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL45	474770.00	3720905.00	426.98	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL46	474850.00	3720885.00	427.98	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL47	474830.00	3720885.00	426.67	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL48	474810.00	3720885.00	426.32	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL49	474790.00	3720885.00	426.97	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL50	474850.00	3720865.00	427.31	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL51	474830.00	3720865.00	426.44	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL52	474810.00	3720865.00	426.10	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								

Source Pathway - Source Inputs

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL53	474850.00	3720845.00	427.00	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								
VOLUME	VOL54	474830.00	3720845.00	426.34	5.00	0.00049	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Unmitigated								

Polygon Area Sources

Source Type: AREA POLY

Source: AREA1 (24 Hour PM10, Unmitigated)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
427.83	0.00	0.00001	1.00	4	474630.02	3721019.99
		0.00001			474830.00	3720825.00
		0.00001			474865.00	3720825.00
		0.00001			474865.00	3721020.00

Source Pathway - Source Inputs

AERMOD

Source Pathway - Source Inputs

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	474850.00	3721005.00	433.94	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL2	474830.00	3721005.00	433.28	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL3	474810.00	3721005.00	432.61	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL4	474790.00	3721005.00	431.95	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL5	474770.00	3721005.00	430.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL6	474750.00	3721005.00	429.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL7	474730.00	3721005.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL8	474710.00	3721005.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL9	474690.00	3721005.00	427.97	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL10	474670.00	3721005.00	427.97	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL11	474850.00	3720985.00	432.61	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL12	474830.00	3720985.00	431.95	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL13	474810.00	3720985.00	431.28	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL14	474790.00	3720985.00	430.61	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL15	474770.00	3720985.00	429.75	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL16	474750.00	3720985.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL17	474730.00	3720985.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL18	474710.00	3720985.00	427.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL19	474690.00	3720985.00	427.30	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL20	474850.00	3720965.00	431.28	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL21	474830.00	3720965.00	430.85	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL22	474810.00	3720965.00	430.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL23	474790.00	3720965.00	429.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL24	474770.00	3720965.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL25	474750.00	3720965.00	428.43	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL26	474730.00	3720965.00	428.00	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL27	474710.00	3720965.00	427.10	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL28	474850.00	3720945.00	429.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL29	474830.00	3720945.00	429.95	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL30	474810.00	3720945.00	429.62	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL31	474790.00	3720945.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL32	474770.00	3720945.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL33	474750.00	3720945.00	427.96	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL34	474730.00	3720945.00	427.94	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL35	474850.00	3720925.00	429.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL36	474830.00	3720925.00	428.84	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL37	474810.00	3720925.00	428.51	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL38	474790.00	3720925.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL39	474770.00	3720925.00	427.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL40	474750.00	3720925.00	427.08	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL41	474850.00	3720905.00	428.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL42	474830.00	3720905.00	427.74	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL43	474810.00	3720905.00	427.40	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL44	474790.00	3720905.00	427.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL45	474770.00	3720905.00	426.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL46	474850.00	3720885.00	427.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL47	474830.00	3720885.00	426.67	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL48	474810.00	3720885.00	426.32	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL49	474790.00	3720885.00	426.97	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL50	474850.00	3720865.00	427.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL51	474830.00	3720865.00	426.44	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL52	474810.00	3720865.00	426.10	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL53	474850.00	3720845.00	427.00	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								
VOLUME	VOL54	474830.00	3720845.00	426.34	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM10, Mitigated								

Polygon Area Sources

Source Type: AREA POLY

Source: AREA1 (24 Hour PM10, Mitigated)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
427.83	0.00	3.14E-6	1.00	4	474630.02	3721019.99
		3.14E-6			474830.00	3720825.00
		3.14E-6			474865.00	3720825.00
		3.14E-6			474865.00	3721020.00

Source Pathway - Source Inputs

Source Pathway - Source Inputs

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	474850.00	3721005.00	433.94	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL2	474830.00	3721005.00	433.28	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL3	474810.00	3721005.00	432.61	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL4	474790.00	3721005.00	431.95	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL5	474770.00	3721005.00	430.64	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL6	474750.00	3721005.00	429.64	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL7	474730.00	3721005.00	428.98	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL8	474710.00	3721005.00	428.31	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL9	474690.00	3721005.00	427.97	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL10	474670.00	3721005.00	427.97	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL11	474850.00	3720985.00	432.61	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL12	474830.00	3720985.00	431.95	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL13	474810.00	3720985.00	431.28	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL14	474790.00	3720985.00	430.61	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL15	474770.00	3720985.00	429.75	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL16	474750.00	3720985.00	428.98	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL17	474730.00	3720985.00	428.31	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL18	474710.00	3720985.00	427.64	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL19	474690.00	3720985.00	427.30	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL20	474850.00	3720965.00	431.28	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL21	474830.00	3720965.00	430.85	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL22	474810.00	3720965.00	430.31	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL23	474790.00	3720965.00	429.64	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL24	474770.00	3720965.00	428.98	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL25	474750.00	3720965.00	428.43	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL26	474730.00	3720965.00	428.00	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL27	474710.00	3720965.00	427.10	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL28	474850.00	3720945.00	429.98	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL29	474830.00	3720945.00	429.95	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL30	474810.00	3720945.00	429.62	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL31	474790.00	3720945.00	428.98	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL32	474770.00	3720945.00	428.31	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL33	474750.00	3720945.00	427.96	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL34	474730.00	3720945.00	427.94	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL35	474850.00	3720925.00	429.31	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL36	474830.00	3720925.00	428.84	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL37	474810.00	3720925.00	428.51	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL38	474790.00	3720925.00	428.31	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL39	474770.00	3720925.00	427.64	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL40	474750.00	3720925.00	427.08	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL41	474850.00	3720905.00	428.64	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL42	474830.00	3720905.00	427.74	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL43	474810.00	3720905.00	427.40	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL44	474790.00	3720905.00	427.64	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL45	474770.00	3720905.00	426.98	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL46	474850.00	3720885.00	427.98	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL47	474830.00	3720885.00	426.67	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL48	474810.00	3720885.00	426.32	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL49	474790.00	3720885.00	426.97	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL50	474850.00	3720865.00	427.31	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL51	474830.00	3720865.00	426.44	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL52	474810.00	3720865.00	426.10	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL53	474850.00	3720845.00	427.00	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								
VOLUME	VOL54	474830.00	3720845.00	426.34	5.00	0.00045	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Unmitigated								

Polygon Area Sources

Source Type: AREA POLY

Source: AREA1 (24 Hour PM2.5, Unmitigated)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
427.83	0.00	6.08E-6	1.00	4	474630.02	3721019.99
		6.08E-6			474830.00	3720825.00
		6.08E-6			474865.00	3720825.00
		6.08E-6			474865.00	3721020.00

Source Pathway - Source Inputs

AERMOD

Source Pathway - Source Inputs

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	474850.00	3721005.00	433.94	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL2	474830.00	3721005.00	433.28	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL3	474810.00	3721005.00	432.61	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL4	474790.00	3721005.00	431.95	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL5	474770.00	3721005.00	430.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL6	474750.00	3721005.00	429.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL7	474730.00	3721005.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL8	474710.00	3721005.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL9	474690.00	3721005.00	427.97	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL10	474670.00	3721005.00	427.97	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL11	474850.00	3720985.00	432.61	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL12	474830.00	3720985.00	431.95	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL13	474810.00	3720985.00	431.28	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL14	474790.00	3720985.00	430.61	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL15	474770.00	3720985.00	429.75	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL16	474750.00	3720985.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL17	474730.00	3720985.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL18	474710.00	3720985.00	427.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL19	474690.00	3720985.00	427.30	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL20	474850.00	3720965.00	431.28	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL21	474830.00	3720965.00	430.85	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL22	474810.00	3720965.00	430.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL23	474790.00	3720965.00	429.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL24	474770.00	3720965.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL25	474750.00	3720965.00	428.43	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL26	474730.00	3720965.00	428.00	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL27	474710.00	3720965.00	427.10	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL28	474850.00	3720945.00	429.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL29	474830.00	3720945.00	429.95	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL30	474810.00	3720945.00	429.62	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL31	474790.00	3720945.00	428.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL32	474770.00	3720945.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL33	474750.00	3720945.00	427.96	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL34	474730.00	3720945.00	427.94	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL35	474850.00	3720925.00	429.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL36	474830.00	3720925.00	428.84	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL37	474810.00	3720925.00	428.51	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL38	474790.00	3720925.00	428.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL39	474770.00	3720925.00	427.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL40	474750.00	3720925.00	427.08	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL41	474850.00	3720905.00	428.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL42	474830.00	3720905.00	427.74	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL43	474810.00	3720905.00	427.40	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL44	474790.00	3720905.00	427.64	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL45	474770.00	3720905.00	426.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL46	474850.00	3720885.00	427.98	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL47	474830.00	3720885.00	426.67	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL48	474810.00	3720885.00	426.32	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL49	474790.00	3720885.00	426.97	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL50	474850.00	3720865.00	427.31	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL51	474830.00	3720865.00	426.44	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL52	474810.00	3720865.00	426.10	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL53	474850.00	3720845.00	427.00	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								
VOLUME	VOL54	474830.00	3720845.00	426.34	5.00	0.00005	20.00	Surface-Based	4.65	1.40
		24 Hour PM2.5, Miitigated								

Polygon Area Sources

Source Type: AREA POLY

Source: AREA1 (24 Hour PM2.5, Mitigated)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
427.83	0.00	1.58E-6	1.00	4	474630.02	3721019.99
		1.58E-6			474830.00	3720825.00
		1.58E-6			474865.00	3720825.00
		1.58E-6			474865.00	3721020.00

Source Pathway - Source Inputs

Source Pathway - Source Inputs

AERMOD

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	474850.00	3721005.00	433.94	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL2	474830.00	3721005.00	433.28	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL3	474810.00	3721005.00	432.61	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL4	474790.00	3721005.00	431.95	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL5	474770.00	3721005.00	430.64	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL6	474750.00	3721005.00	429.64	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL7	474730.00	3721005.00	428.98	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL8	474710.00	3721005.00	428.31	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL9	474690.00	3721005.00	427.97	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL10	474670.00	3721005.00	427.97	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL11	474850.00	3720985.00	432.61	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL12	474830.00	3720985.00	431.95	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL13	474810.00	3720985.00	431.28	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL14	474790.00	3720985.00	430.61	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL15	474770.00	3720985.00	429.75	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL16	474750.00	3720985.00	428.98	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL17	474730.00	3720985.00	428.31	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL18	474710.00	3720985.00	427.64	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL19	474690.00	3720985.00	427.30	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL20	474850.00	3720965.00	431.28	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL21	474830.00	3720965.00	430.85	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL22	474810.00	3720965.00	430.31	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL23	474790.00	3720965.00	429.64	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL24	474770.00	3720965.00	428.98	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL25	474750.00	3720965.00	428.43	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL26	474730.00	3720965.00	428.00	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL27	474710.00	3720965.00	427.10	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL28	474850.00	3720945.00	429.98	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL29	474830.00	3720945.00	429.95	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL30	474810.00	3720945.00	429.62	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL31	474790.00	3720945.00	428.98	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL32	474770.00	3720945.00	428.31	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL33	474750.00	3720945.00	427.96	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL34	474730.00	3720945.00	427.94	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL35	474850.00	3720925.00	429.31	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL36	474830.00	3720925.00	428.84	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL37	474810.00	3720925.00	428.51	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL38	474790.00	3720925.00	428.31	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL39	474770.00	3720925.00	427.64	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL40	474750.00	3720925.00	427.08	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL41	474850.00	3720905.00	428.64	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL42	474830.00	3720905.00	427.74	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL43	474810.00	3720905.00	427.40	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL44	474790.00	3720905.00	427.64	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL45	474770.00	3720905.00	426.98	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL46	474850.00	3720885.00	427.98	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL47	474830.00	3720885.00	426.67	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL48	474810.00	3720885.00	426.32	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL49	474790.00	3720885.00	426.97	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL50	474850.00	3720865.00	427.31	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL51	474830.00	3720865.00	426.44	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL52	474810.00	3720865.00	426.10	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL53	474850.00	3720845.00	427.00	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								
VOLUME	VOL54	474830.00	3720845.00	426.34	5.00	0.00038	20.00	Surface-Based	4.65	1.40
		Annual PM10, Unmitigated								

Polygon Area Sources

Source Type: AREA POLY

Source: AREA1 (Annual PM10, Unmitigated)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
427.83	0.00	2.93E-6	1.00	4	474630.02	3721019.99
		2.93E-6			474830.00	3720825.00
		2.93E-6			474865.00	3720825.00
		2.93E-6			474865.00	3721020.00

Source Pathway - Source Inputs

AERMOD

Source Pathway - Source Inputs

AERMOD

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL1	474850.00	3721005.00	433.94	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL2	474830.00	3721005.00	433.28	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL3	474810.00	3721005.00	432.61	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL4	474790.00	3721005.00	431.95	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL5	474770.00	3721005.00	430.64	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL6	474750.00	3721005.00	429.64	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL7	474730.00	3721005.00	428.98	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL8	474710.00	3721005.00	428.31	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL9	474690.00	3721005.00	427.97	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL10	474670.00	3721005.00	427.97	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL11	474850.00	3720985.00	432.61	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL12	474830.00	3720985.00	431.95	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL13	474810.00	3720985.00	431.28	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL14	474790.00	3720985.00	430.61	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL15	474770.00	3720985.00	429.75	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL16	474750.00	3720985.00	428.98	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL17	474730.00	3720985.00	428.31	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL18	474710.00	3720985.00	427.64	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL19	474690.00	3720985.00	427.30	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL20	474850.00	3720965.00	431.28	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL21	474830.00	3720965.00	430.85	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL22	474810.00	3720965.00	430.31	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL23	474790.00	3720965.00	429.64	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL24	474770.00	3720965.00	428.98	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL25	474750.00	3720965.00	428.43	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL26	474730.00	3720965.00	428.00	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL27	474710.00	3720965.00	427.10	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL28	474850.00	3720945.00	429.98	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL29	474830.00	3720945.00	429.95	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL30	474810.00	3720945.00	429.62	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL31	474790.00	3720945.00	428.98	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL32	474770.00	3720945.00	428.31	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL33	474750.00	3720945.00	427.96	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL34	474730.00	3720945.00	427.94	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL35	474850.00	3720925.00	429.31	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL36	474830.00	3720925.00	428.84	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL37	474810.00	3720925.00	428.51	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL38	474790.00	3720925.00	428.31	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL39	474770.00	3720925.00	427.64	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL40	474750.00	3720925.00	427.08	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL41	474850.00	3720905.00	428.64	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL42	474830.00	3720905.00	427.74	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL43	474810.00	3720905.00	427.40	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL44	474790.00	3720905.00	427.64	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL45	474770.00	3720905.00	426.98	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL46	474850.00	3720885.00	427.98	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL47	474830.00	3720885.00	426.67	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL48	474810.00	3720885.00	426.32	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL49	474790.00	3720885.00	426.97	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL50	474850.00	3720865.00	427.31	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL51	474830.00	3720865.00	426.44	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL52	474810.00	3720865.00	426.10	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								

Source Pathway - Source Inputs

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	VOL53	474850.00	3720845.00	427.00	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								
VOLUME	VOL54	474830.00	3720845.00	426.34	5.00	0.00009	20.00	Surface-Based	4.65	1.40
		Annual PM10, Mitigated								

Polygon Area Sources

Source Type: AREA POLY

Source: AREA1 (Annual PM10, Mitigated)

Base Elevation (Optional)	Release Height [m]	Emission Rate [g/ (s-m^2)]	Initial Vertical Dim. [m]	Number of Vertices (or sides)	X Coordinate for Vertices [m]	Y Coordinate for Vertices [m]
427.83	0.00	7.62E-7	1.00	4	474630.02	3721019.99
		7.62E-7			474830.00	3720825.00
		7.62E-7			474865.00	3720825.00
		7.62E-7			474865.00	3721020.00

Control Pathway

Dispersion Options

Titles

C:\Users\martinr\Desktop\Cherry Outpost Dispersion\Cherry Outpost Di

Dispersion Options

☑ Regulatory Default ☐ Non-Default Options

Dispersion Coefficient

Urban — Population: / Name (Optional): / Roughness Length:

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM2.5

Averaging Time Options

Hours: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☑ 24

☐ Month ☐ Period ☐ Annual

Exponential Decay

Half-life of 4 hrs will be used

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☑ Yes ☐ No

Default Height = 2.00 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: Cherry Outpost Dispersion.err

Receptor Pathway

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Uniform Cartesian Grid

Receptor Network ID	Grid Origin X Coordinate [m]	Grid Origin Y Coordinate [m]	No. of X-Axis Receptors	No. of Y-Axis Receptors	Spacing for X-Axis [m]	Spacing for Y-Axis [m]
UCART1	474530.00	3720710.00	26	26	20.00	20.00

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	474874.06	3720972.29		432.66	
2	474874.36	3720996.91		433.65	
3	474874.96	3721018.67		434.78	
4	474709.06	3721025.79		429.64	
5	474724.08	3721025.98		430.15	
6	474742.81	3721025.59		430.75	

Plant Boundary Receptors

Cartesian Plant Boundary

Primary

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	474630.00	3721020.00	FENCEPRI	427.83	
2	474830.00	3720825.00	FENCEPRI	426.34	
3	474865.00	3720825.00	FENCEPRI	427.50	
4	474865.00	3721020.00	FENCEPRI	434.71	

Intermediate

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	474637.14	3721013.04	FENCEINT	427.93	
2	474644.29	3721006.07	FENCEINT	428.00	
3	474651.43	3720999.11	FENCEINT	427.78	
4	474658.57	3720992.14	FENCEINT	427.54	
5	474665.71	3720985.18	FENCEINT	427.31	
6	474672.86	3720978.21	FENCEINT	427.08	
7	474680.00	3720971.25	FENCEINT	426.85	
8	474687.14	3720964.29	FENCEINT	426.61	

9	474694.29	3720957.32	FENCEINT	426.38	
10	474701.43	3720950.36	FENCEINT	426.25	
11	474708.57	3720943.39	FENCEINT	426.53	
12	474715.71	3720936.43	FENCEINT	426.72	
13	474722.86	3720929.46	FENCEINT	426.70	
14	474730.00	3720922.50	FENCEINT	426.45	
15	474737.14	3720915.54	FENCEINT	426.24	
16	474744.29	3720908.57	FENCEINT	426.36	
17	474751.43	3720901.61	FENCEINT	426.38	
18	474758.57	3720894.64	FENCEINT	426.28	
19	474765.71	3720887.68	FENCEINT	426.26	
20	474772.86	3720880.71	FENCEINT	426.26	
21	474780.00	3720873.75	FENCEINT	426.27	
22	474787.14	3720866.79	FENCEINT	426.27	
23	474794.29	3720859.82	FENCEINT	426.11	
24	474801.43	3720852.86	FENCEINT	425.94	
25	474808.57	3720845.89	FENCEINT	425.87	
26	474815.71	3720838.93	FENCEINT	425.92	
27	474822.86	3720831.96	FENCEINT	426.10	
28	474838.75	3720825.00	FENCEINT	426.63	
29	474847.50	3720825.00	FENCEINT	426.92	
30	474856.25	3720825.00	FENCEINT	427.21	
31	474865.00	3720834.75	FENCEINT	427.50	
32	474865.00	3720844.50	FENCEINT	427.50	
33	474865.00	3720854.25	FENCEINT	427.50	
34	474865.00	3720864.00	FENCEINT	427.78	
35	474865.00	3720873.75	FENCEINT	428.10	
36	474865.00	3720883.50	FENCEINT	428.43	
37	474865.00	3720893.25	FENCEINT	428.75	
38	474865.00	3720903.00	FENCEINT	429.08	
39	474865.00	3720912.75	FENCEINT	429.40	
40	474865.00	3720922.50	FENCEINT	429.84	
41	474865.00	3720932.25	FENCEINT	430.33	
42	474865.00	3720942.00	FENCEINT	430.82	
43	474865.00	3720951.75	FENCEINT	431.30	
44	474865.00	3720961.50	FENCEINT	431.79	
45	474865.00	3720971.25	FENCEINT	432.27	
46	474865.00	3720981.00	FENCEINT	432.76	
47	474865.00	3720990.75	FENCEINT	433.25	
48	474865.00	3721000.50	FENCEINT	433.73	
49	474865.00	3721010.25	FENCEINT	434.22	

50	474855.21	3721020.00	FENCEINT	434.56	
51	474845.42	3721020.00	FENCEINT	434.32	
52	474835.63	3721020.00	FENCEINT	434.00	
53	474825.83	3721020.00	FENCEINT	433.67	
54	474816.04	3721020.00	FENCEINT	433.34	
55	474806.25	3721020.00	FENCEINT	433.02	
56	474796.46	3721020.00	FENCEINT	432.69	
57	474786.67	3721020.00	FENCEINT	432.31	
58	474776.88	3721020.00	FENCEINT	431.81	
59	474767.08	3721020.00	FENCEINT	431.31	
60	474757.29	3721020.00	FENCEINT	430.86	
61	474747.50	3721020.00	FENCEINT	430.53	
62	474737.71	3721020.00	FENCEINT	430.20	
63	474727.92	3721020.00	FENCEINT	429.88	
64	474718.13	3721020.00	FENCEINT	429.55	
65	474708.33	3721020.00	FENCEINT	429.22	
66	474698.54	3721020.00	FENCEINT	428.92	
67	474688.75	3721020.00	FENCEINT	428.77	
68	474678.96	3721020.00	FENCEINT	428.61	
69	474669.17	3721020.00	FENCEINT	428.46	
70	474659.38	3721020.00	FENCEINT	428.31	
71	474649.58	3721020.00	FENCEINT	428.15	
72	474639.79	3721020.00	FENCEINT	428.00	

Receptor Groups

Record Number	Group ID	Group Description
1	FENCEPRI	Cartesian plant boundary Primary Receptors
2	FENCEGRD	Receptors generated from Fenceline Grid
3	FENCEINT	Cartesian plant boundary Intermediate Receptors
4	UCART1	Receptors generated from Uniform Cartesian Grid

Meteorology Pathway

AERMOD

Met Input Data

Surface Met Data

Filename: ELSI_v9.SFC
Format Type: Default AERMET format

Profile Met Data

Filename: ELSI_v9.PFL
Format Type: Default AERMET format

Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

Wind Direction

Rotation Adjustment [deg]:

Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 406.00 [m]

Meteorological Station Data

Stations	Station No.	Year	X Coordinate [m]	Y Coordinate [m]	Station Name
Surface		2012			
Upper Air		2012			
On-Site		2012			

Data Period

Data Period to Process

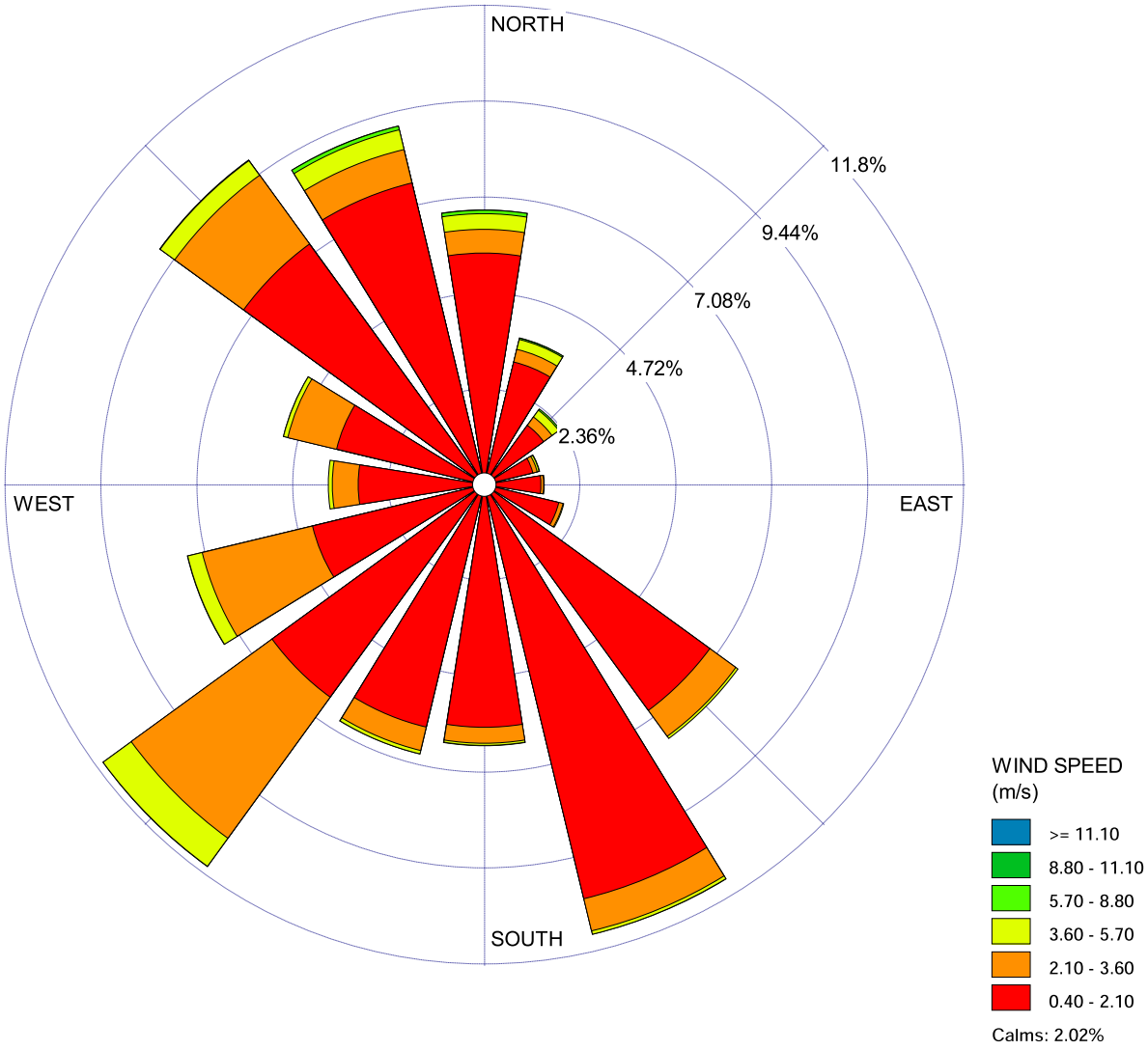
Start Date: 1/1/2012 Start Hour: 1 End Date: 12/31/2016 End Hour: 24

Wind Speed Categories

Stability Category	Wind Speed [m/s]	Stability Category	Wind Speed [m/s]
A	1.54	D	8.23
B	3.09	E	10.8
C	5.14	F	No Upper Bound

WIND ROSE PLOT:
Station #3171

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2012 - 00:00** **End Date: 12/31/2016 - 23:59**	COMPANY NAME: **South Coast Air Quality Management District**	
		MODELER: **Melissa Sheffer**	
	CALM WINDS: **2.02%**	TOTAL COUNT: **43346 hrs.**	
	AVG. WIND SPEED: **1.36 m/s**	DATE: **5/25/2017**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Appendix 3

General Biological Resources Assessment

Cherry Outpost Project

General Biological Resources Assessment

August 2024 | 03491.00013.001

Prepared for:

Cherry Outpost, LP
P.O. Box 1958
Corona, CA 92878

Prepared by:

HELIX Environmental Planning, Inc.
16485 Laguna Canyon Road, Suite 150
Irvine, CA 92618

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ACRONYMS AND ABBREVIATIONS

AMSL	Above Mean Sea Level
BUOW	Burrowing owl
CASSA	Criteria Area Species Survey Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
City	City of Wildomar
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of Riverside
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DBESP	Determination of Biological Equivalent or Superior Preservation
FESA	Federal Endangered Species Act
HANS	Habitat Acquisition and Negotiation Strategy
HCP	Habitat Conservation Plan
HELIX	HELIX Environmental Planning, Inc.
I	Interstate
LDMF	Local Development Mitigation Fee
MBTA	Migratory Bird Treaty Act
MCV	Manual of California Vegetation
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
NEPSSA	Narrow Endemic Plant Species Survey Area
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High-Water Mark
Project	Cherry Outpost Project
RCHCA	Riverside County Habitat Conservation Authority
RWQCB	Regional Water Quality Control Board

ACRONYMS AND ABBREVIATIONS (cont.)

S	State
SKR	Stephens' kangaroo rat
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

SUMMARY

The Cherry Outpost Project (project) is in the City of Wildomar in western Riverside County, California. The proposed project consists of a hotel and on-site improvements with proposed retail, including restaurants, a convenience store, a gas and diesel station, and a car wash. Off-site improvements include road widening along Bundy Canyon Road and Cherry Street. The 7.6-acre study area consists of a 6.2-acre project site and a 1.4-acre off-site area and is located within the Elsinore Area Plan of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The study area is not located within or adjacent to an MSHCP Criteria Area or an MSHCP Conservation Area. HELIX Environmental Planning, Inc. conducted a general biological survey, including vegetation mapping and a general habitat assessment; a spring rare plant survey; burrowing owl (*Athene cunicularia*; BUOW) focused surveys; a jurisdictional assessment; and an MSHCP Riparian/Riverine Areas and Vernal Pool resource assessment.

The study area contains five vegetation communities and land uses, including wild oats and annual brome grasslands, developed areas, disturbed areas, eucalyptus groves, and agriculture. No rare plant species were detected during the spring rare plant survey. No BUOW or BUOW sign were observed during focused surveys completed between April and June 2023. The study area supports suitable habitat for nesting migratory bird species. The study area does not support sensitive plant communities, jurisdictional resources, or MSHCP Riparian/Riverine Areas and Vernal Pool habitat.

Approximately 6.8 acres of the study area will be permanently impacted (6.2 acres project site; 0.6 acre off-site). Permanent impacts on the project site (6.2 acres) include the proposed development, while off-site permanent impacts (0.6 acre) comprise road improvements along Bundy Canyon Road and Cherry Street. The remaining 0.8 acre of the off-site study area will be temporarily impacted to accommodate over-excavation during project construction and replacing existing asphalt with new asphalt. Potential significant impacts were identified for BUOW (if present during the 30-day pre-construction survey) and nesting bird species. The project is required to comply with regulations of the MSHCP and Habitat Conservation Plan for Stephens' kangaroo rat (*Dipodomys stephensi*; SKR).

Measures related to the following topics are proposed herein to fully mitigate potential impacts of the project pursuant to the California Environmental Quality Act (CEQA) and the MSHCP: BUOW, migratory nesting bird species, compliance with MSHCP landscaping restrictions, and payment of MSHCP and SKR mitigation fees. Successful implementation of these measures would mitigate potential impacts to MSHCP resources to below a level of significance as defined by CEQA.

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report provides the City of Wildomar (City; California Environmental Quality Act [CEQA] lead agency), resource agencies, and the public, with current biological data to satisfy review of the proposed Cherry Outpost Project (project) located in the City of Wildomar, Riverside County (County), California. The purpose of this report is to document the existing biological conditions on and near the project site and provide an analysis of potential impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for project review under CEQA by the City and demonstrates project consistency with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP; County 2003).

1.2 STUDY AREA LOCATION

The approximately 6.2-acre project site is located east of Interstate (I) 15 and west of I-215 in the northwestern portion of the City (Figure 1, *Regional Location*). The project site is located within Section 23 of Township 6 South, Range 4 West of the U.S. Geological Survey (USGS) 7.5-minute Lake Elsinore quadrangle map (Figure 2, *USGS Topography*). Specifically, the project site is located at the northwest intersection of Bundy Canyon Road and Cherry Street (Figure 3, *Aerial Photograph*). The project site comprises two parcels with Assessor's Parcel Numbers 366-290-007 and -008.

The project also comprises 1.4 acres of off-site area adjacent to the southwest corner of the project site and within the existing right-of-way (ROW) along Bundy Canyon Road and Cherry Street (Figure 3). The term "study area" is used throughout this report to collectively refer to the 6.2-acre project site and the 1.4-acre off-site area.

1.3 PROJECT DESCRIPTION

The proposed project consists of a commercial development with a hotel and on-site improvements (Figure 4, *Site Plan*). Proposed retail uses include restaurants, convenience stores, a gas and diesel station, and a car wash. Off-site improvements include road widening along Bundy Canyon Road and Cherry Street, and the placement of a 36-inch storm drainpipe outlet and associated riprap pad in the southwestern portion of the study area. The existing headwall on the northside of Bundy Canyon Road will be relocated to accommodate road widening.

2.0 METHODS

Project evaluation included a review of project plans; a literature review of biological resources occurring on the study area and surrounding vicinity; a general biological survey, including vegetation mapping and a general habitat assessment; a rare plant survey; burrowing owl (*Athene cunicularia*; BUOW) focused surveys; a jurisdictional assessment; and an MSHCP Riparian/Riverine and Vernal Pool Resources assessment. The methods used to evaluate the biological resources present on the study area are discussed in this section.

2.1 NOMENCLATURE

Nomenclature for this report follows Baldwin et al. (2012) for plants and the MSHCP (County 2003) for vegetation community classifications, with additional vegetation community information taken from Manual of California Vegetation, Second Edition (MCV; Sawyer et al. 2009), and Oberbauer (2008). Animal nomenclature follows Emmel and Emmel (1973) for butterflies, California Herps (2024) for reptiles and amphibians, American Ornithological Society (2023) for birds, and Baker et al. (2003) for mammals. Rare plant and sensitive animal statuses are from the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (2024) and the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; CDFW 2024). Rare plant species' habitats and flowering periods are from the Jepson Manual (Baldwin et al. 2012), MSHCP (County 2003), CNPS (2024a), and CNDDB (CDFW 2024). Soil classifications were obtained from the Natural Resources Conservation Service's (NRCS) Web Soil Survey (2024).

2.2 LITERATURE REVIEW

Prior to conducting the site visit, HELIX Environmental Planning, Inc. (HELIX) reviewed regional planning documents, Google Earth aerials (2024), Web Soil Survey (NRCS 2024), and sensitive species database records, including the Inventory of Rare and Endangered Plants of California (CNPS 2024a), CNDDB (CDFW 2024), and U.S. Fish and Wildlife Service's (USFWS) critical habitat maps (2024). A nine-quadrangle database search was conducted on CNDDB and CNPS, which included the Alberhill, Lake Elsinore, Lake Mathews, Romoland, Steele Peak, Sitton Peak, Wildomar, Murrieta, and Perris quadrangles. In addition, the MSHCP (County 2003) and the Regional Conservation Authority's MSHCP Information Tool (Western Riverside County Regional Conservation Authority 2024) were consulted to determine project compliance requirements under the MSHCP.

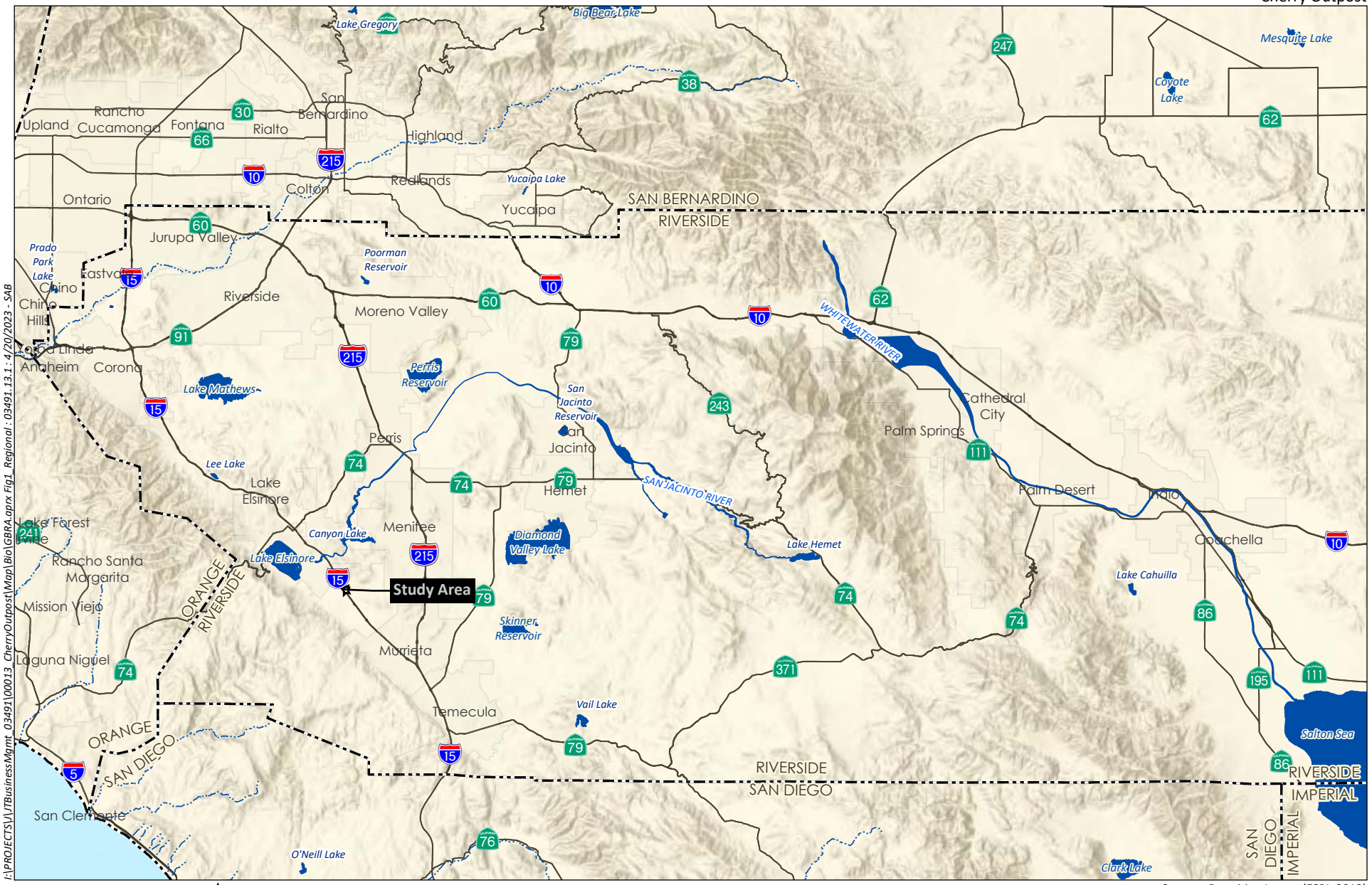
2.3 FIELD SURVEYS

Field surveys were conducted to document the existing condition of the study area and surrounding lands. A general biological survey and vegetation mapping was completed in February 2023, during which dominant plant species were noted. A spring rare plant survey was conducted on April 26, 2023. Focused BUOW surveys were conducted between April and June 2023. A jurisdictional assessment was conducted in February 2023 (concurrently with the general biological survey) to determine if resources are present under the jurisdiction of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or CDFW in addition to Riparian/Riverine Areas and Vernal Pools as defined in Section 6.1.2 of the MSHCP.

Lists of plant and animal species observed and/or detected during the field surveys are provided as Appendix A, *Plant Species Observed*, and Appendix B, *Animal Species Observed and/or Detected*. Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the list of animal species identified is not necessarily a comprehensive account of all species that use the study area, as species that are nocturnal, secretive, or seasonally restricted may not have been observed.

2.3.1 General Biological Survey

HELIX Biologists Matthew Dimson and Nelly Moreno conducted a general biological survey of the study area on February 8, 2023, in accordance with vegetation community classification described in Section



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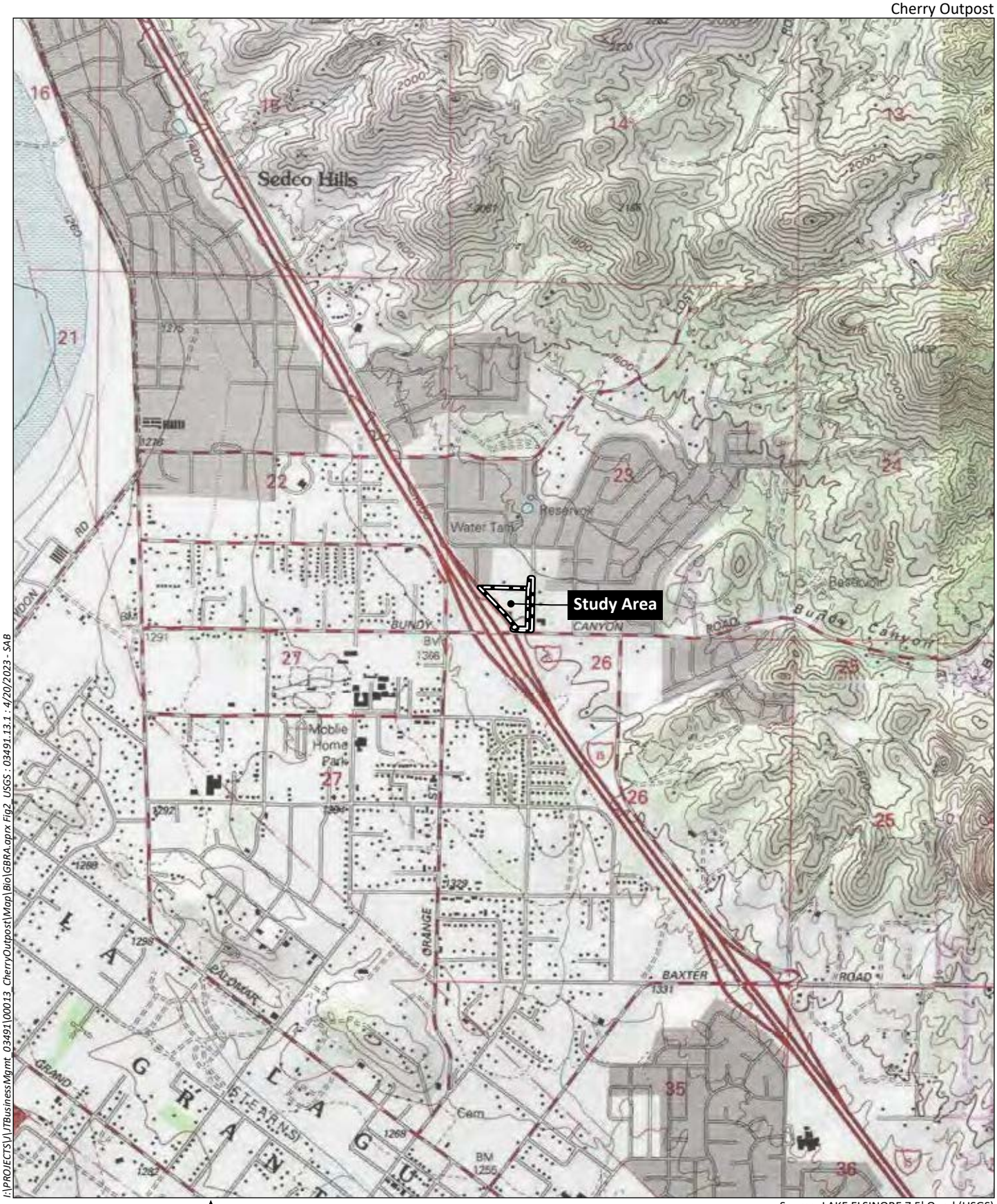
Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



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Source: LAKE ELSINORE 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2



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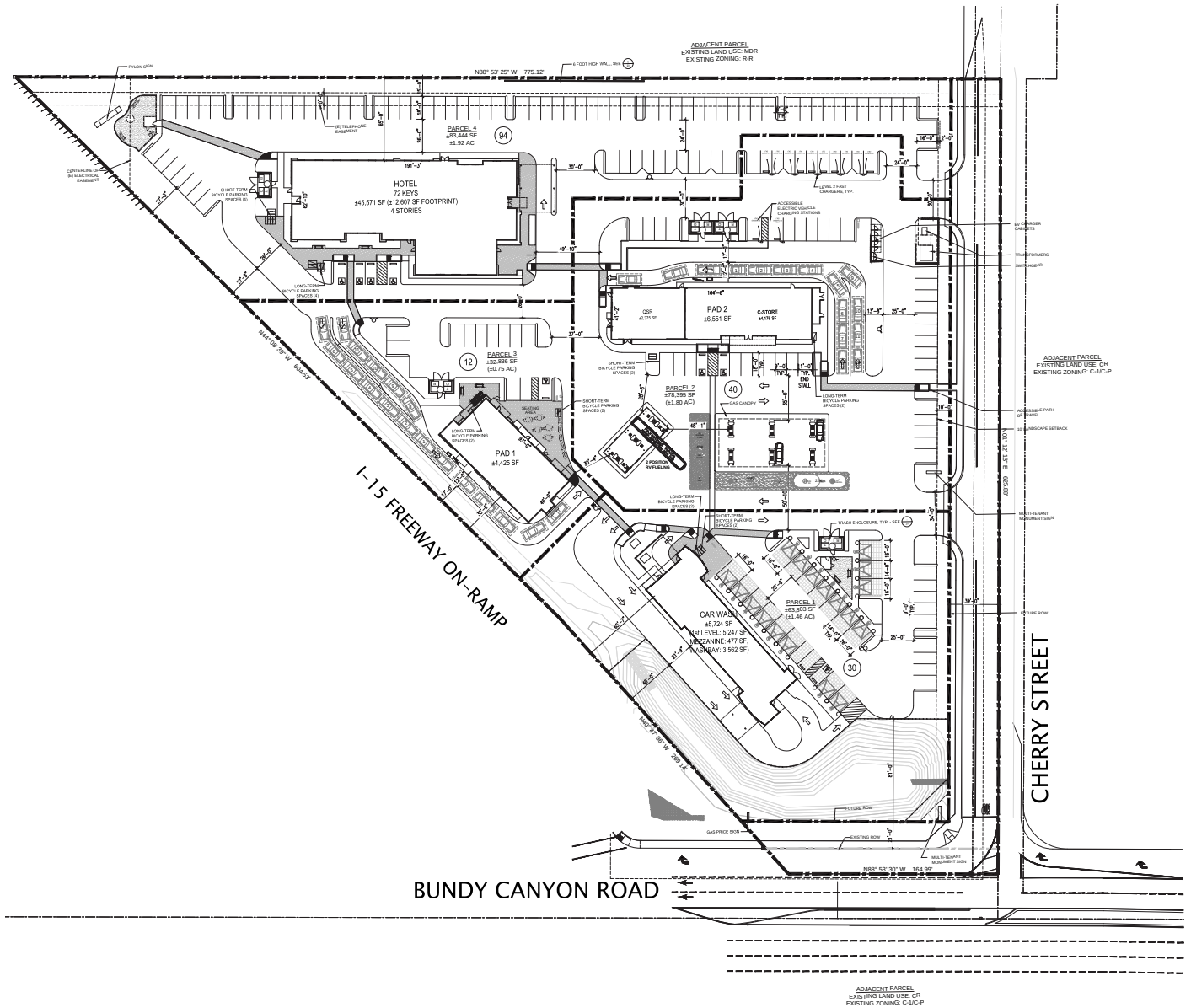
Source: Aerial (NearMap, 2024)

HELIX Environmental Planning

Aerial Photograph

Figure 3



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Source: KGTY, 2024

HELIX Environmental Planning

Site Plan

Figure 4

2.1.3 of the MSHCP (County 2003), and with additional information from MCV (Sawyer et al. 2009) and Oberbauer (2008). Vegetation was mapped on a 120-foot scale (1 inch = 120 feet) aerial photograph of the study area. Vegetation communities and land uses were mapped by HELIX to one-tenth of an acre (0.1 acre). The entire site was surveyed on foot with the aid of binoculars. Representative photographs of the site were taken, with select photographs included in this report as Appendix C, *Site Photographs*. Plant and animal species observed or otherwise detected were recorded in field notebooks. Animal identifications were made in the field by direct, visual observation or indirectly by detection of calls, burrows, tracks, or scat. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs.

2.3.2 Focused Species Surveys

2.3.2.1 Rare Plant Species Surveys

Rare plants investigated include those that are listed as threatened or endangered by USFWS or CDFW and those afforded a California Rare Plant Rank (CRPR) of 1 through 3 by CNPS (2024b).

HELIX Biologist Cache Tucker conducted a spring rare plant survey on April 26, 2023. The surveys were conducted in accordance with published agency guidelines (California Department of Fish and Game [CDFG] 2000, 2009; USFWS 2000) and during the appropriate flowering period to maximize the detection of those rare plant species with the potential to occur on the project site. Survey methods incorporated a combination of meandering transects and focused searches in areas with the greatest potential to support rare plant species with the potential to occur on the project site. If observed, individual rare plants were mapped using a handheld Global Positioning System unit.

2.3.2.2 Burrowing Owl

In accordance with the County's survey protocol, a Step I Habitat Assessment was conducted on the study area and within a 150-meter (approximately 500-foot) buffer zone around the periphery of the study area (survey area; County 2006). Mr. Dimson and Ms. Moreno completed a Step I habitat assessment on February 8, 2023, during which potential suitable BUOW habitat was observed.

Step II surveys, which consist of a focused burrow survey (Part A) and focused BUOW surveys (Part B), were conducted to determine whether the survey area supports suitable burrows and/or BUOWs. The focused burrow survey was conducted concurrently with the first focused BUOW survey. Since suitable burrows were observed within the survey area, four additional focused BUOW surveys were conducted. The biologist walked transects spaced no greater than 30 meters apart (approximately 100 feet) to allow for 100 percent visual coverage of all suitable habitat within the survey area. The biologist walked slowly and methodically, closely checking habitat for suitable burrows, BUOW diagnostic sign (e.g., molted feathers, pellets/castings, or whitewash at or near a burrow entrance), and individual BUOWs. Inaccessible areas of the survey area were visually assessed using binoculars. The focused burrow survey and four BUOW surveys were conducted by Mr. Tucker between April 6 and June 9, 2023. The BUOW-focused survey methods and results will be detailed in Appendix D, *BUOW Focused Survey Report.*

2.3.3 Jurisdictional Assessment

Prior to beginning fieldwork, 120-foot scale (1 inch = 120 feet) aerial photographs, 120-foot scale (1 inch = 120 feet) topographic maps, USGS quadrangle maps, and National Wetlands Inventory maps

(USFWS 2023) were reviewed to assist in determining the location of potential jurisdictional waters within the study area. Mr. Dimson and Ms. Moreno conducted the jurisdictional assessment on February 8, 2023. The assessment was conducted to identify jurisdictional waters potentially subject to USACE jurisdiction pursuant to Section 404 of the Clean Water Act (CWA); jurisdictional waters potentially subject to RWQCB jurisdiction pursuant to Section 401 of the CWA and/or State Porter-Cologne Water Quality Control Act; and streambed habitats potentially subject to CDFW jurisdiction pursuant to Sections 1600 *et seq.* of the California Fish and Game (CFG) Code. Data collection was targeted in areas that were deemed to have the potential to support jurisdictional resources, such as the presence of an ordinary high-water mark (OHWM), the presence of a bed/bank and streambed associated vegetation, and/or other surface indications of streambed hydrology.

2.3.4 Riparian/Riverine Areas and Vernal Pool Habitat Assessment

In accordance with the MSHCP, Mr. Dimson and Ms. Moreno conducted a Riparian/Riverine Areas and Vernal Pool habitat assessment on February 8, 2023. This habitat assessment was conducted concurrently with the jurisdictional assessment. The identification of Riparian/Riverine Areas and Vernal Pools is based on the potential for the habitat to support, or be tributary to habitat that supports, Riparian/Riverine Covered Species identified in MSHCP Section 6.1.2.

3.0 RESULTS

3.1 ENVIRONMENTAL SETTING

The study area has been used for agriculture since at least 1967 (Historic Aerials 2024). A structure near the western project boundary is visible in a 1967 aerial, and a smaller second structure in the northeast corner is visible in a 1978 aerial (Historic Aerials 2024). Most recently, the study area has supported a palm tree nursery between approximately 2009 and 2011 (Google Earth 2024). The nursery appeared to be abandoned after 2011, and structures within the study area were demolished sometime between 2013 and 2014 (Google Earth 2024). The palm trees, grown as part of the nursery operation, are still present in the northern half of the study area, as well as the larger building foundation near the western study area boundary. The remaining portions of the study area are dominated by wild oats and annual brome grassland. There are small eucalyptus groves in the southern portion of the study area and sparsely vegetated land adjacent to the existing paved Bundy Canyon Road and Cherry Street. The study area does not support any jurisdictional features, MSHCP Riparian/Riverine Areas, or Vernal Pool resources. The study area is within an urbanized area of the City and is bounded by rural residential properties to the north and east, a small commercial center to the south, and I-15 to the west. Undeveloped land associated with Sedco Hills is located east of the study area.

3.2 TOPOGRAPHY AND SOILS

The topography of the study area is mostly flat, with elevations ranging from approximately 1,398 feet (426 meters) above mean sea level (AMSL) within the southern portion of the study area along Bundy Canyon Road to a high of approximately 1,443 feet (440 meters) AMSL along Cherry Street in the northeastern corner of the study area.

The MSHCP lists nine sensitive soil types that occur within the Plan Area (County 2003). None of these soil types are mapped within the study area. Three soil types were mapped within the study area, with

the majority of the study area dominated by Ramona sandy loam (8 to 15 percent slopes, eroded; 8 to 15 percent slopes, severely eroded; 0 to 8 percent slopes, eroded; NRCS 2024). The other two soil types include Hanford coarse sandy loam (2 to 8 percent slopes) and Greenfield sandy loam (2 to 8 percent slopes, eroded). The three soils series consists of well-drained alluvium derived from granite.

3.3 VEGETATION COMMUNITIES

Five vegetation communities and land uses were mapped on the study area, including wild oats and annual brome grasslands, developed land, disturbed land, eucalyptus groves, and agriculture (Table 1, *Vegetation and Land Uses*; Figure 5, *Vegetation and Land Uses*). The study area does not support native-dominated vegetation communities. The CDFW CaCodes and Oberbauer Element Codes are provided in parentheses next to each community name in Table 1. A brief description of each vegetation community and land use mapped on the study area is provided below.

Table 1
VEGETATION AND LAND USES

MSHCP Vegetation Community Classification[1]		MCV/Oberbauer	Project Site (acres)[2]	Off-site (acres)[2]	TOTAL (acres)[2]
Collapsed	**Uncollapsed**				
Grassland	Non-native Grassland	Wild Oats and Annual Brome Grasslands (CaCode[3] 42.026.23)	3.5	0.4	**3.9**
Developed/ Disturbed Land	Developed (Residential)	Developed (O[4] 12000)	0.1	0.8	**0.9**
	Disturbed (Residential)	Disturbed (O 11300)	<0.1[5]	0.2	**0.2**
	Non-native Vegetation (Exotic)	Eucalyptus Groves (CaCode 79.100.02)	0.2	0.0	**0.2**
Agricultural Land	Grove/Orchard	Agriculture (O 18000)	2.4	0.0	**2.4**
		TOTAL	**6.2**	**1.4**	**7.6**

1 Collapsed and uncollapsed community classifications are terms from MSHCP Table 2-1.
2 Acreages are rounded to the nearest tenth.
3 CDFW CaCodes
4 Oberbauer Element Code
5 Actual acreage is 0.003 acre.

3.3.1 Wild Oats and Annual Brome Grasslands

Wild oats and annual brome grassland (non-native grassland under the MSHCP Community Classification) is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. Characteristic species include oats (*Avena* spp.), brome grasses (*Bromus* spp.), and mustards (*Brassica* spp., short-pod mustard [*Hirschfeldia incana*]). Most of the annual introduced species within the non-native grassland originated from the Mediterranean region, an area with a long history of agriculture and a climate similar to California. Intensive grazing and agricultural practices combined with severe droughts in California contributed to the successful invasion and establishment of these species and the replacement of native grasslands with annual-dominated non-native grasslands (Jackson 1985).

The majority of the study area supports wild oats and annual brome grasslands, covering approximately 3.9 acres (3.5 acres project site, 0.4 acres off-site). This plant community was dominated by red brome (*Bromus rubens*) and slender oat (*Avena barbata*). Other non-native species observed included London

rocket (*Sisymbrium irio*), short-pod mustard, tocalote (*Centaurea melitensis*), and scattered Brazilian pepper trees (*Schinus molle*) and Peruvian pepper trees (*Schinus terebinthifolia*). Sporadic native species were also observed, including brittlebush (*Encelia farinosa*), California buckwheat (*Eriogonum fasciculatum*), Menzie's goldenbush (*Isocoma menziesii*), and rancher's fiddleneck (*Amsinckia intermedia*). One native southern California black walnut (*Juglans californica*) was observed within this community in the northwest corner of the study area.

3.3.2 Disturbed

Disturbed land is included under the Urban/Residential/Exotic classification in the MSHCP. This land use includes land cleared of vegetation (e.g., dirt roads), land containing a preponderance of non-native plant species, such as ornamentals or ruderal exotic species, that take advantage of disturbance (previously cleared or abandoned landscaping), or land showing signs of past or present animal usage that removes any capability of providing viable habitat.

Disturbed land was observed adjacent to Bundy Canyon Road and Cherry Street, which totaled 0.2 acre (<0.1 acre project site, 0.2 acre off-site). These areas consisted of compacted dirt road shoulders and were mostly unvegetated due to frequent vehicle use. Scattered non-native species were observed within the disturbed areas, including London rocket, red brome, redstem filaree (*Erodium cicutarium*), short-pod mustard, and slender oat.

3.3.3 Developed

Developed land is included under the Urban/Residential/Exotic classification in the MSHCP. Developed land is where permanent structures and/or pavement have been placed, which prevents the growth of vegetation, or where landscaping is clearly tended and maintained.

Developed land included the paved portions of Bundy Canyon Road and Cherry Street along the southern and eastern study area boundaries, the building foundation along the western study area boundary, and an artificial pond in the southern portion of the study area. The artificial pond was lined with plastic sheeting and appeared to be a water feature installed by prior residents. No water was observed within the feature (see Photo 5 in Appendix C). Developed land within the study area totaled 0.9 acre (0.1 acre project site, 0.8 acre off-site).

3.3.4 Eucalyptus Groves

Eucalyptus groves (exotic community in the MSHCP are dominated by eucalyptus (*Eucalyptus* spp.), an introduced species that has often been planted purposely for wind-blocking, ornamental, and hardwood production purposes. Most groves are monotypic, with the most common species being either the blue gum (*Eucalyptus globulus*) or red gum *(Eucalyptus camaldulensis*). The understory within well-established groves is usually very sparse due to the closed canopy and allelopathic nature of the abundant leaf and bark litter. If sufficient moisture is available, this species becomes naturalized and can reproduce and expand its range. The sparse understory offers only limited wildlife habitat; however, these woodlands provide excellent nesting sites for a variety of raptors. During winter migrations, a large variety of warblers may be found feeding on the insects that are attracted to the eucalyptus flowers.



HELIX Environmental Planning

Vegetation and Land Uses

Figure 5

One small eucalyptus grove was observed in the southern portion of the study area, totaling 0.2 acre (project site only). This community consisted of red gum trees with an understory of london rocket, rancher's fiddleneck, and red-stem filaree.

3.3.5 Agriculture

Agriculture is defined broadly as land used primarily for the production of food and fiber. On satellite imagery, the chief indications of agricultural activity are distinctive geometric field and road patterns on the landscape and the traces produced by livestock or mechanized equipment. However, pasture and other lands where such equipment is used infrequently may not show as well-defined shapes as other areas. By definition, the number of building complexes is smaller, and the density of the road and highway network is much lower in agriculture than in urban/developed land.

Agriculture consisted of the abandoned Mexican fan palm (*Washingtonia robusta*) nursery in the northern half of the study area, totaling 2.4 acres (project site only).

3.4 PLANTS

HELIX identified 29 plant species on the study area during surveys to date, of which 24 (83 percent) are non-native species (Appendix A). Non-native species cover was high, and the predominance of non-native species cover is indicative of the high degree of disturbance as a result of historical and current use of the study area.

3.5 ANIMALS

A total of 16 animal species were detected on the study area during surveys to date, including 15 bird species and one mammal species (Appendix B).

3.6 SENSITIVE BIOLOGICAL RESOURCES

3.6.1 Rare Plant Species

Rare plant species are uncommon or limited in that they: (1) are only found in the western Riverside County region; (2) are a local representative of a species or association of species not otherwise found in the region; or (3) are severely depleted within their ranges or within the region. Rare plant species include those species listed by CNPS with a California Rare Plant Rank (CRPR) of 1, 2, or 3 (2023), federally and state listed endangered and threatened species, or those species that require additional surveys by the MSHCP (County 2003). The MSHCP survey requirements for rare plant species are discussed below in Section 3.7.

Thirteen rare plant species were recorded within the Alberhill, Lake Elsinore, Lake Mathews, Romoland, Steele Peak, Sitton Peak, Wildomar, Murrieta, and Perris quadrangles based on a database search conducted on CNDDB (CDFW 2024) and CNPS (2024a). These species are included in Appendix E, *Rare Plant Species Potential to Occur.* Of the 13 rare plant species recorded within the vicinity of the study area, 11 species were considered to have no potential to occur based on geographic range, elevation range, and/or lack of suitable habitat on the study area. San Diego ambrosia (*Ambrosia pumila*) and Parry's spineflower (*Chorizanthe parryi* var. *parryi*) were determined to have a low potential to occur on the study area based on the presence of non-native grassland and disturbed habitats. San Diego

ambrosia is a federally endangered species and a CRPR 1B.1 species. Parry's spineflower is a CRPR 1B.1 species. Both species are conditionally covered under the MSHCP. These species were searched for during a rare plant survey performed by Mr. Tucker on April 26, 2023, which was during the appropriate flowering period for these species. These species were not observed, and, therefore, are presumed absent.

3.6.2 Sensitive Animal Species

Sensitive animal species include federally and state listed endangered and threatened, candidate species for listing by CDFW, and/or species of special concern (SSC) pursuant to CDFW.

Forty-three sensitive animal species were recorded within the Alberhill, Lake Elsinore, Lake Mathews, Romoland, Steele Peak, Sitton Peak, Wildomar, Murrieta, and Perris quadrangles based on a database search conducted on CNDDB (CDFW 2024). These species are included in Appendix F, *Sensitive Animal Species Potential to Occur.* Of the 41 sensitive animal species recorded within the vicinity of the study area, 34 species were considered to have no potential to occur on the study area due to a lack of suitable habitat. The remaining eight species are discussed in detail below. An evaluation of each sensitive animal species' potential to occur on the study area is provided in Appendix F.

Seven species were determined to have a low potential to occur on the study area based on the presence of low-quality habitat, limited acreage of habitat, and lack of recent observations within the immediate vicinity of the study area. These species include California glossy snake (*Arizona elegans occidentalis*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), BUOW, white-tailed kite (*Elanus leucurus*), Stephens' kangaroo rat (*Dipodomys stephensi*; SKR), and western mastiff bat (*Eumops perotis californicus*; foraging only). BUOW, California glossy snake, coast patch-nosed snake, coastal whiptail, and western mastiff bat are SSC, SKR is a State and federally threatened species, and white-tailed kite is a State fully protected species. Coastal whiptail, white-tailed kite, and SKR are covered species under the MSHCP, and BUOW is a conditionally covered species. California glossy snake, coast patch-nosed snake, and western mastiff bat are not covered species under the MSHCP.

The current status of BUOW on the study area is discussed in further detail below.

Burrowing Owl

Focused surveys for BUOW were conducted in accordance with the County's survey protocol (2006), as previously described in Section 2.3.2.1 above. No BUOWs or BUOW sign were observed within the survey area. Therefore, the study area does not currently support BUOWs. The survey results are discussed in detail in a separate letter report, which is provided as Appendix D.

3.6.3 Sensitive Vegetation Communities/Habitats

Sensitive vegetation communities/habitats are considered either rare within the region or sensitive by CDFW (CDFW 2023). Communities are given a Global and State (S) ranking on a scale of 1 to 5. Communities afforded a rank of 5 are most common, while communities with a rank of 1 are considered highly periled. CDFW considers sensitive communities as those with a rank between S1 and S3.

The study area does not support any sensitive vegetation communities or habitats.

3.6.4 Habitat and Wildlife Corridor Evaluation

Wildlife corridors connect otherwise isolated pieces of habitat and allow the movement or dispersal of plants and animals. Corridors can be local or regional in scale; their functions may vary temporally and spatially based on conditions and species presence. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Animals use these corridors, which are often hillsides or tributary drainages, to move between different habitats. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations.

The study area is not located within any MSHCP Linkages, which are areas within the Plan Area that are identified as having the potential to facilitate wildlife movement. The nearest linkage to the study area is Proposed Linkage 8, which is approximately one mile east of the study area and consists of upland habitat within the Wildomar area (County 2003). The study area is not located within any linkages recognized by the South Coast Missing Linkages report (South Coast Wildlands 2008). The nearest linkage described by the South Coast Missing Linkages report is the Santa Ana-Palomar Connection, located approximately 12.5 to the southeast of the study area.

The study area does not directly connect to large blocks of habitat. The study area is bounded by rural residential properties to the north and east, a small commercial center to the south, and I-15 to the west. The study area is disturbed from historical and surrounding human activities and supports minimal vegetative cover dominated by non-native species, including red brome, London rocket, and short-pod mustard. Since the study area does not connect two or more large habitat areas, the study area is not considered a wildlife corridor.

Although the study area does not function as a wildlife corridor, it does support some shrubs and herbaceous ground cover that may provide limited opportunities for local wildlife movement or wildlife movement. Smaller mammals and reptiles that are adapted to human disturbance (e.g., California ground squirrel [*Otospermophilus beecheyi*], cottontail rabbits [*Sylvilagus* sp.], western fence lizard [*Sceloporus occidentalis*]) may use the study area for foraging and/or cover, while bird species may fly over existing development to access the study area for foraging and/or nesting. Some wildlife may use the study area for cover and/or foraging. Therefore, the study area may support some low-quality habitat for wildlife, but the study area does not function as a wildlife corridor since it does not connect two or more large blocks of habitat.

3.6.5 Jurisdictional Waters

Based on the results of the jurisdictional assessment, no jurisdictional features were observed within the study area. Streambed field indicators, such as an OHWM or the presence of a defined bed and bank, were not observed within the study area. There is a small concrete asphalt ribbon gutter in the southwest corner of the study area, on the north side of Bundy Canyon Road (see Photo 6 in Appendix C). The ribbon gutter conveys runoff from Bundy Canyon Road into a culvert at the northeast corner of Bundy Canyon Road and the I-15 northbound onramp. The ribbon gutter is entirely paved, does not support vegetation, and does not connect to an upstream natural water source. Therefore, the ribbon gutter and culvert are presumed to not support waters of the U.S. under USACE jurisdiction or waters of the State under RWQCB and/or CDFW jurisdiction.

3.7 WESTERN RIVERSIDE COUNTY MSHCP CONSISTENCY ANALYSIS

3.7.1 Project Location within the MSHCP

The MSHCP Plan Area is divided into 16 Area Plans, within which 153,000 acres were identified as potential areas for conservation that would contribute to the overall existing MSHCP Conservation Area. The areas identified for conservation within the MSHCP Plan Area are called Criteria Areas and include Core Areas that support habitat for covered species and Linkages that provide a connection between Core Areas. The Criteria Areas are divided into 160-acre cells, which each have their own conservation goal. All projects within a cell or cell group are required to be accessed through the Habitat Acquisition and Negotiation Strategy (HANS) process to determine the amount of MSHCP conservation required. The HANS process aids in the acquisition of lands that will contribute to the assembly of the MSHCP Reserve.

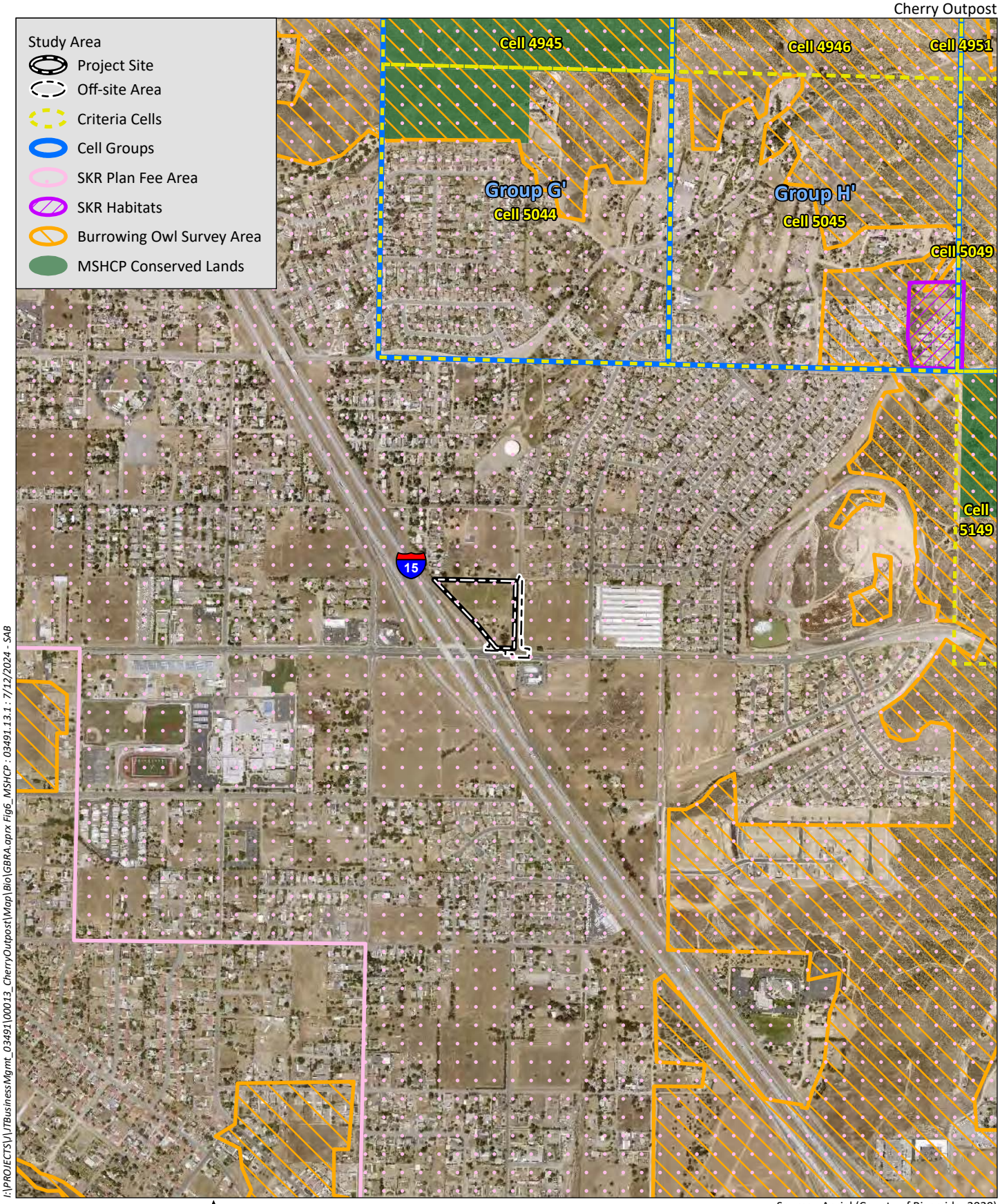
As described in Section 2.1.2 of the MSHCP, the study area is in the Riverside Lowlands bioregion, an area lying generally below 2,000 AMSL and characterized by Riversidean sage scrub and annual grasslands. The relatively arid climate is partly the result of the rain shadow cast by the Santa Ana Mountains. A high level of disturbance and urbanization are noted within this bioregion (County 2003).

The study area is located within the Elsinore Area Plan and is not located within or adjacent to an MSHCP Criteria Area. Therefore, the study area is not subject to special conservation requirements that apply to cells and is not required to undergo the HANS process. The nearest criteria cells to the study area are Cell 5044, which is located approximately 0.4 mile to the north, and Cell 5045, which is located approximately 0.5 mile to the northeast (Figure 6, *MSHCP Context*). The study area is not located within or directly adjacent to any MSHCP Conservation Areas. The study area is located approximately one mile east of Proposed Linkage 8. Existing development separates the study area from the proposed linkage.

3.7.2 Riparian/Riverine Areas and Vernal Pool Habitat Assessment (MSHCP Section 6.1.2)

The identification of MSHCP Riparian/Riverine Areas is based on the potential for the habitat to support, or be a tributary to habitat that supports, Riparian/Riverine Covered Species. Riparian/Riverine Covered Species are identified in MSHCP Section 6.1.2. The MSHCP defines Riparian/Riverine Areas as "lands which contain Habitat dominated by trees, shrubs, or emergent mosses and lichens, which occur close to, or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year" (County 2003). The MSHCP defines Vernal Pools as "seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season" (County 2003). Artificially created features, except for those created intentionally to provide wetland habitat or resulting from the creation of open waters or alteration of natural stream courses, are not considered MSHCP Riparian/Riverine Areas or Vernal Pools.

In accordance with the MSHCP, Mr. Dimson and Ms. Moreno conducted a Riparian/Riverine Areas assessment on February 8, 2023. The Riparian/Riverine Areas and Vernal Pool habitat assessment was conducted concurrently with the jurisdictional assessment. No MSHCP Riparian/Riverine Areas or Vernal Pools were identified within the study area. As described in Section 3.6.5 above, there is a small asphalt ribbon gutter in the southwest corner of the study area, on the north side of Bundy Canyon Road (see



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Source: Aerial (County of Riverside, 2020)

HELIX Environmental Planning

MSHCP Context

Figure 6

Photo 6 in Appendix C). The ribbon gutter conveys runoff from Bundy Canyon Road into a culvert at the northeast corner of Bundy Canyon Road and the I-15 northbound onramp. The ribbon gutter is entirely paved, does not support vegetation, and does not connect to an upstream natural water source. Based on aerial review, a natural stream course was not historically present at this location, and the ribbon gutter and culvert were not an alteration of a natural stream course (Historic Aerials 2024). No depressional areas capable of supporting fairy shrimp species were observed within the study area. An artificial pond was observed in the southern portion of the study area. The artificial pond was lined with plastic sheeting and appeared to be a water feature installed by prior residents. No water was observed within the feature (see Photo 5 in Appendix C). As defined in the MSHCP, artificially created features are not considered MSHCP Riparian/Riverine Areas or Vernal Pools. As a result, the study area does not support Riparian/Riverine Areas or Vernal Pools or suitable habitat for associated species, as defined by MSHCP, and a Determination of Biologically Equivalent or Superior Preservation (DBESP) for Riparian/Riverine Areas and Vernal Pools is not required.

3.7.2.1 Riparian/Riverine Areas and Vernal Pool Species

Through the protection of Riparian/Riverine Areas and Vernal Pool habitats, the MSHCP aims to conserve several plant and animal species within the Plan Area. During the Riparian/Riverine Areas assessment discussed above, each plant and animal species listed in Section 6.1.2 of the MSHCP was evaluated to determine the potential to occur on the study area. Riparian/Riverine Areas and Vernal Pool species are discussed in detail below.

Plant Species

The MSHCP lists 23 rare plant species that have the potential to occur in Riparian/Riverine Areas and/or Vernal Pool habitats within the MSHCP Plan Area, which are listed below in Table 2, *MSHCP Riparian/Riverine Areas and Vernal Pool Plant Species*.

No MSHCP Riparian/Riverine Areas or Vernal Pool plant species are expected to occur on the study area based on the absence of drainage features, vernal pools, and depressions.

Table 2
MSHCP RIPARIAN/RIVERINE AREAS AND VERNAL POOL PLANT SPECIES

Common Name	Scientific Name	Habitat
Brand's phacelia	*Phacelia stellaris*	Sandy washes and/or benches in alluvial flood plains.
California black walnut	*Juglans californica* var. *californica*	Open savannahs, creek beds, alluvial terraces, and north-facing slopes.
California Orcutt grass	*Orcuttia californica*	Vernal pools.
Coulter's matilija poppy	*Romneya coulteri*	Dry washes and canyons in chaparral and coastal sage scrub communities and disturbed areas.
Engelmann oak	*Quercus engelmannii*	Woodlands, mixed chaparral, and savannah grasslands.
Fish's milkwort	*Polygala cornuta* var. *fishiae*	Shaded, rocky places in canyons associated with woodlands and chaparral.

Common Name	Scientific Name	Habitat
graceful tarplant	*Holocarpha virgata* ssp. *elongata*	Coastal mesas and foothills with grassland habitats.
lemon lily	*Lilium parryi*	Moist montane meadows.
Mojave tarplant	*Deinandra mohavensis*	Drainages within arid montane chaparral.
mud nama	*Nama stenocarpum*	Marshes, swamps, lake margins, and riverbanks along muddy embankments.
ocellated Humboldt lily	*Lilium humboldtii* ssp. *ocellatum*	Shaded montane canyons.
Orcutt's brodiaea	*Brodiaea orcuttii*	Vernally moist grasslands and vernal pools; occasionally occurs along stream embankments within clay soils.
Parish's meadowfoam	*Limnanthes gracilis* var. *parishii*	Montane meadows with abundant annual and herbaceous perennials and lack of shrubs.
prostrate navarretia	*Navarretia prostrata*	Coastal sage scrub, valley and foothill grassland, and vernal pools.
San Diego button-celery	*Eryngium aristulatum* var. *parishii*	Vernal pools.
San Jacinto Valley crownscale	*Atriplex coronata* var. *notatior*	Highly alkaline and silty-clay soils associated with alkali sink scrub, alkali playa, vernal pool, and annual alkali grassland habitats.
San Miguel savory	*Clinopodium chandleri*	Coastal sage scrub, chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands.
Santa Ana River woolly-star	*Eriastrum densifolium* ssp. *sanctorum*	Sandy soils on flood plains and terraces within coastal scrub and chaparral communities.
slender-horned spineflower	*Dodecahema leptoceras*	Sandy soil associated with alluvial scrub; is often found on stream terraces and banks.
smooth tarplant	*Centromadia pungens* ssp. *laevis*	Alkali scrubs, playas, and grasslands; riparian woodland and streams.
spreading navarretia	*Navarretia fossalis*	Vernal pools, depressions, and ditches.
thread-leaved brodiaea	*Brodiaea filifolia*	Clay soils in vernally moist grasslands and vernal pool periphery are typical locales.
vernal barley	*Hordeum intercedens*	Saline flats and depressions in grasslands or vernal pools.

Source: County (2003).

Animal Species

The MSHCP lists 12 sensitive animal species that have the potential to occur in Riparian/Riverine Areas and/or Vernal Pools within the MSHCP Plan Area, which are provided in Table 3, *MSHCP*

Riparian/Riverine Areas and Vernal Pool Animal Species. The MSHCP requires focused surveys to be conducted for projects that propose impacts to three invertebrate and three bird species, as described in detail below.

Table 3
MSHCP RIPARIAN/RIVERINE AREAS AND VERNAL POOL ANIMAL SPECIES

Common Name	Scientific Name	Habitat
Riverside fairy shrimp	*Streptocephalus woottoni*	Deep vernal pools and other ephemeral basins that hold water for typically 30 or more days.
Santa Rosa Plateau fairy shrimp	*Linderiella santarosae*	Limited to vernal pools within the Santa Rosa Plateau.
vernal pool fairy shrimp	*Branchinecta lynchi*	Vernal pools and other ephemeral basins within patches of grassland and agriculture interspersed in coastal sage scrub and chaparral.
arroyo toad	*Anaxyrus californicus*	Washes and intermittent streams with open-canopy riparian forest.
California red-legged frog	*Rana aurora draytonii*	Perennial streams with dense, shrubby riparian vegetation.
mountain yellow-legged frog	*Rana muscosa*	Perennial waterways, often within open riparian vegetation.
Santa Ana sucker	*Catostomus santaanae*	Clear, cool perennial streams with loose sand, gravel, cobble, and boulders with algae, aquatic emergent vegetation, macroinvertebrates, and riparian vegetation.
bald eagle	*Haliaeetus leucocephalus*	Within close proximity to lakes or other water bodies.
least Bell's vireo	*Vireo bellii pusillus*	Well-developed riparian scrub, woodland, or forest.
peregrine falcon	*Falco peregrinus*	Generally, areas with cliffs or tall buildings near water where prey (shorebirds and ducks) is concentrated.
southwestern willow flycatcher	*Empidonax traillii extimus*	Breeds within thickets of willows or other riparian understory usually along streams, ponds, lakes, or canyons.
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Extensive stands of mature riparian woodland.

Source: County (2003).

Invertebrates

There are three sensitive fairy shrimp species that occur in the MSHCP Plan Area, including Riverside fairy shrimp (*Streptocephalus woottoni*), Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*), and vernal pool fairy shrimp (*Branchinecta lynchi*). Vernal pool fairy shrimp occurs throughout the Central Valley and in several disjunct populations in Riverside County. This species exists in vernal pools and other ephemeral basins, often located in patches of grassland and agriculture interspersed in coastal sage scrub and chaparral. Riverside fairy shrimp occurs in Riverside, Orange, and San Diego Counties, as well as in northern Baja California, Mexico. This species is typically found in deeper vernal pools and

other ephemeral basins that hold water for long periods of time (30 or more days). Santa Rosa Plateau fairy shrimp is limited to the Santa Rosa Plateau in Riverside County.

An artificial pond was observed in the southern portion of the study area. The artificial pond was lined with plastic sheeting and appeared to be a water feature installed by prior residents. No water was observed within the feature (see Photo 5 in Appendix C). The study area does not support suitable habitat for sensitive invertebrate species.

Birds

Riparian/Riverine Areas within the MSHCP Plan Area provide suitable habitat for sensitive bird species, such as least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), bald eagle (*Haliaeetus leucocephalus*), and peregrine falcon (*Falco peregrinus*). Typical habitat for least Bell's vireo consists of well-developed riparian scrub, woodland, or forest dominated by willows, mule fat, and Fremont cottonwood. Least Bell's vireo will also use small patches of trees adjacent to dense, riparian habitat. Southwestern willow flycatcher and western yellow-billed cuckoo require mature riparian forest with a stratified canopy and nearby water. Both the bald eagle and peregrine falcon occur primarily in and adjacent to open water habitats, with peregrine falcon occurring in riparian areas.

The MSHCP requires focused surveys to be conducted for projects that propose impacts to suitable habitat for least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. The study area does not support suitable riparian habitat for sensitive bird species.

3.7.3 Narrow Endemic Plant Species Survey Area (MSHCP Section 6.1.3)

The MSHCP requires focused plant surveys to be conducted for projects located within a Narrow Endemic Plant Species Survey Area (NEPSSA). There are 14 narrow endemic plant species that are associated with 10 different NEPSSAs located throughout the MSHCP Plan Area (see Table 6-1 in the MSHCP). Prior to conducting focused surveys, a habitat assessment should be conducted to determine whether the study area supports suitable habitat for plant species listed for the NEPSSA species. Focused surveys for species listed for the NEPSSA should be conducted if suitable habitat is present. If focused surveys are positive, 90 percent of the property that supports habitat suitable for long-term conservation of the species must be avoided until conservation goals for the species are satisfied.

The study area is not within a NEPSSA. Therefore, focused NEPSSA surveys were not required.

3.7.4 Additional Survey Needs and Procedures (MSHCP Section 6.3.2)

The MSHCP requires additional surveys for projects that support suitable habitat for certain conditionally covered species. The survey results provide species-specific information for the MSHCP to satisfy the Federal Endangered Species Act (FESA) issuance criteria. If focused surveys are positive for conditionally covered species, 90 percent of the property that supports habitat suitable for long-term conservation of the species must be avoided until conservation goals for the species are satisfied. Additional survey requirements are discussed in detail below.

3.7.4.1 Criteria Area Species

Focused surveys for rare plant species must be conducted for projects located within a Criteria Area Species Survey Area (CASSA). There are 13 criteria area species, which are associated with eight CASSAs located throughout the MSHCP Plan Area (see Table 6-1 in the MSHCP). Prior to conducting focused surveys, a habitat assessment should be conducted to determine whether the study area supports suitable habitat for plant species listed for the CASSA. If suitable habitat is present, focused surveys for species listed for the CASSA should be conducted.

The study area is not within a CASSA; therefore, focused CASSA surveys were not required.

3.7.4.2 Amphibian Species

Focused surveys for arroyo toad (*Bufo californicus*), California red-legged frog (*Rana draytonii*), and mountain yellow-legged frog (*Rana muscosa*) must be conducted for projects located within an Amphibian Species Survey Area.

The study area is not within the Amphibian Species Survey Area; therefore, focused surveys were not required.

3.7.4.3 Bird Species

The study area is located within the BUOW Survey Area. Therefore, BUOW focused surveys were required in accordance with the County's survey protocol (County 2006). As discussed in Section 3.6.2, BUOW or BUOW sign were not observed during the focused surveys.

3.7.4.4 Mammal Species

Focused surveys for Aguanga kangaroo rat (*Dipodomys merriami collinus*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) must be conducted for projects located within a Mammal Species Survey Area.

The study area is not within the Mammal Species Survey Area; therefore, focused surveys were not required.

4.0 REGIONAL AND REGULATORY CONTEXT

Biological resources located within the study area are subject to regulatory review by federal, state, and local agencies. These biological resources-related laws and regulations are summarized below.

4.1 FEDERAL REGULATIONS

4.1.1 Federal Endangered Species Act

Administered by the USFWS, the FESA provides the legal framework for the listing and protection of species (and their habitats) identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the ESA. Section 9(a) of the ESA defines take as "to harass, harm, pursue, hunt, shoot,

wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

Sections 4(d), 7, and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. A biological assessment is required for any major construction activity if it may affect listed species. In this case, take can be authorized via a letter of biological opinion issued by the USFWS for non-marine related listed species issues. A Section 7 consultation is required when there is a nexus between federally listed species' use of the site and impacts to USACE jurisdictional areas. Section 10(a) allows the issuance of permits for "incidental" take of endangered or threatened species. The term "incidental" applies if the taking of a listed species is incidental to and not the purpose of an otherwise lawful activity. The MSHCP is the Section 10(a) permit for western Riverside County, including the study area.

4.1.2 Federal Clean Water Act, Section 404

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the CWA. The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. Permitting for projects filling waters of the U.S., including wetlands and vernal pools, is overseen by USACE under Section 404 of the CWA. Projects may be permitted on an individual basis or may be covered under one of several approved Nationwide Permits. Individual Permits are assessed individually based on the type of action, amount of fill, etc. Individual Permits typically require substantial time (often longer than six months) to review and approve, while Nationwide Permits are pre-approved if a project meets the appropriate conditions. A CWA Section 401 Water Quality Certification, which is administered by the State Water Resources Control Board, must be issued prior to any 404 Permit.

4.1.3 Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the Federal MBTA, as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is used to place restrictions on disturbance of active bird nests during the nesting season, which is generally defined as February 15 through August 31 for songbirds. In addition, the USFWS commonly places restrictions on the disturbances allowed near active raptor nests. The raptor nesting season is generally defined as January 15 through August 31.

4.1.4 Critical Habitat

As described by the FESA, critical habitat is the geographic area occupied by a threatened or endangered species essential to species conservation that may require special management considerations or protection. Critical habitat also may include specific areas not occupied by the species, but that have been determined to be essential for species conservation.

Critical habitat does not occur on the study area. The nearest critical habitats to the study area include coastal California gnatcatcher (*Polioptila californica californica*) critical habitat, which is approximately 1.8 miles east of the study area (USFWS 2024).

4.2 STATE REGULATIONS

4.2.1 California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (i.e., impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

4.2.2 California Endangered Species Act

The CESA is similar to the FESA in that it contains a process for the listing of species and regulating potential impacts to listed species. Section 2081 of the CESA authorizes the CDFW to enter into a memorandum of agreement for take of listed species for scientific, educational, or management purposes. The MSHCP is the regional 2081 for this portion of the County, which includes the study area. The golden eagle (*Aquila chrysaetos*) and white-tailed kite are considered state fully protected species. Fully protected species may not be taken or possessed at any time, and no state licenses or permits may be issued for their take except for collecting the species necessary for scientific research, and relocation of the bird species for the protection of livestock (CFG Code Sections 3511, 4700, 5050, and 5515).

The Native Plant Protection Act (NPPA) enacted a process by which plants are listed as rare or endangered. The NPPA regulates the collection, transport, and commerce of plants that are listed. The CESA followed the NPPA and covers both plants and animals that are determined to be endangered or threatened with extinction. Plants listed as rare under NPPA were designated threatened under the CESA.

4.2.3 Protection of Raptor Species

Raptors (birds of prey) and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW.

4.2.4 California Fish and Game Code, Section 1602

The CFG Code (Section 1600 et seq.) requires an agreement with the CDFW for projects affecting riparian and wetland habitats through the issuance of a Streambed Alteration Agreement.

4.3 LOCAL REGULATIONS

4.3.1 Multiple Species Habitat Conservation Plan Consistency

The MSHCP is a comprehensive multi-jurisdictional effort that includes Riverside County and multiple cities in western Riverside County. Rather than addressing sensitive species on an individual basis, the MSHCP focuses on the conservation of 146 species, proposing a reserve system of approximately

500,000 acres and a mechanism to fund and implement the reserve system (County 2003). Most importantly, the MSHCP allows participating entities to issue take permits for listed species so that individual applicants need not seek their own permits from the USFWS and/or CDFW. The MSHCP was adopted on June 17, 2003, by the Riverside County Board of Supervisors. The Incidental Take Permit was issued by both the USFWS and CDFW on June 22, 2004. Section 3.7 above and Section 5.5 below demonstrate the project's consistency with the MSHCP.

4.3.2 Stephens' Kangaroo Rat Habitat Conservation Plan

The Habitat Conservation Plan (HCP) for SKR describes the conservation, mitigation, and monitoring measures that are implemented within core reserves (Riverside County Habitat Conservation Authority [RCHCA 1996]). Within the HCP, there are seven core reserves totaling 41,221 acres for the conservation of SKR and associated habitat. The HCP provides a 30-year incidental take authorization for SKR on lands within its boundaries, which includes 533,954 acres within the County of Riverside and the Cities of Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Perris, Riverside, and Temecula.

The study area is within the SKR HCP but is not located within any of the core reserves. Therefore, the project is required to pay an SKR mitigation fee for incidental take authorization under the SKR HCP.

5.0 PROJECT EFFECTS

This section describes potential direct and indirect impacts associated with the proposed project. Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Indirect impacts consist of secondary effects of a project, including noise, decreased water quality (e.g., through sedimentation, urban contaminants, or fuel release), fugitive dust, colonization of non-native plant species, animal behavioral changes, and night lighting. The magnitude of an indirect impact can be the same as a direct impact; however, the effect usually takes a longer time to become apparent.

The significance of impacts to biological resources present or those with the potential to occur was determined based on the sensitivity of the resource and the extent of the anticipated impacts. For certain highly sensitive resources (e.g., a federally listed species), any impact would be significant. Conversely, other resources that are of low sensitivity (e.g., species with a large, locally stable population in the County but declining elsewhere) could sustain some impact with a less than significant effect.

According to Appendix G of the CEQA Guidelines, project impacts to biological resources would be considered significant if they would:

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

(b) Have a substantial adverse effect on any riparian habitat or sensitive natural community identified by local or regional plans, policies, regulations, or by CDFW or USFWS.

(c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means.

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or within an established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

(e) Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

(f) Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.1 SENSITIVE SPECIES

5.1.1 Rare Plant Species

No Impacts

Eleven of the thirteen plant species recorded within the Alberhill, Lake Elsinore, Lake Mathews, Romoland, Steele Peak, Sitton Peak, Wildomar, Murrieta, and Perris quadrangles were not considered to have a potential to occur based on geographic range, elevation range, and/or lack of suitable habitat (see Appendix E). Rare plant surveys were not required since the study area is not located within a CASSA (see Section 5.5.4 below) or NEPSSA (see Section 5.5.2 below).

Two species (Parry's spineflower and San Diego ambrosia) were determined to have a low potential to occur on the study area based on some areas of low-quality habitat (see Appendix E). Parry's spineflower and San Diego ambrosia are conditionally covered under the MSHCP and CRPR 1B.1 species. San Diego ambrosia is also a federally endangered species. Although potentially suitable habitat is present, these two species were not detected during a spring rare plant survey conducted on April 26, 2023. Therefore, these species are presumed absent from the study area, and the project will not impact rare plant species.

5.1.2 Sensitive Animal Species

Less than Significant Impacts with Mitigation Incorporated

Of the 41 sensitive animal species recorded within the Alberhill, Lake Elsinore, Lake Mathews, Romoland, Steele Peak, Sitton Peak, Wildomar, Murrieta, and Perris quadrangles, 34 species were considered to have no potential to occur on the study area due to lack of suitable habitat (see Appendix F). Therefore, no significant impacts to these sensitive wildlife species are anticipated by the project. The remaining seven species were determined to have a low potential to occur on the study area based on the presence of low-quality habitat, limited acreage of habitat, and lack of recent observations within the immediate vicinity of the study area. These species include BUOW, California glossy snake, coast patch-nosed snake, coastal whiptail, SKR, western mastiff bat, and white-tailed kite. These species are discussed in detail below.

Species Not Covered by the MSHCP: California glossy snake, coast patch-nosed snake, and western mastiff bat are State SSC and not a covered species under the MSHCP. These species have not been recorded within the vicinity of the study area (10-mile to 20-mile radius), indicating that regionally significant populations of these species are not present (CDFW 2024). California glossy snake and coast patch-nosed snake were not incidentally observed during field surveys. Therefore, the study area is not expected to support large populations of California glossy snake or coast patch-nosed snake, and a loss of a few individuals, if present, would not be expected to reduce regional population numbers. Western mastiff bat may use the study area for foraging habitat given it uses a variety of habitats. Although there is a potentially suitable foraging habitat for the western mastiff bat, there is no suitable roosting habitat (i.e., vertical cliff faces) on the study area. The loss of small amounts of potential foraging habitat is not expected to be regionally significant, given that suitable foraging habitat is not limited in the area. The project would not significantly impact California glossy snake, coast patch-nosed snake, or western mastiff bat; therefore, no mitigation is warranted for the aforementioned species.

MSHCP Covered Species: Coastal whiptail is a State SSC, white-tailed kite is State fully protected species, and SKR is a State and federally threatened species. These three species are fully covered species under the MSHCP. With the payment of the MSHCP Local Development Mitigation Fee (LDMF) and SKR mitigation fee, no additional mitigation is required for potential impacts to these species (see Section 5.5.6 below).

MSHCP Conditionally Covered Species: BUOW is a State SSC and MSHCP conditionally covered species. Based on the results of the focused BUOW surveys, the study area does not support BUOW. Prior to commencement of ground-disturbing activities, a pre-construction survey must be conducted within 30 days of ground-disturbing activities (County 2006; see Measure BIO-1 in Section 6.0 below). If BUOW is detected during the pre-construction survey, avoidance of active nests and/or relocation of BUOW would be required as outlined in Measure BIO-1 in Section 6.0 below.

5.1.3 Sensitive Vegetation Communities

5.1.3.1 California Department of Fish and Wildlife Sensitive Vegetation Communities/Habitats

No Impacts

The entire 7.6-acre study area would be impacted, which does not support native vegetation communities (Figure 7, *Impacts to Vegetation and Land Uses*; Table 4, *Impacts to Vegetation and Land Uses*).

Of the 7.6-acre study area, 6.8 acres (6.2 acres project site; 0.6 acre off-site) would be permanently impacted. Permanent impacts on the project site include the proposed development, while off-site permanent impacts comprise the installation of a new storm drain outlet at the southwest corner of the study area and road improvements along Bundy Canyon Road and Cherry Street. The remaining 0.8 acre (off-site only) would be temporarily impacted to accommodate over-excavation during project construction and replace existing asphalt with new asphalt. None of the vegetation communities mapped on the study area are dominated by native plant species or are considered sensitive pursuant to CDFW (2023). Therefore, no impacts to sensitive vegetation communities would occur and mitigation is not warranted.



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Source: Aerial (NearMap, 2024)

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Impacts to Vegetation and Land Uses

Figure 7

Table 4
IMPACTS TO VEGETATION AND LAND USES

Manual of California Vegetation/Oberbauer	Study Area Permanent Impacts (acres)[1]			Study Area Temporary Impacts (acres)[1]		
	Project Site	Off-site	TOTAL	Project Site	Off-site	TOTAL
Wild Oats and Annual Brome Grasslands	3.5	0.4	**3.9**	0.0	<0.1[2]	**<0.1**
Developed	0.1	<0.1[3]	**0.1**	0.0	0.8	**0.8**
Disturbed	<0.1[4]	0.2	**0.2**	0.0	<0.1[5]	**<0.1**
Eucalyptus Groves	0.2	0.0	**0.2**	0.0	0.0	**0.0**
Agriculture	2.4	0.0	**2.4**	0.0	0.0	**0.0**
TOTAL	**6.2**	**0.6**	**6.8**	**0.0**	**0.8**	**0.8**

[1] Acreages are rounded to the nearest tenth.
[2] Actual acreage is acre 0.027 acre.
[3] Actual acreage is 0.002 acre.
[4] Actual acreage is 0.003 acre.
[5] Actual acreage is 0.016 acre.

5.1.3.2 California Department of Fish and Wildlife Riparian Habitat and Streambed

No Impacts

The study area does not support any drainage features, wetlands, or other special aquatic sites under the jurisdiction of CDFW. Therefore, no impacts to CDFW jurisdiction would occur, and mitigation is not warranted.

5.2 U.S. ARMY CORPS OF ENGINEERS/REGIONAL WATER QUALITY CONTROL BOARD JURISDICTION

No Impacts

The study area does not support any drainage features, wetlands, or other special aquatic sites under the jurisdiction of USACE/RWQCB. Therefore, no impacts to waters of the U.S. or waters of the State would occur, and mitigation is not warranted.

5.3 WILDLIFE MOVEMENT AND MIGRATORY SPECIES

5.3.1 Wildlife Movement

Less than Significant

The study area is not part of a regional corridor and does not serve as a nursery site. The study area is not identified by the MSHCP (County 2003) or South Coast Missing Linkages (South Coast Wildlands 2008) as being part of a local or regional corridor or linkage. The study area currently does not directly connect two or more large blocks of habitat. The study area is within an urbanized area of the City and is bounded by rural residential properties to the north and east, a small commercial center to the south, and I-15 to the west. The study area supports primarily non-native forbs, grasses, and trees that may be

used by birds, smaller mammals, and reptiles that have adapted to human disturbance. Some wildlife moving may use the study area for foraging and/or nesting, but the use of the study area would be restricted due to limited vegetative cover and adjacent disturbance from existing human development.

5.3.2 Migratory Species

Less than Significant Impacts with Mitigation Incorporated

Development of the proposed project could disturb or destroy active migratory bird nests, including eggs and young. Disturbance to or destruction of migratory bird eggs, young, or adults is in violation of the MBTA and is considered a potentially significant impact. Although suitable habitat for nesting birds on the study area is limited, herbaceous ground cover and shrubs located throughout the study area could provide habitat for protected nesting bird species. Measure BIO-2 in Section 6.0 will help ensure the project complies with MBTA regulations.

5.4 LOCAL POLICIES AND ORDINANCES

No Impacts

The project does not conflict with any local policies or ordinances protecting biological resources, such as tree preservations or local ordinances.

5.5 ADOPTED HABITAT CONSERVATION PLANS

Less than Significant Impacts with Mitigation Incorporated

As discussed in Section 3.6.1 above, the study area is within the Elsinore Area Plan of the MSHCP. The study area is not located within or adjacent to an MSHCP Criteria Area; therefore, the study area is not subject to special conservation requirements that apply to cells and is not required to undergo the HANS process. The following sections demonstrate the project's compliance with MSHCP requirements.

5.5.1 Riparian/Riverine Areas and Vernal Pools (MSHCP Section 6.1.2)

The identification of MSHCP Riparian/Riverine Areas is based on the potential for the habitat to support, or be a tributary to, habitat that supports Riparian/Riverine Covered Species. Riparian/Riverine Covered Species are identified in MSHCP Section 6.1.2. The MSHCP defines Riparian/Riverine Areas as "lands which contain Habitat dominated by trees, shrubs, or emergent mosses and lichens, which occur close to, or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year" (County 2003). The MSHCP defines Vernal Pools as "seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season" (County 2003). Artificially created wetlands, except for those created intentionally to provide habitat or resulting from the creation of open waters or alteration of natural stream courses, are not considered MSHCP Vernal Pools.

Riparian/Riverine Areas

The study area does not support Riparian/Riverine Areas or Vernal Pools, or suitable habitat for associated species, as defined by the MSHCP. Therefore, a DBESP for Riparian/Riverine Areas and Vernal Pools is not required.

Riparian/Riverine Area Species

The study area does not support suitable habitat for Riparian/Riverine Areas or Vernal Pool plant or animal species.

As discussed above, the proposed project is consistent with MSHCP Section 6.1.2.

5.5.2 Narrow Endemic Plant Species (MSHCP Section 6.1.3)

The study area is not located within a NEPSSA; therefore, no focused surveys were required, and the proposed project is consistent with Section 6.1.3 of the MSHCP.

5.5.3 Urban/Wildland Interface Guidelines (MSHCP Section 6.1.4)

Proposed developments adjacent to MSHCP Conservation Areas may create edge effects that can impact conserved biological resources. The MSHCP provides several guidelines that address the potential indirect effects from the proposed developments that are in proximity to MSHCP Conservation Areas. These guidelines include measures addressing the quantity and quality of runoff generated by the development (i.e., drainage and toxics), night lighting, noise, non-native invasive plant species, barriers to humans and animal predators, and grading/land development encroachment.

The study area is not adjacent to land targeted for conservation or existing MSHCP Conservation Areas. The nearest linkage to the study area is Proposed Linkage 8, which is approximately one mile east of the study area and consists of upland habitat within the Wildomar area (County 2003). Since the study area is not within or adjacent to MSHCP Conservation Areas, many of the MSHCP Urban/Wildland Interface Guidelines are not required. As discussed below, the project will comply with applicable guidelines to ensure consistency with MSHCP Section 6.1.4.

Drainage

The study area does not support natural drainage features. However, the project will incorporate measures to avoid the discharge of untreated surface runoff into downstream waters. Measures will include those required for construction pursuant to the State Water Resources Control Board General Construction Stormwater Permit and those required post-construction pursuant to the National Pollutant Discharge Elimination System and Municipal Storm Drain requirements. The project is being designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes downstream from the project.

Toxics

Land uses that use chemicals or generate bio-products that are potentially toxic or may adversely affect wildlife species, habitat, or water quality shall incorporate measures to ensure that the application of

such chemicals does not result in a discharge into downstream waters. Measures, such as those employed to address drainage issues, would be implemented by the proposed infrastructure to avoid the potential impacts of toxics.

Lighting

The study area does not occur directly adjacent to MSHCP Conservation Areas, which are separated by existing development. Therefore, lighting standards are not applicable.

Noise

The study area does not occur directly adjacent to MSHCP Conservation Areas, which are separated by existing development. Therefore, noise standards are not applicable.

Invasives

The project shall not use invasive plants for erosion control, landscaping, wind rows, or other purposes. A measure (Measure BIO-3) is provided in Section 6.0 below, which requires the project to comply with the MSHCP and avoid the use of invasive, non-native plants in accordance with MSHCP Table 6.2.

Barriers

Since the study area is not directly adjacent to the MSHCP Conservation Area, barriers or signage are not necessary.

Grading/Land Development

The project is not adjacent to an existing or proposed MSHCP Conservation Areas. Therefore, manufactured slopes associated with the proposed site development will not extend into an MSHCP Conservation Area.

5.5.4 Additional Surveys (MSHCP Section 6.3.2)

The study area is not within a CASSA or an amphibian or mammal survey area. No impacts to CASSA species or sensitive amphibian or mammal species are proposed.

Based on the results of the focused BUOW surveys, the study area does not support BUOW. Prior to commencement of ground-disturbing activities, a pre-construction survey must be conducted within 30 days of ground-disturbing activities (County 2006; see Measure BIO-1 in Section 6.0 below). If BUOW is detected during the pre-construction survey, avoidance of active nests and/or relocation of BUOW would be required as outlined in Measure BIO-1 in Section 6.0 below.

As discussed above and with the implementation of Measure BIO-1, the proposed project is consistent with MSHCP Section 6.3.2.

5.5.5 Fuels Management (MSHCP Section 6.4)

The property is not adjacent to an MSHCP Conservation Area. Therefore, fuel modification impacts would not extend into a conservation area. The project is consistent with MSHCP Section 6.4.

5.5.6 Multiple Species Habitat Conservation Plan and Stephens' Kangaroo Rat Fees

For the project to participate in the MSHCP, the project proponent is required to pay an MSHCP LDMF to finance the acquisitions of conservation areas to provide habitat for MSHCP covered species (City 2021). The LDMF must be paid prior to the issuance of a building permit. The applicant shall pay the LDMF as determined by the City. Final fee credits shall be determined through coordination with the City.

The study area is also within the SKR HCP but is not located within any of the core reserves (RCHCA 1996). Therefore, the project is required to pay an SKR mitigation fee for incidental take authorization under the SKR HCP (City 2008).

A measure (Measure BIO-4) is provided in Section 6.0, which requires the project proponent to pay the MSHCP LDMF and SKR HCP fees.

6.0 MITIGATION MEASURES

The following provides recommended measures intended to minimize or avoid impacts to biological resources:

BIO-1 **Burrowing Owl:** In compliance with the MSHCP, a pre-construction survey shall be conducted within 30 days prior to ground-disturbing activities (i.e., earthwork, clearing, grubbing, watering, staging, etc.) occurring on the study area. If the pre-construction survey is negative and BUOW is confirmed absent, then ground-disturbing activities shall be allowed to commence, and no further measures would be required.

If BUOWs are observed during the pre-construction survey, take of active nests must be avoided, and the City must be immediately notified. The City will coordinate with the Wildlife Agencies (i.e., CDFW and USFWS) to determine whether a BUOW Protection and Relocation Plan is required prior to ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey must be conducted again to confirm BUOW has not colonized the study area since it was last disturbed. If BUOW is found, the same coordination described above would be required.

BIO-2 **Nesting Birds**: To the extent feasible, construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 1 to August 31 for raptors.

1. If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory birds and raptors, a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the MBTA and CFG Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities. The qualified biologist shall document the results of the pre-construction survey. If

construction is inactive for more than seven days, an additional survey shall be conducted.

2. If the qualified biologist determines that no active migratory bird or raptor nests occur, the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no construction activities within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, or as determined by the qualified biologist. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds.

BIO-3 **MSHCP Landscaping Restrictions**: In accordance with MSHCP Section 6.1.4, no species listed in Table 6-2, *Plants that Should Be Avoided Adjacent to the MSHCP Conservation Area*, shall be used in the project landscape plans (including hydroseed mix used for interim erosion control).

BIO-4 **Habitat Conservation Plan Fees**: The project applicant is subject to the MSHCP LDMF and the SKR Habitat Conservation Plan Fee, which shall be paid prior to issuance of any grading permit.

7.0 CERTIFICATION/QUALIFICATION

The following individuals contributed to the fieldwork and/or preparation of this report:

Sean Bohac	Graduate Certificate in GIS, Mesa College, San Diego, 2003 B.S., Biology, The Evergreen State College, 1998
Matthew Dimson	B.S., Environmental Science and Policy, California State University Long Beach, 2017
Linda Garcia	M.A., English, National University, San Diego, 2012 B.A., Literatures in English, University of California, San Diego, 2003
Amir Morales	B.S., Hydrological Sciences, Minor Geographic Information Systems, University of California Santa Barbara, 2001
Nelly Moreno	M.S., Environmental Policy and Management with an emphasis in Natural Resource Management, University of Denver, 2020 B.S., Plant Science, Minor Pest Management, California Polytechnic University Pomona, 2018
Lauren Singleton	M.S., Biology with an emphasis in Ecology and Entomology, California State University Long Beach, 2014 B.S., Biology with an emphasis in Ecology, Minor Chemistry, California State University Long Beach, 2010
Cache Tucker	B.A., Entrepreneurship, California State University of Fullerton, 2012 A.A., Natural Resources, College of the Desert, 2014

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Appendix A

Plant Species Observed

Family	Scientific Name	Common Name
EUDICOTS		
Anacardiaceae	*Schinus molle**	Peruvian pepper tree
	*Schinus terebinthifolia**	Brazilian pepper tree
Asteraceae	*Amsinckia intermedia*	rancher's fiddleneck
	*Centaurea melitensis**	tocalote
	Encelia farinosa	brittlebush
	Isocoma menziesii	Menzies' goldenbush
	*Oncosiphon piluliferum**	stinknet
Brassicaceae	*Hirschfeldia incana**	short-pod mustard
	*Sisymbrium irio**	London rocket
Cactaceae	*Opuntia ficus-indica**	mission cactus
Chenopodiaceae	*Salsola tragus**	Russian thistle
Fabaceae	*Parkinsonia aculeata**	Jerusalem thorn
Geraniaceae	*Erodium brachycarpum**	short-beak filaree
	*Erodium cicutarium**	redstem filaree
Juglandaceae	*Juglans californica*	southern California black walnut
Malvaceae	*Malva parviflora**	cheeseweed
Moraceae	*Ficus* sp.*	ficus
Myrtaceae	*Eucalyptus camaldulensis**	river red gum
Polygonaceae	*Eriogonum fasciculatum*	California buckwheat
Nyctaginaceae	*Bougainvillea spectabilis**	great bougainvillea
Tamaricaceae	*Tamarix ramosissima**	saltcedar
MONOCOTS		
Arecaceae	*Washingtonia robusta**	Mexican fan palm
Cupressaceae	*Juniperus* sp.*	juniper
Poaceae	*Avena barbata**	slender oat
	*Avena fatua**	wild oat
	*Bromus diandrus**	common ripgut grass
	*Bromus rubens**	red brome
	*Hordeum murinum**	common barley
	*Nassella tenuissima**	Mexican feathergrass

* Non-native species

Appendix B

Animal Species Observed or Detected

Order	Family	Scientific Name	Common Name
VERTEBRATES			
Birds			
Accipitriformes	Accipitridae	*Buteo jamaicensis*	red-tailed hawk
Apodiformes	Trochilidae	*Calypte anna*	Anna's hummingbird
		Selasphorus sasin	Allen’s hummingbird
Charadriiformes	Laridae	*Larus occidentalis*	western gull
Columbiformes	Columbidae	*Zenaida macroura*	mourning dove
Passeriformes	Aegithalidae	*Psaltriparus minimus*	bushtit
	Corvidae	*Corvus brachyrhynchos*	American crow
		Corvus corax	common raven
	Fringillidae	*Haemorhous mexicanus*	house finch
		Spinus lawrencei	Lawrence’s goldfinch
		Spinus psaltria	lesser goldfinch
		Spinus tristis	American goldfinch
	Passerellidae	*Melospiza melodia*	song sparrow
	Passeridae	*Passer domesticus*	house sparrow
	Parulidae	*Setophaga coronata*	yellow-rumped warbler
Mammals			
Rodentia	Sciuridae	*Otospermophilus beecheyi*	California ground squirrel

Appendix C

Site Photographs



Photograph 1: View of the wild oats and annual brome grasslands near the eastern study area boundary, facing northwest.



Photograph 2: View of the eucalyptus grove and the surrounding wild oats and annual brome grasslands in the southern portion of the study area, facing east.

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Photograph 3: View of a foundation from a previous development in the western portion of the study area, facing north.



Photograph 4: View of the abandoned palm tree nursery (mapped as agriculture) in the northern portion of the study area, facing east.

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Photograph 5: View of the artificial pond in the southern portion of the study area. The plastic lining is visible and no water was present.



Photograph 6: View of the ribbon gutter and culvert in the southwest portion of the study area, on the north side of Bundy Canyon Road.

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Appendix D

Burrowing Owl Focused Survey Report

HELIX Environmental Planning, Inc.
16485 Laguna Canyon Road, Suite 150
Irvine, CA 92618
949.573.9450 **tel.**
619.462.0552 **fax**
www.**helixepi**.com

June 13, 2023 03491.00013.001

Mr. Jack Kofdarali
Cherry Outpost, LP
P.O. Box 1958
Corona, CA 92878

Subject: 2023 Burrowing Owl (*Athene cunicularia*) Survey Report for the Cherry Outpost Project

Dear Mr. Kofdarali:

This letter report presents the results of the 2023 focused burrowing owl (*Athene cunicularia;* BUOW) survey conducted by HELIX Environmental Planning, Inc. (HELIX) for the Cherry Outpost Project (project) located in the City of Wildomar (City), Riverside County (County), California. The survey was conducted in accordance with the County's Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP).[1] This survey was conducted to meet applicable conditions under the MSHCP, which was approved in 2003.[2] The MSHCP is a comprehensive planning effort that includes multiple cities throughout Riverside County, including the City of Wildomar. As part of the MSHCP implementation, enrolled jurisdictions are required to impose terms of the MSHCP, including appropriate surveys in accordance with Volume 1, Section 6. The project is located within the MSHCP BUOW Survey Area; therefore, surveys are required if suitable habitat is present. This letter report describes the methods used to perform the survey and the survey results.

STUDY AREA LOCATION

The approximately 6.2-acre project site is located in the City of Wildomar in western Riverside County, California, and is generally located east of Interstate (I) 15 and west of I-215 in the northwestern portion of the City (Figure 1, *Regional Location*). The project site is located within Township 6 South, Range 4 West, Section 23 on the U.S. Geological Survey (USGS) 7.5-minute Lake Elsinore quadrangle map (Figure 2, *USGS Topography*). Specifically, the project site is located at the northwest intersection of Bundy

[1] Riverside, County of. 2006. Burrowing owl survey instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. Environmental Programs Department. Retrieved from: https://www.wrc-rca.org/species/survey_protocols/burrowing_owl_survey_instructions.pdf. Accessed June 8, 2023.

[2] Riverside, County of. 2003. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Final MSHCP Volume I. Prepared by Dudek and Associate. Prepared for County of Riverside, Transportation and Land Management Agency. Available from: http://www.rctlma.org/Portals/0/mshcp/index.html. Accessed June 8, 2023.

Canyon Road and Cherry Street (Figure 3, *Aerial Photograph*). The project site comprises two parcels with Assessor's Parcel Numbers 366-290-007 and -008.

The project also comprises 1.3 acres of off-site areas adjacent to the southwest corner of the project site and within the existing paved right-of-way along Bundy Canyon Road and Cherry Street (Figure 3). The term "study area" is used throughout this report to collectively refer to the 6.2-acre project site and 1.3-acre off-site areas.

PROJECT DESCRIPTION

The proposed project consists of a commercial development with a hotel and on-site improvements. Proposed retail uses include restaurants, convenience stores, a gas and diesel station, and a car wash. Off-site improvements include road widening along Bundy Canyon Road and Cherry Street and the placement of a 36-inch storm drain pipe outlet and associated riprap pad in the southwestern portion of the study area.

STUDY AREA DESCRIPTION

The study area is dominated by non-native grasses, and supports smaller areas of existing developed land, disturbed habitat, eucalyptus grove, and agricultural land. The agricultural land comprises an abandoned palm tree nursery in the center of the study area. The study area is within an urbanized area of the City and is bounded by rural residential properties to the north and east, a small commercial center to the south, and I-15 to the west. Undeveloped land associated with Sedco Hills is located east of the study area.

The topography of the study area is mostly flat, with elevations ranging from approximately 1,398 feet (426 meters) above mean sea level (AMSL) within the southern portion of the study area along Bundy Canyon Road to a high of approximately 1,443 feet (440 meters) AMSL along Cherry Avenue in the northeastern corner of the study area. Three soil types were mapped within the study area, with the majority of the study area dominated by Ramona sandy loam (8 to 15 percent slopes, eroded; 8 to 15 percent slopes, severely eroded; 0 to 8 percent slopes, eroded; NRCS 2023). The other two soil types include Hanford coarse sandy loam (2 to 8 percent slopes) and Greenfield sandy loam (2 to 8 percent slopes, eroded).

Representative photographs of the study area are depicted in Attachment A, *Representative Site Photographs*.

METHODS

HELIX biologists Matthew Dimson and Nelly Moreno conducted a Step I Habitat Assessment on February 8, 2023. Step II Locating Burrows and Burrowing Owls, including Part A: Focused Burrow Surveys and Part B: Focused Burrowing Owl Surveys, were conducted on the study area by HELIX biologist Cache Tucker between April 6 and June 9, 2023, in accordance with the County's survey protocol. The specific survey information is provided in Table 1, *Survey Information.* The habitat assessment and Part A: Focused Burrow Surveys and Part B: Focused Burrowing Owl Surveys are described in detail below.

Table 1
SURVEY INFORMATION

Site Visit	Survey Date	Biologists	Start/Stop Time	Start/Stop Weather Conditions	Survey Results
HA[1]	02/08/23	Matthew Dimson Nelly Moreno	0740-0945	50°F, wind 0-1 mph, 10% clouds 54°F, wind 2-4 mph, 5% clouds	Suitable habitat detected; no BUOW detected.
1	04/06/23	Cache Tucker	0700-0830	48°F, wind 1-2 mph, 0% clouds 51°F, wind 0-4 mph, 0% clouds	Potential burrows/ burrow surrogates were observed; no BUOW detected.
2	04/26/23	Cache Tucker	0645-0800	61°F, wind 1-3 mph, 5% clouds 59°F, wind 3-5 mph, 5% clouds	No BUOW detected.
3	05/17/23	Cache Tucker	0600-0745	58°F, wind 0-1 mph, 0% clouds 65°F, wind 0-2 mph, 0% clouds	No BUOW detected.
4	06/09/23	Cache Tucker	0600-0740	57°F, wind 0-2 mph, 100% clouds 58°F, wind 0-1 mph, 1000% clouds	No BUOW detected.

[1] Step I Habitat Assessment

Step I – Habitat Assessment

The study area is located within an MSHCP BUOW survey area; therefore, a Step I Habitat Assessment was conducted to determine whether the study area supports suitable BUOW habitat. The assessment was conducted on the study area and within a 150-meter (approximately 500-foot) buffer zone around the periphery study area (collectively, the survey area). The survey area was slowly walked and assessed for suitable BUOW habitat, including:

- disturbed low-growing vegetation within grassland and shrublands (less than 30 percent canopy cover);
- gently rolling or level terrain;
- areas with abundant small mammal burrows, especially California ground squirrel burrows (*Otospermophilus beecheyi*);
- fence posts, rocks, or other low perching locations; and
- artificially created structures, such as earthen berms, debris piles, and cement culverts.

Inaccessible areas of the buffer zone were visually assessed using binoculars.

Step II – Locating Burrows and Burrowing Owls

Since suitable habitat was observed during the habitat assessment, Step II surveys were conducted within the survey area. Step II surveys, which consist of a focused burrow survey (Part A) and four focused BUOW surveys (Part B), were conducted to determine whether the survey area supports suitable burrows and/or BUOW. The focused burrow survey was conducted concurrently with the first BUOW survey.

All potential burrows were checked for signs of recent owl occupation. Signs of occupation include:

- pellets/casting (regurgitated fur, bones, and/or insect parts);
- white wash (excrement); and/or
- feathers.

Since suitable burrows were observed within the survey area, three additional BUOW surveys were conducted. The biologist walked transects spaced no greater than 30 meters apart (approximately 100 feet) to allow for 100 percent visual coverage of all suitable habitat within the survey area. The biologist walked slowly and methodically, closely checking suitable habitat within the survey area for suitable burrows, BUOW diagnostic sign (e.g., molted feathers, pellets/castings, or whitewash at or near a burrow entrance), and individual BUOW. Inaccessible areas of the survey area were visually assessed using binoculars. All suitable burrows, burrow surrogates, BUOW sign, and/or BUOW observations were recorded using a handheld Global Positioning System unit (Figure 4, *Suitable Burrow and Transect Locations*).

RESULTS

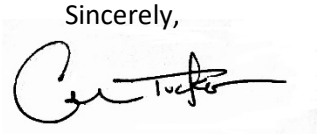
Suitable BUOW habitat was observed within the survey area, including non-native grassland and disturbed habitat (Attachment A). Suitable burrows and burrow surrogates (e.g., concrete slab with a gap between the slab and ground) that could potentially be used by BUOW were observed within the survey area. No BUOW or sign of BUOW occupation were observed during the four focused surveys. Therefore, BUOW does not currently occupy the study area. Observed burrow locations and transects walked are shown in Figure 4.

CONCLUSION

No BUOWs were observed or detected within the survey area during the focused surveys. Burrows with the potential to support BUOW were noted in the survey area, but no sign of BUOW occupation was observed. A pre-construction survey is required 30 days prior to ground disturbance pursuant to the County's survey protocol. If ground-disturbing activities are delayed more than 30 days after the pre-construction survey has been completed, the study area must be resurveyed.

If you have any questions regarding the information presented in this letter report, please contact me at CacheT@helixepi.com or Lauren Singleton at LaurenS@helixepi.com.

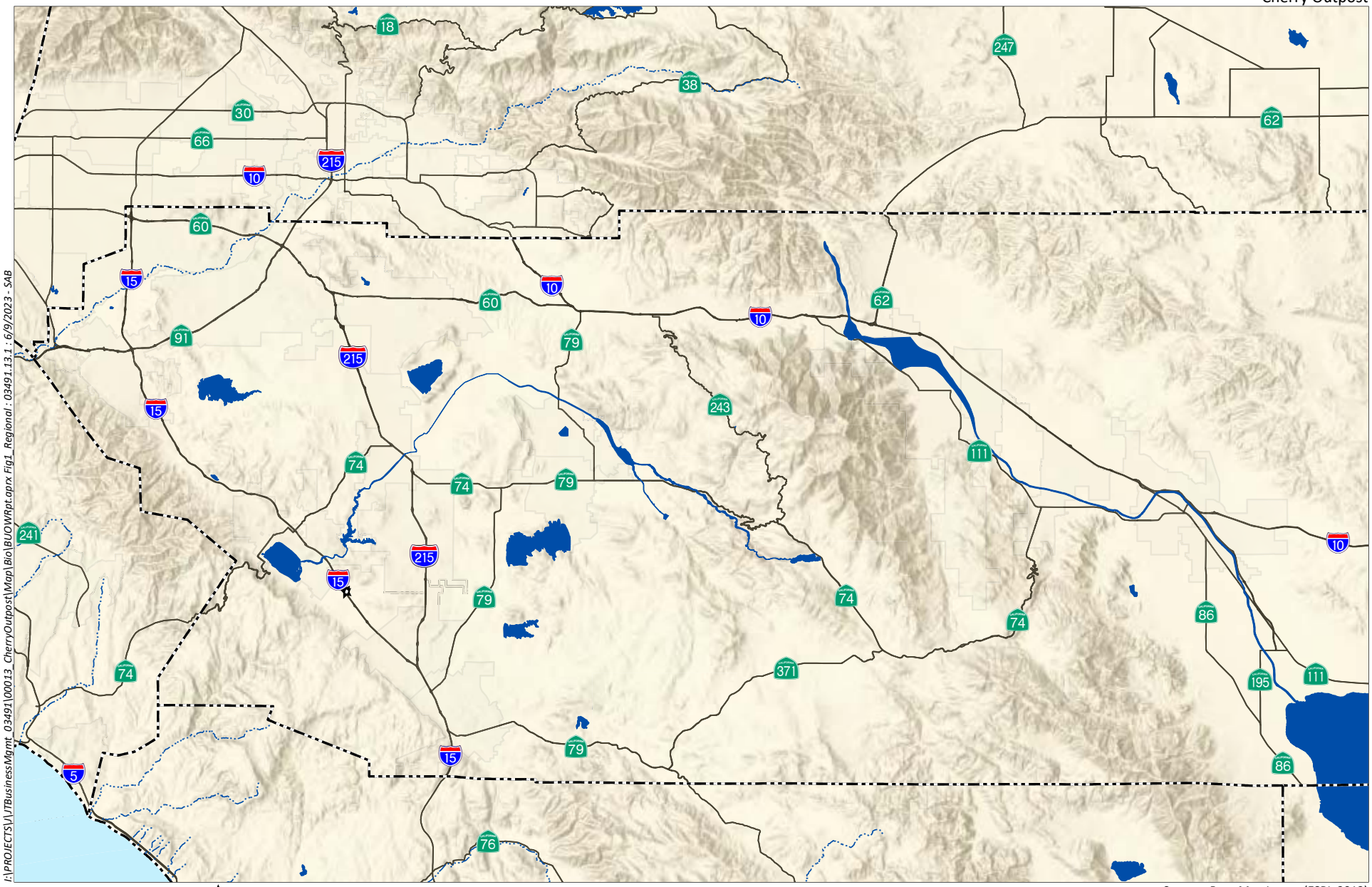
Sincerely,



Cache Tucker
Biologist

Attachments:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Photograph
Figure 4: Suitable Burrow and Transect Locations
Attachment A: Representative Site Photographs



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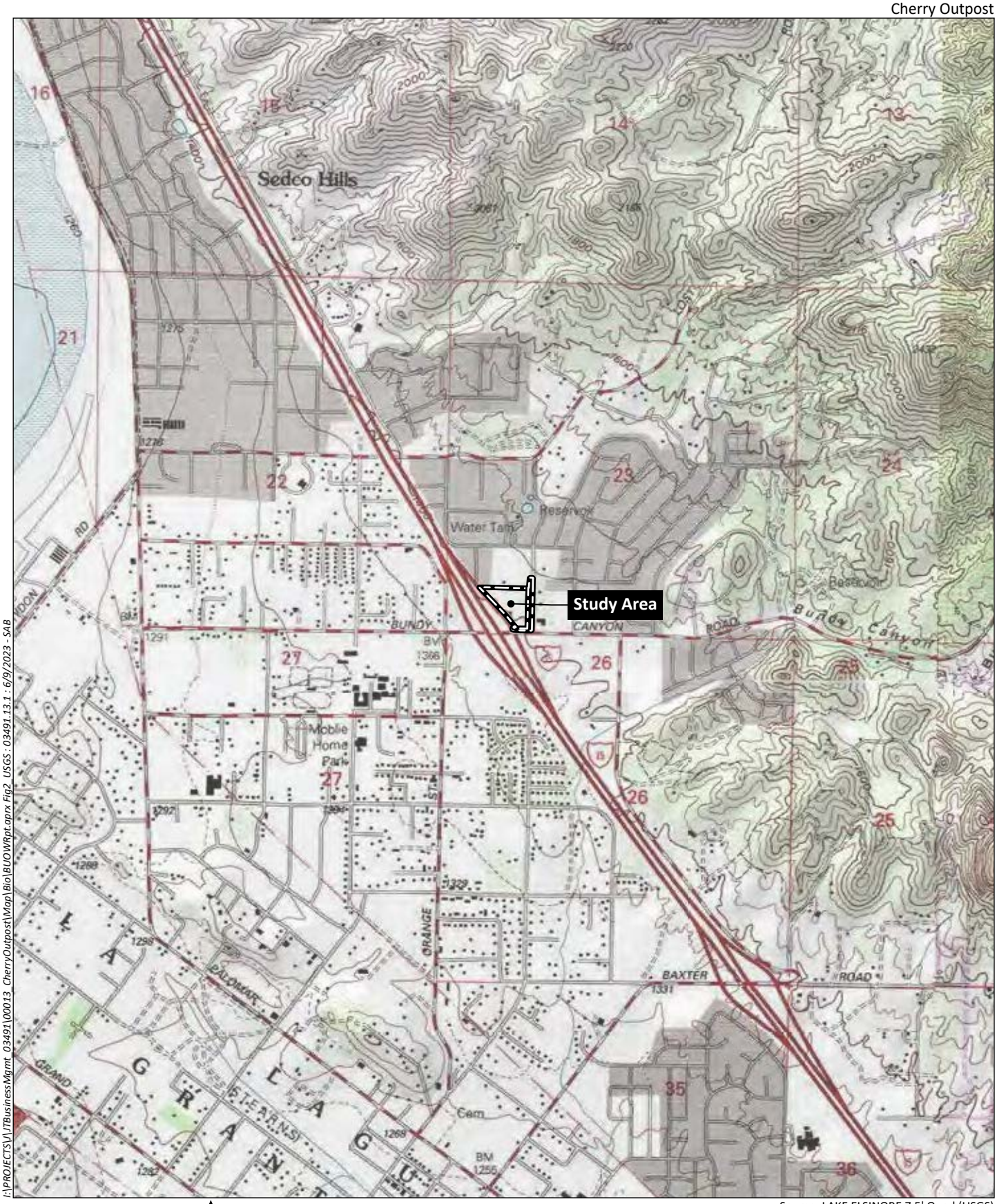
Regional Location

Figure 1



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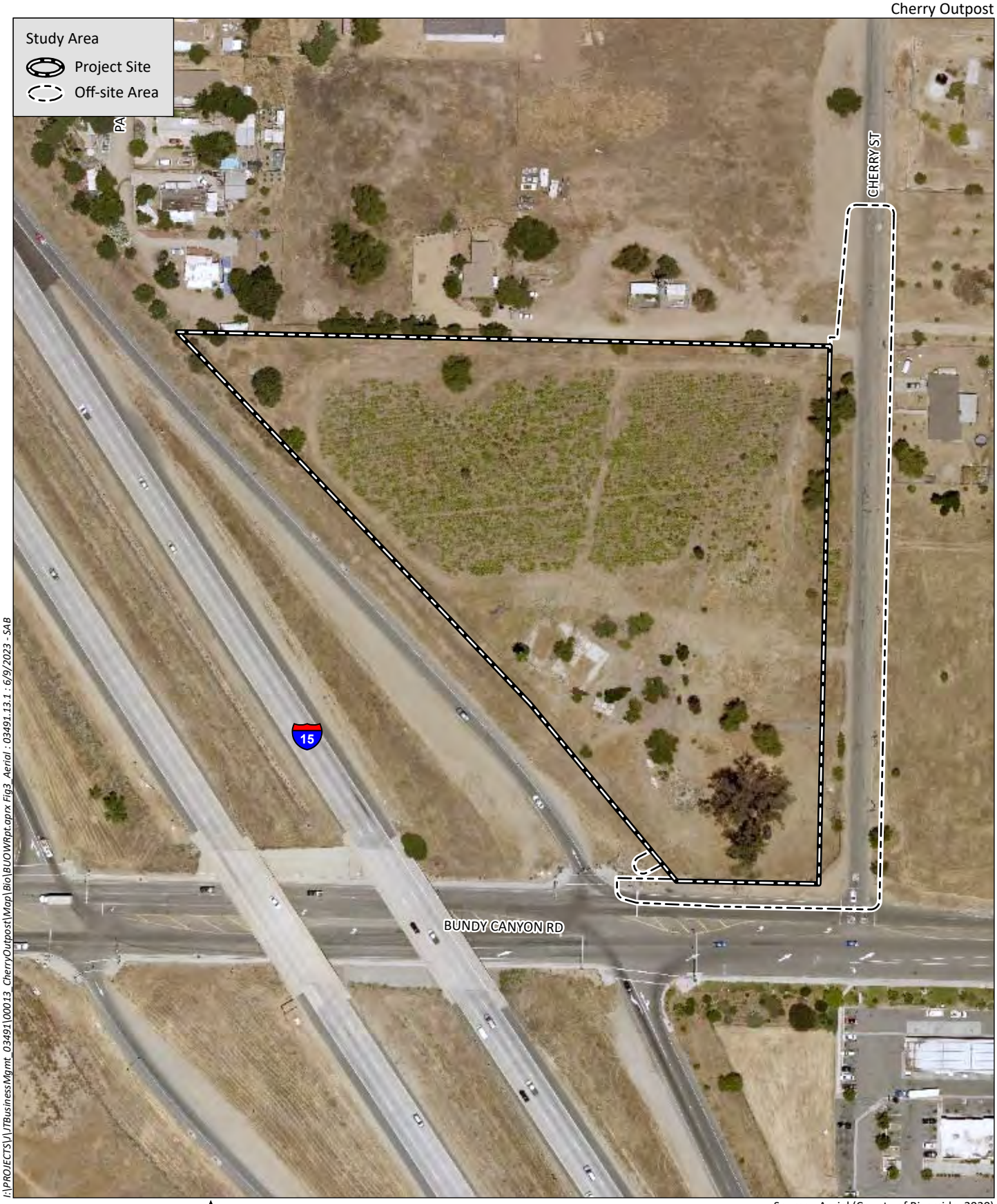
HELIX Environmental Planning

USGS Topography

Figure 2



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0 150 Feet

Source: Aerial (County of Riverside, 2020)

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Aerial Photograph

Figure 3



Source: Aerial (County of Riverside, 2020)

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Suitable Burrow and Transect Locations

Figure 4



Photograph 1: View of wild oats and annual brome grasslands in the northern portion of the study area, facing east.



Photograph 2: View of wild oats and annual brome grasslands and disturbed habitat near the eastern study area boundary, facing north.

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Appendix E

Rare Plant Species Potential to Occur

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Allium munzii	Munz's onion	FE/ST CRPR 1B.1 MSHCP Covered Species (b)	Perennial herb. Occurs on clay soils in chaparral, cismontane woodland, coastal sage scrub, pine-juniper woodland, and valley and foothill grasslands. Elevation range 300-900 m. Flowering period Apr-May.	**None.** The study area does not support clay soils.
Ambrosia pumila	San Diego ambrosia	FE CRPR 1B.1 MSHCP Covered Species (b)	Perennial herb. Occurs in coarse soils near drainages, clays soils in upland habitats, marginal wetlands (e.g., river terraces, pools, and alkali playas), and disturbed sites. Elevation range 50-600 m. Flowering period Apr-Jul.	**Presumed Absent.** The study area supports some low-quality habitat within disturbed areas along the road shoulders. The nearest observation of this species was recorded in 1993, approximately 5.9 miles northwest of the study area. This species was not observed during a survey conducted on April 26, 2023.
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	FE CRPR 1B.1 MSHCP Covered Species (d)	Annual herb. Occurs alkaline soils within playas, valleys, vernal pools, and foothill grasslands. Elevation range 130-500 m. Flowering period Apr-Aug.	**None.** The study area does not support alkaline soils.
Brodiaea filifolia	thread-leaved brodiaea	FT/SE CRPR 1B.1 MSHCP Covered Species (d)	Perennial bulbiferous herb. Occurs in clay soils within chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools. Elevation range 20-860 m. Flowering period Mar-Jun.	**None.** The study area does not support clay soils.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Centromadia pungens ssp. *laevis*	smooth tarplant	CRPR 1B.1 MSHCP Covered Species (d)	Annual herb. Occurs within alkali scrub, alkali playas, riparian woodland, chenopod scrub, meadows and seeps, watercourses, and grasslands near alkaline locales. Elevation range 0-640 m. Flowering period Apr-Sep.	**None.** The study area does not support alkali scrub, alkali playas, riparian woodland, chenopod scrub, meadows and seeps, watercourses, or grasslands near alkaline locales.
Chorizanthe parryi var. *parryi*	Parry's spineflower	CRPR 1B.1 MSHCP Covered Species (e)	Annual herb. Occurs in sandy soil on flats and foothills in mixed grassland, coastal sage scrub, cismontane woodland, and chaparral communities. Elevation range 275-1220 m. Flowering period Apr-Jun.	**Presumed Absent.** The study area supports some low-quality habitat within the non-native grassland habitat. The nearest observation of this species was recorded in 2000, approximately 0.9 mile east of the study area. This species was not observed during a survey conducted on April 26, 2023.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	CRPR 1B.2 MSHCP Covered Species	Annual herb. Occurs within Gabbroic clay soil largely devoid of shrubs. Can be occasionally seen on vernal pool, valley and foothill grassland, coastal scrub, chaparral and even montane meadows peripheries near vernal seeps. Elevation range 30-1530 m. Flowering period Apr-Jul.	**None.** The study area does not support Gabbroic clay soil.
Dodecahema leptoceras	slender-horned spineflower	FE/SE CRPR 1B.1 MSHCP Covered Species (b)	Annual herb. Found in sandy and gravelly soils or alluvial fans in coastal sage scrub, chaparral, and cismontane woodlands. Elevation range 200-760 m. Flowering Period Apr-Jun.	**None.** The study area does not support sandy and gravelly soils or alluvial fans in coastal sage scrub, chaparral, and cismontane woodlands.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Dudleya multicaulis	many-stemmed dudleya	CRPR 1B.2 MSHCP Covered Species (b)	Perennial herb succulent. Found in clay soils and sandstone outcrops associated with coastal sage scrub, chaparral, and valley grasslands. Elevation range 15-790 m. Flowering Period Apr-Jul.	**None.** The study area does not support clay soils or sandstone outcrops.
Hordeum intercedens	vernal barley	CRPR 3.2 MSHCP Covered Species	Annual herb. Occurs in coastal dunes, coastal scrub, saline flats and depressions in grasslands or in vernal pool basins. Elevation range 5-1000 m. Flowering period Mar-Jun.	**None.** The study area does not support coastal dunes, coastal scrub, or saline flats and depressions.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CRPR 1B.1 MSHCP Covered Species (d)	Annual herb. Occurs in coastal salt marsh, swamps, playas, upper end of tidal inundation areas, and vernal pools. Elevation range 1- 1,220 m. Flowering period Feb-Jun.	**None.** The study area does not support coastal salt marsh, tidal areas, or vernal pools.
Myosurus minimus ssp. *apus*	little mousetail	CRPR 3.1 MSHCP Covered Species (d)	Annual herb. Vernal pools, valley and foothill grasslands, and alkaline marshes. This cryptic species typically grows in the deeper portions of vernal pool basins, sprouting immediately after the surface water has evaporated. Elevation range 20-640 m. Flowering period Mar-Jun.	**None.** The study area does not support vernal pools, valley and foothill grasslands, or alkaline marshes.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Orcuttia californica	California Orcutt grass	FE/SE CRPR 1B.1 MSHCP Covered Species (b)	Annual herb. Occurs in or near vernal pools. This species tends to grow in wetter portions of the vernal pool basin but does not show much growth until the basins become somewhat desiccated. Elevation range 15-660 m. Flowering period Apr-Aug.	**None.** The study area does not support vernal pools.

Source: HELIX (2024)

[1] Sensitive plant species reported within the Alberhill, Lake Elsinore, Lake Mathews, Romoland, Steele Peak, Sitton Peak, Wildomar, Murrieta, and Perris quadrangles on the CNPS database.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened. CRPR = California Rare Plant Rank: 1A – presumed extinct; 1B – rare, threatened, or endangered in California and elsewhere; 2A – rare, threatened, or endangered in California and elsewhere; 2B – rare, threatened, or endangered in California but more common elsewhere. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered. MSHCP Conditionally Covered Species (a) through (f): (a) surveys may be required for species as part of wetland mapping (MSHCP Section 6.1.2); (b) surveys may be required for species within Narrow Endemic Plant Species Survey Area (MSHCP Section 6.1.3); (c) surveys may be required for species within locations shown on survey maps (MSHCP Section 6.3.2); (d) surveys may be required for species within Criteria Area Species Survey Area (MSHCP Section 6.3.2); (e) covered species will be considered to be covered species adequately conserved when conservation requirements identified in species-specific conservation objectives have been met (MSHCP Table 9-3); and (f) covered species will be conserved covered species adequately conserved when a Memorandum of Understanding is executed with the Forest Service that addresses management for these species on Forest Service Land (MSHCP Table 9-3).

[3] Potential to Occur is assessed as follows: **None**: Habitat suitable for species survival does not occur on the study area, the study area is not within geographic range of the species, and/or the study area is not within the elevation range of the species; **Low**: Suitable habitat is present on the study area but of low quality and/or small extent. The species has not been recorded recently on or near the study area. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **Moderate**: Suitable habitat is present on the study area and the species was recorded recently near the study area; however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **High**: Suitable habitat of sufficient extent is present on the study area and the species has been recorded recently on or near the study area, but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed; **Presumed Present**: The species was observed during focused surveys for the current project and is assumed to occupy the study area; **Presumed Absent**: Suitable habitat is present on the study area but focused surveys for the species were negative.

Appendix F

Sensitive Animal Species Potential to Occur

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Invertebrates				
Bombus crotchii	Crotch's bumble bee	SCE	Coastal California east to the Sierra-Cascade crest and south into Mexico and is associated with grassland and scrub habitats near the coast. Species' food genera include *Antirrhinum* spp*., Clarkia* spp*., Dendromecon* spp*., Eriogonum* spp., *Eschscholzia* spp., *Lupinus* spp., *Medicago* spp., *Phacelia* spp., and *Salvia* spp. Nests are underground and commonly consist of abandoned rodent nests.	**None.** The study area supports mostly non-native tree and grass species, with only a few scattered *Eriogonum californica* individuals. No other potential food genera were recorded within the study area. There is not suitable habitat adjacent to the study area. The most recent record of this species within five miles of the project site was recorded in iNaturalist[4] in 2023, approximately 3.5 miles southeast of the project site.
Branchinecta lynchi	vernal pool fairy shrimp	FT MSHCP Covered Species (a)	Mostly found in swale, earth slump, or basal-flow depression pools in unplowed grasslands. Requires cool-water pools.	**None.** The study area does not support vernal pools or other depressional areas.
Branchinecta sandiegoensis	San Diego fairy shrimp	FE MSHCP Covered Species (a)	Mostly found in swale, earth slump, or depression pools in unplowed grasslands. Requires cool-water pools.	**None.** The study area does not support vernal pools or other depressional areas.
Euphydryas editha quino	quino checkerspot butterfly	FE MSHCP Covered Species	Open, sunny areas within chaparral and coastal sage scrub. Host plants are *Plantago* spp*., Antirrhinum coulterianum*, and *Cordylanthus rigidus*.	**None.** The study area does not support chaparral or coastal sage scrub habitat. Host plants were not recorded within the study area.
Streptocephalus woottoni	Riverside fairy shrimp	FE MSHCP Covered Species (a)	Typically deep vernal pools and seasonal wetlands at least 30 centimeters deep.	**None.** The study area does not support vernal pools or other depressional areas.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Fish				
Gila orcuttii	arroyo chub	SSC MSHCP Covered Species	Arroyo chub are adapted to survive in cool to warm (10 – 24◦C) streams that fluctuate between large winter storm flows, and low summer flows, and the low dissolved oxygen and wide temperature fluctuations associated with this flow regime. They are most common in slow flowing or backwater areas with sand or mud substrate but may also inhabit areas with velocities in excess of 80 cm/s over coarse substrate.	**None.** The study area does not support perennial streams.
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	FE	The southern California population segment occurs in Pacific coast streams, from the Santa Maria River to the Tijuana River. They are anadromous – living in the ocean but spawning in freshwater.	**None.** The study area does not support perennial streams.
Amphibians				
Anaxyrus californicus	arroyo toad	FE, SSC MSHCP Covered Species (c)	Found on banks with open-canopy riparian forest characterized by willows, cottonwoods, or sycamores; breeds in areas with shallow, slowly moving streams, but burrows in adjacent uplands during dry months.	**None.** The study area does not support suitable riparian habitat.
Rana draytonii	California red-legged frog	FT, SSC MSHCP Covered Species (c)	Suitable habitat is characterized by dense, shrubby riparian vegetation with deep, slow-moving water. Readily displaced by introduced aquatic predators, including bullfrogs (*Lithobates catesbiana*) or crayfish (*Procambarus* spp.).	**None.** The study area does not support suitable riparian habitat.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Spea hammondii	western spadefoot	SSC MSHCP Covered Species	Occurs in open coastal sage scrub, chaparral, and grassland, along sandy or gravelly washes, floodplains, alluvial fans, or playas; require temporary pools for breeding and friable soils for burrowing; generally excluded from areas with bullfrogs (*Rana catesbiana*) or crayfish (*Procambarus* spp.)	**None.** The study area does not occur along a wash, floodplain, alluvial fan, or playa. Suitable depressional habitat is not present.
Taricha torosa	Coast Range newt	SSC MSHCP Covered Species	Breeds in ponds, reservoirs, and slow-moving stream pools; often found in riparian forest, woodlands, chaparral, or grassland within one kilometer of breeding habitat.	**None.** Suitable breeding habitat is not present within one kilometer of the study area.
Reptiles				
Anniella stebbinsi	Southern California legless lizard	SSC	Broad-leaved upland forest, chaparral, coastal dunes and coastal scrub. Occurs in sandy or loose soils under sparse vegetation. Generally, prefers soils with a high moisture content.	**None.** The study area does not support broad-leaved upland forest, chaparral, coastal, or coastal scrub habitats. High soil moisture content is not present.
Arizona elegans occidentalis	California glossy snake	SSC	Occurs in arid scrub, rocky washes, grasslands, chaparral, barren desert, and pinyon-juniper, oak, or pine woodlands. Generally, prefers open areas and loose soil within these habitats.	**Low.** The study area supports some suitable grassland habitat. The surrounding area is highly developed and is not adjacent to open areas. The nearest CNDDB occurrence was recorded in 2016, approximately 21 miles northwest of the study area.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Aspidoscelis tigris stejnegeri	coastal whiptail	SSC MSHCP Covered Species	Open coastal sage scrub, chaparral, and woodlands. Frequently found along the edges of dirt roads traversing its habitats. Important habitat components include open, sunny areas, shrub cover with accumulated leaf litter, and an abundance of insects, spiders, or scorpions.	**Low.** The study area supports suitable habitat with accumulated leaf litter. The nearest CNDDB occurrence was recorded in 2017, approximately 16 miles northwest of the study area.
Crotalus ruber	red-diamond rattlesnake	SSC MSHCP Covered Species	This snake occurs in a wide variety of arid and semiarid habitats that provide dense vegetation or rocky cover. It also occurs in rocky areas and in dense vegetation. It retreats into rodent burrows, into cracks in rocks or under surface cover objects.	**None.** The study area does not support dense vegetation or rocky cover, and is surrounded by development.
Emys marmorata	western pond turtle	SSC MSHCP Covered Species	Almost entirely aquatic; occurs in freshwater marshes, creeks, ponds, rivers and streams, particularly where basking sites, deep water retreats, and egg laying areas are readily available.	**None.** The study area does support suitable aquatic habitat.
Phrynosoma blainvillii	coast horned lizard	SSC MSHCP Covered Species	Coastal sage scrub and open areas in chaparral, oak (*Quercus* sp.) woodlands, and coniferous forests with sufficient basking sites, adequate scrub cover, and areas of loose soil; require native ants, especially harvester ants (*Pogonomyrmex* spp.), and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).	**None.** The study area does not support suitable chaparral, oak woodland, or coniferous forest habitat. Harvester ants were not observed on the site.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Salvadora hexalepis virgultea	coast patch-nosed snake	SSC	This snake is found in the desert scrub, grassland, chaparral, sagebrush plains, and pinyon-juniper woodlands in the southwestern United States south into Baja California and Mexico, from below sea level to 7,000 feet.	**Low.** The study area supports some suitable grassland habitat. The surrounding area is highly developed and is not adjacent to open areas. The nearest CNDDB occurrence was recorded in 2004, approximately 12 miles northwest of the study area.
Thamnophis hammondii	two-striped gartersnake	SSC	Occurs along permanent and intermittent streams bordered by dense riparian vegetation, but occasionally associated with vernal pools or stock ponds.	**None.** The study area does not support permanent or intermittent streams.
Birds				
Agelaius tricolor	tricolored blackbird	SCE/SSC MSHCP Covered Species	Breeds in dense stands of cattails (*Typha* sp.) or bulrushes (*Schoenoplectus* sp./*Scirpus* sp.) located within large freshwater marshes. Forages in adjacent open habitats, such as agricultural fields, pastures, or grasslands.	**None.** The study area and adjacent areas do not support freshwater marsh habitat.
Aquila chrysaetos	golden eagle	SFP MSHCP Covered Species	Typical foraging habitat includes grassy and open, shrubby habitats. Generally, nests on remote cliffs; requires areas of solitude at a distance from human habitation.	**None.** The study area does not support suitable nesting or foraging habitat.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Asio otus	long-eared owl	SSC	Riparian habitat is required but it also uses other live oak thickets with small, densely canopied trees required for roosting and nesting.	**None.** The study area does not support riparian habitat or live oak thickets.
Athene cunicularia	burrowing owl	SSC MSHCP Covered Species (c)	Occurs in open, treeless areas with low, sparse vegetation, usually on gently sloping terrain. The owls can be found in grasslands, deserts, and steppe environments; on golf courses, pastures, agricultural fields, airport medians, and road embankments; in cemeteries and urban vacant lots. They are often associated with high densities of burrowing mammals such as prairie dogs, ground squirrels, and tortoises.	**Absent.** The study area supports some limited areas of suitable habitat. This species was recorded in eBird[5] in 2010, approximately 0.5 mile west of the study area. Focused surveys were conducted during the 2023 breeding season and survey results were negative.
Buteo swainsoni	Swainson's hawk	ST MSHCP Covered Species	Breeds in grasslands and shrublands with scattered trees, riparian areas, and agricultural areas with groves or lines of trees. Requires adjacent grasslands or agricultural fields supporting rodent populations for foraging.	**None.** This species is not known to nest in southern California except for populations in the Antelope Valley and Mojave Desert. The study area may provide low-quality foraging habitat. This species recorded in eBird in 2022, approximately 2.3 miles southeast of the Study Area.
Charadrius alexandrinus nivosus	western snowy plover	FT/SSC	Requires sandy, gravelly, or friable soils for nesting at beaches, dunes, salt flats, and large lakes.	**None.** The study area does not support beaches, dunes, salt flats, or large lakes.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Coturnicops noveboracensis	yellow rail	SSC	Breeds in shallow freshwater grass- and sedge- dominated marshes and wetlands. Prefer habitat where they can move beneath a later of vegetation. Winters in wet meadows and mature salt marshes above the water line, having cordgrass, saltgrass, sedges, and other low vegetation. Not found in deeper water with tall vegetation, such as cattail marshes.	**None.** The study area does not support freshwater marsh are wetland habitat.
Elanus leucurus	white-tailed kite	SFP MSHCP Covered Species	Nests in trees with dense canopies within open grasslands, woodlands, and marshes. Forages for small mammals within lightly grazed/ungrazed pastures and grasslands.	**Low.** The study area supports pepper trees (*Schinus* spp.) and red gum (*Eucalypts camaldulensis*) that could be used for nesting habitat, although this is considered low quality nesting habitat since the study area is directly adjacent to Interstate 15. Undeveloped land on the study area could provide low quality foraging habitat. This species recorded in eBird in 2012, approximately one mile southwest of the study area.
Haliaeetus leucocephalus	bald eagle MSHCP Covered Species	SE	Typically nests in trees within lower montane coniferous forests, although will occasionally nest on cliff faces or on the ground when trees are not present. Feeds primarily on fish and are usually within close proximity to lakes or other water bodies.	**None.** The study area does not support suitable breeding habitat (e.g., lower montane coniferous forest) or foraging habitat (e.g., lakes or other water bodies) for this species.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Icteria virens	yellow-breasted chat	SSC MSHCP Covered Species	Summer resident of mature riparian woodlands. Nests are placed in low, dense vegetation, such as willows (*Salix* sp.), blackberry (*Rubus* sp.), and wild grape (*Vitis californica*).	**None.** The study area does not support riparian habitat.
Lanius ludovicianus	loggerhead shrike	SSC MSHCP Covered Species	Nests in dense, often thorny shrubs or trees. Will nest within brush piles or tumbleweeds when trees or shrubs are not present. Feeds on a wide variety of animals, including arthropods, amphibians, reptiles, small mammals, and small songbirds within open habitats such as grasslands, agricultural fields, pastures, shrublands, and ruderal areas with adequate perching locations.	**None.** The study area does not support dense thorny shrubs or trees.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC MSHCP Covered Species	Occurs in coastal sage scrub and very open chaparral.	**None.** The study area does not support coastal sage scrub or chaparral.
Vireo bellii pusillus	least Bell's vireo	FE/SE MSHCP Covered Species (a)	Inhabits riparian woodland and is most frequent in areas that combine an understory of dense, young willows or mule fat with a canopy of tall willows.	**None.** The study area does not support riparian habitat.
Mammals				
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE, SSC MSHCP Covered Species (c)	Generally associated with alluvial fan sage scrub, but also occurs in sage scrub, chaparral, and grassland in proximity to alluvial fan sage scrub habitats.	**None.** The study area and adjacent areas do not support alluvial fan sage scrub habitat.

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Dipodomys stephensi	Stephens' kangaroo rat	FT, ST MSHCP Covered Species	Primarily occurs in sparsely vegetated areas within grassland habitats, but also found in open coastal scrub habitat. Feeds on filaree (*Erodium* sp.) and brome (*Bromus* sp.) seeds. Dig burrows in firm soil or use abandoned pocket gopher burrows.	**Low.** The study area supports suitable sparsely vegetated areas for this species. The nearest CNDDB occurrence was recorded in 2011 approximately 23 miles northwest of the study area.
Eumops perotis californicus	western mastiff bat	SSC	Roosts under exfoliating rock slabs on cliff faces and occasionally in large boulder crevices and building cracks. Forages in a variety of open areas, including washes, floodplains, chaparral, coastal sage scrub, woodlands, ponderosa pine forests, grassland, and agricultural areas.	**Low.** The study area does not support suitable roosting habitat (e.g., cliff faces, boulder crevices, building cracks). The study area supports some potentially suitable foraging habitat. The nearest CNDDB occurrence was recorded in 2011 approximately 23 miles northwest of the study area.
Lasiurus xanthinus	western yellow bat	SSC	Found in desert regions in wooded areas and desert scrub, but expanding their range due to ornamental palm trees in landscaping. Roosts in foliage, particularly in thorny vegetation, palms, and other desert riparian habitats.	**None.** Although the study area supports ornamental palm trees, these trees would not be suitable for roosting since they are former nursery trees approximately three to four feet tall.
Neotoma lepida intermedia	San Diego desert woodrat	SSC MSHCP Covered Species	Occurs in open chaparral and coastal sage scrub, often building large, stick nests in rock outcrops, boulders, around clumps of cactus or yucca, or in dense undergrowth.	**None.** The study area does not support open chaparral or coastal sage scrub habitat.
Nyctinomops femorosaccus	pocketed free-tailed bat	SSC	Roosts in crevices within high rocky cliffs, caverns, or buildings. Typically forages over water and among trees within arid habitats, such as pine-juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian.	**None.** The study area does not support roosting habitat (e.g., rocky cliffs, caverns, buildings) or foraging habitat (e.g., water within pine-juniper woodlands, desert scrub, desert wash, and desert riparian).

Species Name[1]	Common Name	Status[2]	Habitat, Ecology, and Life History	Potential to Occur[3]
Onychomys torridus ramona	southern grasshopper mouse	SSC	Sandy valley floors within desert scrub habitat with low to moderate shrub cover and friable soils, but also found in coastal scrub and chaparral habitats.	**None.** The study area does not support desert scrub, coastal scrub, or chaparral habitats.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	SSC MSHCP Covered Species (c)	Occurs in gravelly soils in desert areas, often in rolling terrain or in areas with ravines or rock outcroppings. Associated with sage scrub plants and yucca. Favors the interface between sage scrub and grassland.	**None.** The study area and adjacent areas do not support coastal scrub habitat
Taxidea taxus	American badger	SSC	Occurs in open plains and prairies, farmland, and sometimes edges of woods.	**None.** The study area does not support woodland edge habitat. Suitably sized burrows were not observed within the study area.

Source: HELIX (2024)

[1] Sensitive species reported within the Lake Elsinore, Lake Mathews, Steele Peak, Perris, Alberhill, Romoland, Sitton Peak, Wildomar and/or Murrieta quadrangles on the CNDDB database.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; CT = Candidate Threatened; FP = Fully Protected; SSC = State Species of Special Concern. MSHCP Conditionally Covered Species (a) through (f): (a) surveys may be required for species as part of wetland mapping (MSHCP Section 6.1.2); (b) surveys may be required for species within Narrow Endemic Plant Species Survey Area (MSHCP Section 6.1.3); (c) surveys may be required for species within locations shown on survey maps (MSHCP Section 6.3.2); (d) surveys may be required for species within Criteria Area Species Survey Area (MSHCP Section 6.3.2); (e) covered species will be considered to be covered species adequately conserved when conservation requirements identified in species-specific conservation objectives have been met (MSHCP Table 9-3); and (f) covered species will be conserved covered species adequately conserved when a Memorandum of Understanding is executed with the Forest Service that addresses management for these species on Forest Service Land (MSHCP Table 9-3).

[3] Potential to Occur is assessed as follows. **None**: Species is so limited to a particular habitat that it cannot disperse across unsuitable habitat (*e.g.,* aquatic organisms), and habitat suitable for its survival does not occur on the study area; **Low**: Suitable habitat is present on the study area but of low quality and/or small extent. The species has not been recorded recently on or near the study area. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **Moderate**: Suitable habitat is present on the study area and the species was recorded recently near the study area; however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **High**: Suitable habitat of sufficient extent for residence or breeding is present on the study area and the species has been recorded recently on or near the study area, but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed; **Presumed Present**: The species was observed during biological surveys for the current project and is assumed to occupy the study area; **Presumed Absent**: Suitable habitat is present on the study area but focused/protocol surveys for the species were negative.

[4] iNaturalist. 2024. Explore Observation, Crotch's Bumble Bee. Available from: https://www.inaturalist.org/observations?place_id=158630&subview=map&taxon_id=271451. Accessed August 7, 2024.

[5] eBird. 2024. eBird: an online database of bird distribution and abundance. Species Maps. eBird, Ithaca, New York. Available from: http://www.ebird.org. Accessed August 7, 2024.

Appendix 4

Cherry Outpost Cultural Resources Survey Report

Cherry Outpost Project

Cultural Resources Survey Report

December 2024 | 03491.00013.001

Submitted to:

City of Wildomar
123 Main Street, Suite 45
Wildomar, CA 92075

Prepared for:

Cherry Outpost, LP
P.O. Box 1958
Corona, CA 92878

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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National Archaeological Database Information

Authors:	James Turner, M.A. RPA; Nicole Falvey, B.A.; Theodore Cooley, M.A., RPA; Mary Robbins-Wade, M.A. RPA
Firm:	HELIX Environmental Planning, Inc.
Client/Project:	J & T Investments, Inc. / Cherry Outpost Project
Report Date:	December 2024
Report Title:	Cultural Resources Survey for the Cherry Outpost Project, Wildomar, California
Submitted to:	City of Wildomar 123 Main Street, Suite 45 Wildomar, CA 92075
Type of Study:	Cultural Resources Survey
New Sites:	None
Updated Sites:	None
USGS Quad:	Lake Elsinore 7.5' Quadrangle
Acreage:	Approximately 6.65 acres
Key Words:	Riverside County; Township 6 South, Range 4 West; City of Wildomar; Cherry Street and Bundy Canyon Road; cultural resources survey; no resources found

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Acronyms and Abbreviations

AB	Assembly Bill
AMSL	above mean sea level
APN	Assessor's Parcel Number
BA	Bachelor of the Arts
BP	Before Present
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Wildomar
CHRIS	California Historical Resources Information System
CRHR	California Register of Historical Resources
EIC	Eastern Information Center
HELIX	HELIX Environmental Planning, Inc.
I-	Interstate
MA	Master of the Arts
NAHC	Native American Heritage Commission
NETR	Nationwide Environmental Title Research, Inc.
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
PRC	Public Resources Code
RPA	Register of Professional Archaeologists
SCIC	South Coastal Information Center
SHPO	State Historic Preservation Officer
SR	State Route
TCP	Traditional Cultural Properties
TCR	Tribal Cultural Resources
UCSB	University of California, Santa Barbara
USGS	U.S. Geological Survey

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EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) was contracted by Cherry Outpost, LLC to provide cultural resources services for the Cherry Outpost Project (project) in the City of Wildomar, Riverside County, California. The project area is approximately 6.65 acres at the northwestern corner of Cherry Street and Bundy Canyon Road. A cultural resources study including a records search, Sacred Lands File search, Native American outreach, a review of historic aerial photographs and maps, and a pedestrian survey was conducted for the project area. This report details the methods and results of the cultural resources study and has been prepared to comply with the California Environmental Quality Act (CEQA).

A records search request was submitted to the Eastern Information Center (EIC) on February 6, 2023. The results, received on August 1, 2023, indicate that 18 cultural resources studies have been previously conducted within one-half mile of the project area, none of which are within the project area. According to EIC records, no cultural resources have been previously recorded within the project area or the search radius.

The Native American Heritage Commission (NAHC) was contacted on February 2, 2023 for a Sacred Lands File search. Search results were received on February 17, 2023 and were negative for the presence of sacred lands in the vicinity of the project area. Native American outreach letters were sent to the contacts received from the NAHC on February 28, 2023. As of the date of this report, five tribes responded with no additional information. The Morongo Band of Mission Indians requested government-to-government consultation. The Augustine Band of Cahuilla Indians requested to be contacted if any cultural resources are discovered during the development of the project. No additional action was requested.

The field investigations included intensive pedestrian survey of the study area by a HELIX archaeologist and a Luiseño Native American monitor on February 8, 2023. The survey resulted in the identification of a historic archaeological site within the project area. This site was recorded on a California Department of Parks and Recreation form. The site lacks integrity and does not qualify as a historical resource per CEQA.

Based on the results of the current study, no previously recorded historical resources will be affected by the Cherry Outpost project. However, due to the general cultural sensitivity of the Lake Elsinore area, an archaeological and Native American monitoring of initial ground-disturbance is recommended. If unanticipated cultural material is encountered during ground-disturbing activities, work in the immediate vicinity will be suspended until the discovery is assessed by the archaeologist and Native American monitor.

Should the project limits change to incorporate new areas of proposed disturbance, archaeological study of these areas will be required.

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1.0 INTRODUCTION

J & T Investments, Inc. contracted HELIX Environmental Planning to provide cultural resources services for the Cherry Outpost Project (project) in the City of Wildomar (City), Riverside County, California. The project is a proposed approximately 6.65-acre development of a retail site with a gas and diesel station and car wash. A cultural resources study including a records search, Sacred Lands File search, Native American outreach, a review of historic aerial photographs and maps, and a pedestrian survey was conducted for the project area. This report details the methods and results of the cultural resources study and has been prepared to comply with the California Environmental Quality Act (CEQA).

1.1 PROJECT LOCATION

The project is in the City of Wildomar in southwestern Riverside County (Figure 1, *Regional Location*). The project is located immediately northeast of Interstate (I-) 15 and southeast of Lake Elsinore within Section 23 of Township 6 South, Range 4 West, on the U.S. Geological Survey (USGS) 7.5' Lake Elsinore quadrangle (Figure 2, *USGS Topography*). The approximately 6.65-acre project site is located within Assessor Parcel Numbers (APNs) 366-29-00-07 and 366-29-00-08, and is bordered by Bundy Canyon Road to the south, I-15 to the west, and Cherry Street to the east (Figure 3, *Aerial Photograph*).

1.2 PROJECT DESCRIPTION

The project proposes to develop a retail site that includes approximately 62,271 square feet of retail space, a 72-key hotel, and various other on-site improvements. Proposed retail space includes restaurants, a convenience store, a gas and diesel station, and a car wash.

1.3 REGULATORY FRAMEWORK

1.3.1 California Environmental Quality Act

Under the CEQA, any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] §5024.1, Title 14 California Code of Regulations [CCR] Section 4852), including the following:

A (1): Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

B (2): Is associated with the lives of persons important in our past;

C (3): Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values, or:

D (4): Has yielded, or may be likely to yield, information important in prehistory or history.

Cultural resources eligible for the CRHR are considered significant resources (historical resources) and impacts to them are significant environmental effects under CEQA.

1.3.2 Integrity

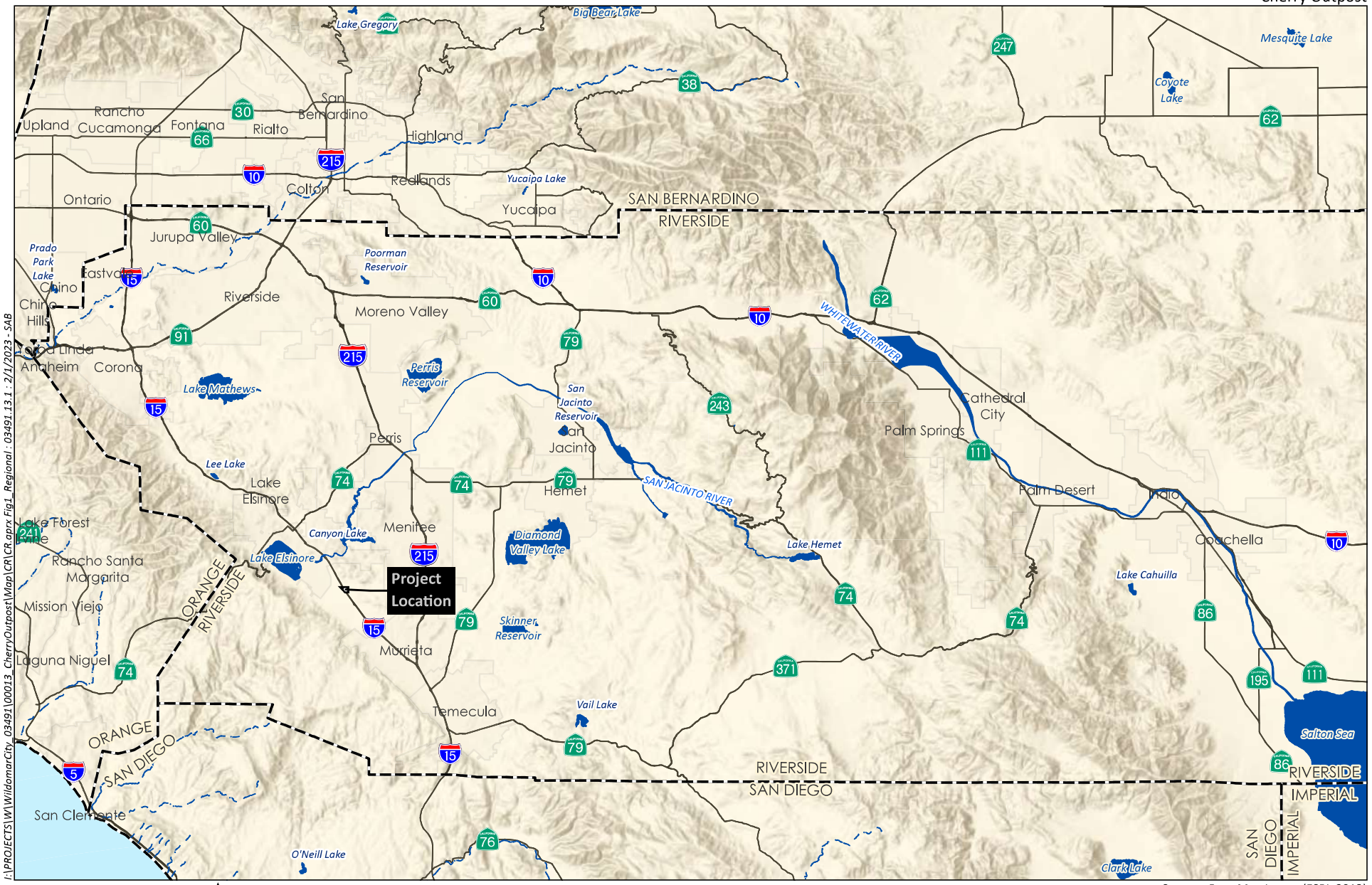
All resources that are eligible for listing in the National Register of Historic Places (NRHP) or CRHR must have integrity, which is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular criteria under which it is proposed for nomination. Under Section 106 of the National Historic Preservation Act (NHPA), actions that alter any of the characteristics that qualify a property for eligibility for listing in the NRHP "in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5[a]) constitute an adverse effect to the historic property.

1.3.3 Native American Heritage Values

Federal and state laws mandate that consideration be given to the concerns of contemporary Native Americans with regard to potentially ancestral human remains, associated funerary objects, and items of cultural patrimony. Consequently, an important element in assessing the significance of the study site has been to evaluate the likelihood that these classes of items are present in areas that would be affected by the proposed project.

Potentially relevant to prehistoric/Native American cultural resources is the category termed Traditional Cultural Properties (TCP) in discussions of cultural resource management performed under federal auspices. "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices (Parker and King 1998).

Cultural resources can include TCPs, such as gathering areas, landmarks, and ethnographic locations in addition to archaeological districts. Generally, a TCP may consist of a single site, or group of associated archaeological sites (district or traditional cultural landscape), or an area of cultural/ethnographic importance. A TCP may be considered eligible for the National Register based on "its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history; and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1998:1). Strictly speaking, TCPs are both tangible and intangible; they are anchored in space by cultural values related to community-based physically defined "property referents" (Parker and King 1998:3). On the other hand, TCPs are largely ideological, a characteristic that may present substantial problems in the process of delineating specific boundaries. Such a property's extent is based on community conceptions of how the surrounding physical landscape interacts with existing cultural values.



HELIX Environmental Planning

Regional Location

Figure 1



I:\PROJECTS\J\TBusinessMgmt_03491\00013_CherryOutpost\Map\CR\CR.aprx Fig2_USGS : 03491.13.1 : 7/17/2024 - SAB

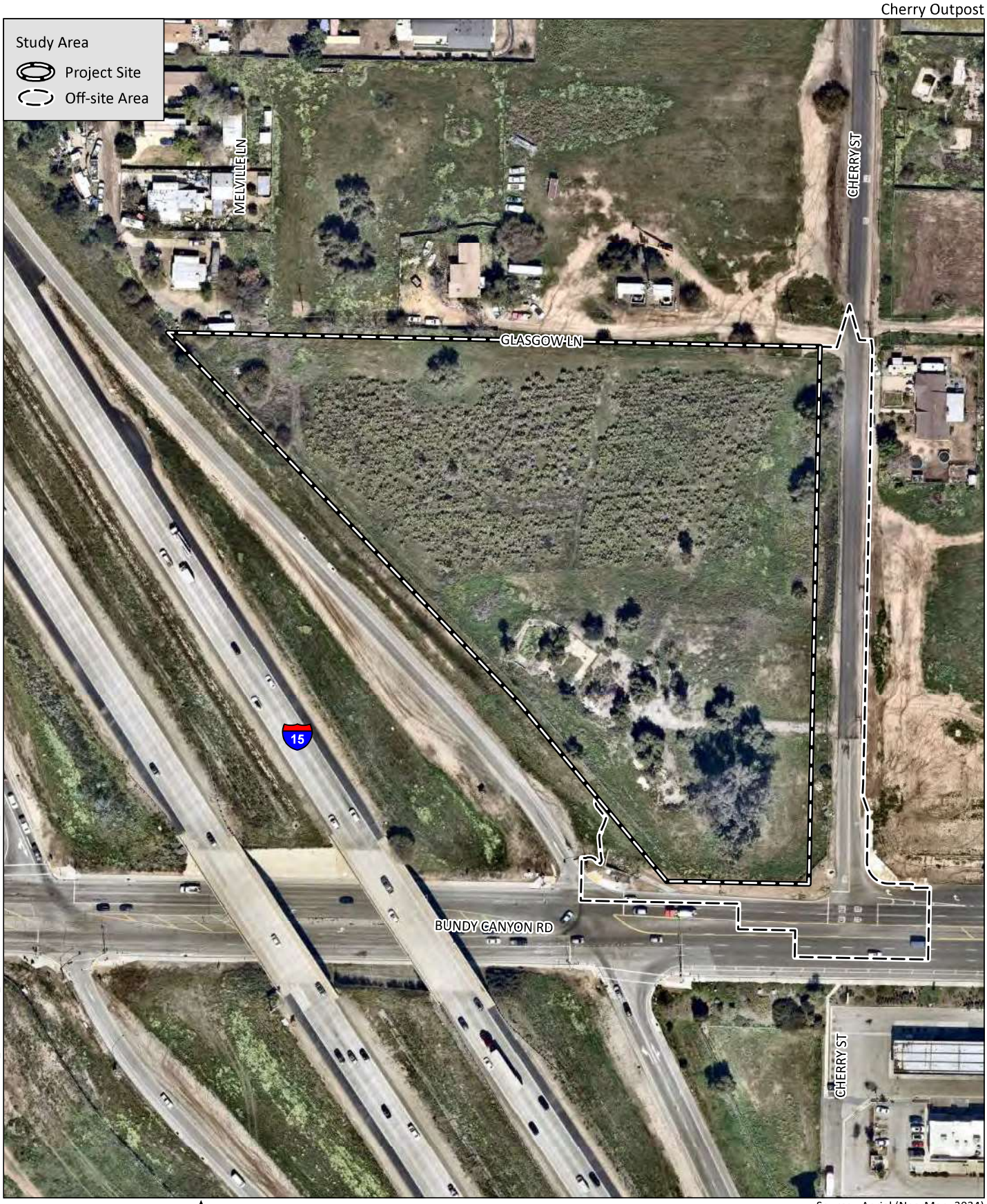
0 2,000 Feet

Source: LAKE ELSINORE 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2



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0 150 Feet

Source: Aerial (NearMap, 2024)

HELIX Environmental Planning

Aerial Photograph

Figure 3

By its nature, a TCP need only be important to community members and not the general outside population as a whole. In this way, a TCP boundary may be defined based on viewscape, encompassing topographic features, the extent of an archaeological district or use area, or a community's sense of its own geographic limits. Regardless of why a TCP is of importance to a group of people, outsider acceptance or rejection of this understanding is made inherently irrelevant by the relativistic nature of this concept.

In California, the Traditional Tribal Cultural Places Bill of 2004 requires local governments to consult with Native American representatives during the project planning process, specifically before adopting or amending a General Plan or a Specific Plan, or when designating land as open space for the purpose of protecting Native American cultural places. The intent of this legislation is to encourage consultation and assist in the preservation of Native American places of prehistoric, archaeological, cultural, spiritual, and ceremonial importance. It further allows for tribal cultural places to be included in open space planning. California State Assembly Bill (AB) 52 revised PRC Section 21074 to include Tribal Cultural Resources (TCRs) as an area of CEQA environmental impact analysis. As a general concept, a TCR is similar to the federally defined TCP; however, it incorporates consideration of local and state significance and required mitigation under CEQA.

Per PRC Section 21080.3, a CEQA lead agency must consult with any California Native American tribe that requests consultation, and that is traditionally and culturally affiliated with the geographic area of a proposed project, to identify resources of cultural or spiritual value to the tribe, even if such resources are already eligible as historical resources as a result of cultural resources studies. A TCR may be considered significant if it is (i) included in a local or state register of historical resources; (ii) determined by the lead agency to be significant pursuant to criteria set forth in PRC Section 5024.1; (iii) a geographically defined cultural landscape that meets one or more of these criteria; (iv) a historical resource described in PRC Section 21084.1 or a unique archaeological resource described in PRC Section 21083.2; or (v) a non-unique archaeological resource if it conforms with the above criteria.

1.4 PROJECT PERSONNEL

Mary Robbins-Wade, M.A., RPA, served as principal investigator and is a co-author of this technical report. Nicole Falvey, B.A., provided overall project management support and is a co-author of this report. Theodore Colley, M.A., RPA, and James Turner, M.A., RPA, served as report contributors. Ms. Robbins-Wade, Mr. Cooley, and Mr. Turner meet the qualifications of the Secretary of Interior's Standards and Guidelines for archaeology. Mary Villalobos, B.A., conducted the pedestrian survey and Julio Marquez (Luiseño Native American monitor) from the Pechanga Band of Luiseño Indians (Pechanga) participated in the pedestrian survey. Resumes for key project personnel are presented in Appendix A.

2.0 PROJECT SETTING

2.1 NATURAL SETTING

The study area is situated in southwestern Riverside County, southeast of Lake Elsinore, a natural lake formed in a basin created by faulting and from water deriving, principally, from the San Jacinto River. This lake basin is situated at the eastern base of the Santa Ana and Elsinore mountains. The climate of western Riverside County is characterized as a semi-arid environment with low humidity and rainfall.

Almost all rainfall occurs in the winter, but the region can also experience rare, intense summer thunderstorms. Wind is also a strong feature of this climatic regime, with dry winds in excess of 25 miles per hour in the late winter and early spring (National Oceanic and Atmospheric Administration [NOAA] 2020). The project site is generally flat, with an elevation of approximately 1,400 to 1,430 feet above mean sea level (AMSL). Currently, the project vicinity is characterized predominantly by a mixture of open land, with adjacent urban development comprised of residential and commercial development. I-15 is located immediately adjacent to the western edge of the project.

Geologically, the study area is underlain by young alluvial-valley deposits of Holocene and late Pleistocene age consisting of fluvial sediments deposited along valley floors. These deposits consist of unconsolidated sand, silt, and clay-bearing alluvium (Morton and Weber n.d.). Three soil series are mapped for the study area: Greenfield sandy loam, 2 to 8 percent slopes; Hanford coarse sandy loam, 8 to 15 percent slopes; Ramona sandy loam, 8 to 15 percent slopes, eroded and 8 to 15 percent slopes, severely eroded, and Ramona very fine sandy loam, 0 to 8 percent slopes, eroded. The Greenfield soil predominates in the study area. The Greenfield, Hanford, and Ramona series of soils are well drained and are alluvium derived from granite (Natural Resources Conservation Service [NRCS] 2022). Most of the surface soils of the project site show signs of significant disturbance and alteration from their native state.

Prehistorically, the natural vegetation in the project vicinity likely consisted of riparian and/or freshwater marsh vegetation along the Lake Elsinore shoreline and the Murrieta Creek drainage and mostly coastal sage scrub and native grassland in adjacent hill areas, with chaparral in the upper elevations of the adjacent mountains. Riparian vegetation includes plants such as western sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), and willow (*Salix* sp.). Plants common to freshwater marsh include reed grass (*Phragmites australis*), marsh mallow (*Kosteletzkya virginic*), soft rush (*Juncus effusus*), pickerelweed (*Pontederia cordata*), narrow-leaved cattail (*Typha angustifolia*), and button bush (*Cephalanthus occidental*). Native grassland plants include *Stipa, Elymus, Poa,* and *Muhlenbergia*. Plants of the coastal sage scrub community include California sagebrush (*Artemisia californica*), white sage *(Salvia apiana*), flat-top buckwheat (*Eriogonum fasciculatum*), broom baccharis (*Baccharis sarothroides*), wild onion (*Allium haematochiton*), laurel sumac (*Malosma laurina*), San Diego sunflower (*Bahiopsis laciniata*), golden-yarrow (*Eriophyllum confertiflorum*), sawtooth goldenbush (*Hazardia squarrosa*), yucca (*Yucca schidigera*, *Hesperoyucca whipplei*), prickly pear cactus (*Opuntia* sp.), and scrub oak (*Quercus dumosa*) (Hall 2007; Munz 1974). Major wildlife species found in this environment prehistorically were coyote (*Canis latrans*); mule deer (*Odocoileus hemionus*); grizzly bear (*Ursus arctos*); mountain lion (*Puma concolor*); desert cottontail (*Sylvilagus audubonii*); jackrabbit (*Lepus californicus*); and various rodents, the most notable of which are the valley pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*), and dusky footed woodrat (*Neotoma fuscipes*) (Head 1972). Desert cottontails, jackrabbits, and rodents were very important to the prehistoric diet; deer were somewhat less significant for food, but were an important source of leather, bone, and antler. Many of the plant and animal species naturally occurring in the project vicinity are known to have been used by native populations for food, medicine, tools, ceremonial, and other uses (Bean and Saubel 1972; Bean and Shipek 1978; Christenson 1990; Hedges and Beresford 1986; Luomala 1978; Sparkman 1908). Lake Elsinore and the San Jacinto River would likely have made fresh water easily accessible to native populations living in the area.

2.2 CULTURAL SETTING

Groups of people now known as Luiseño Indians have inhabited the area in which the project lies for thousands of years. The people call themselves *Payómkawichum* (the People of the West) and comprise seven bands, including Pechanga and Soboba (Pechanga Band of Luiseño Indians 2022). The creation story of the Pechanga people explains that life was created at Temecula. "Life on earth began in this valley at '*Éxva Teméeku*, the birthplace of the *Káamalam* (First Children). *Teméeku* was the place where the world as we know it came to be events that took place here determined how some people became plants and animals, how people dealt with sickness and death, why some things could be eaten yet others could not, and all the other details of life in native California" (Pechanga Band of Luiseño Indians 2022). Although archaeologists discuss various archaeological complexes across temporal periods, the *Payómkawichum* recognize a continuum from the first people created and living in this area to the present day.

The cultural setting information provided in this chapter is based on archaeological evidence. As addressed above, it is important to note that these interpretations by archaeologists and linguistic anthropologists may differ from the traditional knowledge of the Luiseño people.

2.2.1 Prehistoric Period

Michael Moratto (1984) has previously defined eight archaeological regions and 16 subregions for California. The location of the project in western Riverside County places it within the boundary of the San Diego subregion of the Southern Coast Region, but it is also located adjacent to the boundary with the Colorado River subregion of the Desert Region (Moratto 1984: 148, Figure 4.13). The following culture history outlines and briefly describes the known prehistoric cultural Traditions and chronology of archaeological sites in the vicinity of the project. The approximately 11,000 years of documented prehistory of the region has often been divided into three periods: Early Prehistoric Period (San Dieguito Tradition/complex), Archaic Period (Milling Stone Horizon, Encinitas Tradition, La Jolla, and Pauma complexes), and Late Prehistoric Period (San Luis Rey complex).

2.2.1.1 Early Prehistoric Period

The Early Prehistoric Period represents the time of the entrance of the first known human inhabitants into California. In some areas of California, it is referred to as the Paleo-Indian period and is associated with the Big-Game-Hunting activities of the peoples of the last Ice Age occurring during the Terminal Pleistocene and the Early Holocene, beginning circa 11,000 to 15,000 years ago (Erlandson et al. 2007). In the western United States, the most substantial evidence for the Paleo-Indian or Big-Game-Hunting peoples derives from finds of large, fluted spear and projectile points (Fluted Point Tradition) at sites in places such as Clovis and Folsom in the Great Basin and the Desert Southwest (Moratto 1984:79–88). In California, most of the evidence for the Fluted Point Tradition derives principally from areas along the western margins of the Great Basin, including the eastern Sierras and the Mojave Desert, and in the southern Central Valley (Dillon 2002; Rondeau et al. 2007). Despite a few isolated occurrences of fluted points in the San Diego subregion (Dillion 2002; Fitzgerald and Rondeau 2012; Kline and Kline 2007; Rondeau et al. 2007) and Baja California (Des Lauriers 2008; Hyland and Gutierrez 1995), none have been found, to date, in the western Riverside or San Bernardino counties area of the subregion (Dillon 2002; Rondeau et al. 2007).

The earliest sites in the San Diego subregion, documented to be over 10,000 years old, belong not to the Fluted Point Tradition but to the San Dieguito Tradition (Warren et al. 2008; Warren and Ore 2011). The San Dieguito Tradition is defined by an artifact assemblage suggestive of a focus on hunting but lacking the distinctive fluted points associated with the Fluted Point Tradition. While the tradition has so far been documented principally in the coastal and near coastal areas in San Diego County (Carrico et al. 1993; Rogers 1966; True and Bouey 1990; Warren 1966; Warren and True 1961), as well as in the southeastern California deserts (Rogers 1939, 1966; Warren 1967), some evidence for it has been recently discovered in the eastern mountains of San Diego County (Pigniolo 2005) and at a site in a coastal area to the north in Los Angeles County (Sutton and Grenda 2012). The content of the earliest component of the C.W. Harris Site (CA-SDI-149), located along the San Dieguito River in San Diego County, formed the original basis upon which Warren and others (Rogers 1966; Warren 1966, 1967; Warren and True 1961) identified the "San Dieguito complex," which Warren later reclassified as the San Dieguito Tradition (1968). This Tradition is characterized by an artifact inventory consisting almost entirely of hunting-associated flaked stone bifaces and scraping tools including elongated bifacial knives; leaf-shaped projectile points; domed scrapers; crescentics; and, in the desert, Silver Lake and Lake Mojave projectile points (Knell and Becker 2017; Rogers 1939; Vaughan 1982; Warren 1967). The abundance of hunting-associated tools and the paucity of ground stone tools in the San Dieguito assemblage has led to a characterization of the Tradition/complex, by some researchers, as having a primarily, but perhaps not exclusively, hunting subsistence orientation, which was distinct from the more gathering-oriented complexes of traits that were to follow in the Archaic Period (Warren 1968; Warren et al. 2008). Other researchers see the San Dieguito subsistence system as a developmental stage for the predominantly gathering-oriented Encinitas Tradition, denoted in the San Diego area as the "La Jolla/Pauma complex" in the subsequent Archaic Period (cf. Bull 1983, 1987; Ezell 1987; Gallegos 1985, 1987, 1991; Koerper et al. 1991). As with the Fluted Point Tradition, however, despite occurrences in adjacent areas, no definite evidence of the San Dieguito Tradition has been documented, to date, in the western Riverside or San Bernardino counties area.

2.2.1.2 Archaic Period

In contrast to the traditions of the previous Early Prehistoric Period, during the subsequent Archaic Period, artifact assemblages of the Milling Stone Horizon/Encinitas Tradition occur at a range of coastal and adjacent inland sites and are relatively common in the study area region (Grenda 1997; Sutton and Gardner 2010). Warren has proposed that, during the Archaic Period in the south coastal region, the Encinitas Tradition began circa 8,500 years ago and extended essentially unchanged until circa 1,500 years ago, indicating that a relatively stable, sedentary, predominantly gathering complex, possibly associated with one people, was present in the coastal and immediately inland areas of southern California, extending from the beginning of the Archaic Period for more than 7,000 years (Warren 1968).

While Warren originally characterized the Encinitas Tradition spanning the time of the Archaic Period as being a relatively stable time of sedentary settlement with subsistence based predominantly on gathering activities, and possibly associated with one people, it has also been noted by Warren and others that during the latter part of the Archaic Period, in the coastal region, beginning somewhere north of San Diego and extending to Santa Barbara, evidence of a cultural assemblage distinctive from this settlement and subsistence pattern could also be discerned (Warren 1968; Warren et al. 2008). This assemblage and time period have been variously designated as the Intermediate Horizon (Wallace 1955) or Campbell Tradition (Warren 1968) and has been delineated as following the Milling Stone Horizon/ Encinitas Tradition during the period in some southern California coastal areas. The assemblage is

distinguished from earlier Archaic Period assemblages by the presence of large projectile points and milling tools such as the mortar and pestle, indicating the occurrence of new subsistence practices. The time period of this assemblage is viewed as beginning circa 4,800 years ago and continuing to as late as 1,300 years ago (Warren 1968). While still a matter of some debate, in the southernmost coastal region, Warren and others (2008) have subsequently termed this time period, encompassing the extent of the Intermediate/Campbell cultural assemblage, as the Final Archaic Period.

In the western Riverside County area, early archaeological investigations conducted at several archaeological sites in Perris Valley for the Perris Reservoir project produced only a single radiocarbon date of circa 2200 years before present (BP) and a few diagnostic artifacts as the only evidence for a late Archaic Period occupation in the western Riverside County region (Bettinger 1974:159-162). Investigations at another site, CA-RIV-1806, in the mountains northwest of Temecula, also produced a radiocarbon date for the late Archaic Period of circa 2775 Before Present (BP) (McCarthy 1986:73). More recently, approximately two miles from the project area, large-scale archaeological investigations were conducted at the Lake Elsinore site (Grenda 1997:3). Archaeological investigations conducted at CA-RIV-2798, located along the old lake shoreline, indicated occupation as early as 8,500 years ago (Grenda 1997). Another recent archaeological investigation conducted in the San Jacinto Valley at site CA-RIV-6069 has produced an early Archaic Period assemblage and occupation as early as 9,400 years ago (Horne and McDougall 2008:91). Another relatively recent archaeological investigation conducted in the general vicinity of the project area has also produced evidence for prehistoric occupation in the western Riverside County area during the earliest part of the Archaic Period. The Eastside Reservoir (Diamond Valley Lake) Project, located approximately 12 miles northeast of the study area, involved construction, within the adjacent Domenigoni and Diamond valleys, of the Diamond Valley Lake reservoir and the associated Eastside Reservoir Project (Goldberg 2001; Robinson 2001). Based on the results from this project, the researchers developed a local chronology specific to the Domenigoni and Diamond valleys based on projectile point style changes and associated radiocarbon dates (Robinson 2001). The terminology in this chronology resembles that already presented above, with the period from 9,500 to 7,000 years ago designated as the Early Archaic period, the period from 7,000 to 4,000 years ago as the Middle Archaic, and the period from 4,000 to 1,500 years ago as the Late Archaic. In the Eastside Reservoir Project, only two components could be firmly dated to the Early Archaic, but sparse evidence of Early Archaic activity was noted in six other localities. One site did, however, produce two radiocarbon dates of 9190±50 and 9310±60 BP (McDougall 2001). For the Middle Archaic, firm evidence was documented in 14 locations, with other traces at four other sites. During the Late Archaic, a profusion of activity and occupation was evident, with 23 firmly dated site components and sparse evidence at eight other localities (Goldberg 2001:524).

Thus, prehistoric occupation during the Archaic Period in the vicinity of the study area is documented to have occurred possibly as early as 9,400 years ago, and remained present to the end of the period, approximately 1,500 years ago. While this temporal extent correlates with Warren's original proposed extent of the Encinitas Tradition, refinement of his characterization of the Tradition as being a relatively stable, sedentary, predominantly gathering complex, possibly associated with one people, and with an extent mostly restricted to the San Diego County area, may now, based on new information available, be subject to some revision (cf. Sutton and Gardner 2010).

2.2.1.3 Late Prehistoric Period

Some of the earliest archaeological investigations conducted in the western Riverside area produced considerable evidence of occupation in the area during the Late Prehistoric Period. One of the few early

studies to occur in this area was conducted near Temecula in the early 1950s at a site identified as the ethnohistoric village of *Temeku* (McCown 1955). The investigation produced a substantial, primarily Late Prehistoric Period, artifact assemblage. Another study consisted of investigations at several sites in the 1970s for the construction of the Perris Reservoir (O'Connell et al. 1974, eds). The results, which included several radiocarbon dates, indicated a predominance of occupation at the sites during the Late Prehistoric Period, after AD 1500 (Bettinger 1974:159-162).

The beginning of the Late Prehistoric Period in the southern coastal region, circa 1,500 years ago, is seen as marked by a number of abrupt changes. The magnitude of these changes and the short period of time within which they took place are reflected in significant alteration of previous subsistence practices and the adoption of significant new technologies. As discussed further below, some of this change may have been as a result of significant variations in the climatic conditions. Subsistence and technological changes that occurred include a shift from hunting using atlatl and dart to the bow and arrow; a de-emphasizing of shellfish gathering along some areas of the coast (possibly due to silting-in of the coastal lagoons); and an increase in the storage of crops, such as acorns and pinyon nuts. Other new traits introduced during the Late Prehistoric Period include the production of pottery and cremation of the dead, and, locally, in the western Riverside County area, a shift in settlement pattern is apparent (cf. Wilke 1974).

This shift in settlement is first noted during the early part of the period from 1,500 to 750 years ago and is evidenced, locally, in the results from the Eastside Reservoir Project by a rather sudden decline in occupation in the local area during the initial part of the period. This 750-year period was termed by the Eastside Reservoir researchers as the Saratoga Springs Period, following Warren's (1984) desert terminology. This period can also be seen to partially coincide with a warm and arid period known as the Medieval Warm Period, documented to have occurred between approximately 1,100 and 600 years ago (Jones et al. 1999; Kennett and Kennett 2000; Stine 1994). During this period, at least two episodes of severe drought have also been demonstrated, the first calibrated to between 1060 and 840 BP and the second between 740 and 650 BP (Goldberg 2001; Stine 1994). While sites dating to this period are not absent in western Riverside County (e.g., McCarthy 1987:34; Keller and McCarthy 1989), Goldberg (2001) hypothesized that the Medieval Warm Period could account for the decline in sites occurring in the Eastside Reservoir Project area during the Saratoga Springs Period (1500 to 750 BP), claiming that desert and inland areas of western Riverside County, such as where the Eastside Reservoir Project is located, would no longer be suitable to support residential bases. Goldberg (2001) further hypothesized that settlements would possibly be clustered at more suitable water sources during this time, such as at the coast, Lake Cahuilla, or Lake Elsinore (cf. Wilke 1974). While a decline was noted during the initial part of the Saratoga Springs Period, subsequently, during the latter part of the period, during the time of the Medieval Warm Period, a reoccupation began to occur (Goldberg 2001:578). According to Goldberg, "When components dating to the Medieval Warm segment of the Saratoga Springs Period are segregated and combined with Medieval Warm components from the Late Prehistoric Period, it shows that the frequency of refuse deposits and artifact and toolstone caches during the Medieval Warm is slightly higher than during the Late Archaic and much higher than during the later portion of the Late Prehistoric Period" (2001:578).

In the Eastside Reservoir Project, the Late Prehistoric Period was defined as extending from the end of the Saratoga Springs Period (750 BP) to 410 BP. A subsequent Protohistoric Period was also defined as extending from 410 to 150 BP. The Late Prehistoric Period (750–410 BP) was characterized by the presence of Cottonwood points, although research indicated that Cottonwood points had actually begun to appear in the Eastside Reservoir Project study area as early as 950 BP. Ceramics and abundant

obsidian began to appear around the time of the Cabrillo exploration in AD 1542, and so this date (i.e., circa 410 BP), until the establishment of the mission system in the late 1700s, was defined as the Protohistoric Period (Robinson 2001). It should also be noted that the end of the Saratoga Springs Period and the beginning of the Late Prehistoric Period, 750 BP, also coincides with the onset of the Little Ice Age, generally dated from 750 to 150 BP (Goldberg 2001; Sutton et al. 2007). During this period, the climate was cooler and moister, and the sites identified within the Eastside Reservoir Project study area reflected a substantial increase in number and diversity, longer occupation periods, and more sedentary land use. Similar intensification of land use also occurred during this time in neighboring San Gorgonio Pass (Bean et al. 1991), and Perris Valley (Wilke 1974).

2.2.2 Ethnohistory

The Lake Elsinore area is within the traditional territory of the Luiseño people and is important in their creation stories and other traditional ceremonies and songs. Another group, the Juaneño, are closely related to the Luiseño—so closely, in fact, that some researchers have seen little distinction between them (Bean and Shipek 1978; White 1963). However, Luiseño and Juaneño individuals consider themselves to be separate tribes, and Cameron (1987:319-321) has noted possible differences in the archaeological record between the two peoples. The names for these groups are based on their associations, post European contact, with either Mission San Juan Capistrano, Mission San Luis Rey, or Mission San Gabriel (Gabrielino). The Luiseño and Juaneño (*Acjachemen*), along with the Cahuilla, Gabrielino, and Cupeño, comprise the Cupan group of the Takic subfamily of the Uto-Aztecan linguistic stock (Bean and Vane 1979; Miller 1986; Shipley 1978).

The Luiseño followed a seasonal gathering cycle, with bands occupying a series of habitation areas within their territory (Bean and Shipek 1978; White 1963). The Luiseño lived in semi-sedentary villages usually located along major drainages, in valley bottoms, and also on the coastal strand, with each family controlling gathering areas (Bean and Shipek 1978; Sparkman 1908; White 1963). True (1990) indicated that the predominant determining factor for placement of villages and campsites was locations where water was readily available, preferably on a year-round basis. While most of the major Luiseño villages known ethnographically were located closer to the coast along the Santa Margarita River Valley and the San Luis Rey River Valley (Bean and Shipek 1978; Kroeber 1925; White 1963), Kroeber does indicate general locations for three Luiseño villages in more inland areas. He places the village of *Panache* in proximity to Lake Elsinore and the confluence of the San Jacinto River and Temescal Creek, approximately two miles to the north of the project area, and the villages of *Temeku* and *Meha* in the vicinity of the confluence of the upper Santa Margarita River, Murrieta Creek, and Temecula Creek, approximately 12 miles to the southeast of the project area (Kroeber 1925: Plate 57; McCown 1955:1). Lerch and Smith (1984:8), however, have indicated that both the Luiseño and Juaneño people have distinctive ties to Lake Elsinore:

> The Juaneño name for Lake Elsinore was *Paayaxtci*, while the version in another Luiseño dialect (called Temescal by Harrington) was *Paahashnan*. The name for Elsinore Hot Springs was *'Atengvo*, a word which meant "hot springs" and which also applied to the locality of the city of Elsinore, especially the area along the outflow stream of the lake where a number of hot springs are located.
>
> Elsinore Hot Springs has known religious significance to the Juaneños and all Luiseños, as it was the locality known as *Itengvu Wumowmu* in a song recounting the death of Wiyot, a legendary religious leader who the people followed in their migration from the north. When Wiyot was

sick and dying, the people took him to a number of sacred hot springs in southern California in an effort to cure him. Elsinore Hot Springs was the last of these, and there Wiyot died (DuBois 1908:134; Harrington 1978:199).

2.2.3 Paayaxchi

The people of Pechanga and Soboba have indicated that they consider *Paayaxchi* (Lake Elsinore) to be a highly significant cultural area, drawing its significance from the creation account, not merely from the numerous archaeological resources around the lake. The lake and nearby *'Itengvu Wumowmu* (Lake Elsinore Hot Springs) are tied directly to events that occurred during the creation of the world. Although *Paayaxchi* has not been formally evaluated for NRHP eligibility as a TCP, it appears to meet the criteria for eligibility to the NRHP under Criteria A, B, C, and D, equivalent to the CRHR, Criteria 1, 2, 3, and 4. *Paayaxchi* is potentially eligible under Criterion A/1 for its association with the "cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1998: 1). *Paayaxchi* could be considered eligible under Criterion B/2 for its association with the cultural figure *Wuyoot* and under Criterion C/3 for the presence of rock art. The resource is also potentially eligible under Criterion D/4 for its potential to address important research themes and contribute to an understanding of traditional Luiseño lifeways.

2.2.4 Historical Background

The first documented Spanish contact in what is now Riverside County was by Spanish military captain Juan Bautista de Anza who led expeditions in 1774 and 1775 from Sonora to Monterey (Bolton 1930). Anza embarked on the initial expedition to explore a land route northward through California from Sonora, with the second expedition bringing settlers across the land route to strengthen the colonization of San Francisco (Rolle 1963). Anza's route led from the San Jacinto Mountains northwest through the San Jacinto Valley, which was named "San José" by Anza. Little documentation exists of Anza's route being used after the two expeditions, although it was likely used to bring Spanish supplies into the newly colonized Alta California (Lech 2004). In 1781, the Spanish government closed the route due to uprisings by the Yuman Indians. However, by that time, the missions were established and self-sufficient; thus, the need for Spanish supplies from Sonora had begun to diminish.

Although Riverside County proved to be too far inland to include any missions within its limits, Missions San Juan Capistrano and San Luis Rey de Francia, established in 1776 and 1798 respectively, claimed a large part of southwestern Riverside County. Due to the inland geographical location of this area, the Spanish missions did not have as direct and immediate an effect on the people as they did on the Luiseño who lived along the coast. On the coast, the Luiseño were moved into the Mission environment, where living conditions and diseases promoted the decline of the Luiseño population (Bean and Shipek 1978). However, throughout the Spanish Period, the influence of the Spanish progressively spread further from the coast and into the inland areas of southern California as Missions San Luis Rey and San Gabriel extended their influence into the surrounding regions and used the lands for grazing cattle and other animals.

In the 1810s, ranchos and mission outposts called asistencias were established, increasing the amount of Spanish contact in the region. An asistencia was established in Pala in 1818 and in San Bernardino in 1819. Additionally, Rancho San Jacinto was established for cattle grazing in the San Jacinto Valley (Bean and Vane 1980; Brigandi 1999). In 1820, Father Payeras, a senior mission official, promoted the idea that

the San Bernardino and Pala asistencias be developed into full missions to establish an inland mission system (Lech 2004). However, Mexico won its independence from Spain in 1821, bringing an end to the Spanish Period in California.

2.2.4.1 Mexican Period

Mexico, including Alta California, gained its independence from Spain in 1821, but Spanish culture and influence remained as the missions continued to operate as they had in the past, and laws governing the distribution of land were also retained for a period of time.

Following the secularization of the missions in 1834, large ranchos were granted to prominent and well-connected individuals. Society made a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With numerous new ranchos, cattle ranching expanded and prevailed over agricultural activities. These ranches put new pressures on California's native populations, as grants were made for inland areas still occupied by the Native people, forcing them to acculturate or relocate farther into the backcountry. In rare instances, former mission neophytes were able to organize pueblos and attempt to live within the new confines of Mexican governance and culture.

The area approximately 1 mile to the west of the project area was encompassed by Rancho La Laguna, an approximately 14,000-acre rancho that was granted to Julian Manriquez by Governor Manuel Micheltorena (Hoffman 1862). Little is known about Manriquez; in 1851, Manriquez sold the rancho to Abel Stearns (U.S. District Court 1851).

2.2.4.2 American Period

The Mexican period ended when Mexico ceded California to the United States after the Mexican-American War (1846–1848), which concluded with the Treaty of Guadalupe Hidalgo. A great influx of settlers to California and the San Diego and Riverside County region occurred during the American Period, resulting from several factors, including the discovery of gold in the state in 1848, the end of the Civil War, the availability of free land through passage of the Homestead Act in 1862, and later, the importance of the region as an agricultural area supported by roads, irrigation systems, and connecting railways. The increase in American and European populations quickly overwhelmed many of the Spanish and Mexican cultural traditions, and greatly increased the rate of population decline among Native American communities.

Initially southern California was divided into only two counties: Los Angeles and San Diego. In 1853, San Bernardino County was added, placing what is now Riverside County primarily within San Diego County and partially within San Bernardino County. Riverside County was created from portions of San Bernardino and San Diego counties in 1893.

Abel Stearns, born in Massachusetts in 1798, moved to Mexico City in 1826 and later became a naturalized citizen (Brigandi 2011). In 1829, he moved to California and settled in Los Angeles, where he served as an intermediary between trading ships and ranchos. In 1841, he married 14-year-old Arcadia Bandini, and the next year he purchased the Los Alamitos Rancho and shifted his focus to raising cattle. During this time, the area that would become Riverside County was dominated by cattle and orange groves (Brigandi 2011; Lech 2004). Stearns filed a claim for Rancho La Laguna to the Public Land Commission in 1851 and later patented the land in September 1872 (Willey 1886).

In 1858, Stearns sold Rancho La Laguna to Augustin Machado, who began construction of a seven-room adobe west of the lake (City of Lake Elsinore 2011). This adobe would later become the site of the Laguna Grande station of the Butterfield Overland Mail stage line, which operated from 1858 to 1861 (City of Lake Elsinore 2011; Helmich 2008). This mail route followed the so-called "oxbow route," which skirted the Rocky Mountains by travelling south through Texas, New Mexico Territory, Fort Yuma, and Southern California, bypassing San Diego (Helmich 2008).

Franklin Heald purchased Rancho La Laguna from Machado and founded the town of Elsinore in 1883 (City of Lake Elsinore n.d., 2011). Taking the name from the City of Helsingnor from Shakespeare's *Hamlet*, the town would become a full-fledged city in 1888. The Atchison, Topeka, and Santa Fe Railroad was completed in the early 1880s, which allowed Elsinore to flourish (City of Lake Elsinore 2011).

The project lies within the boundaries of the City of Wildomar. In January of 1885, a map of the Wildomar townsite was produced – to name the new townsite, the three town founders, William Collier, Donald Graham, and Margaret Collier Graham, combined the first two to three letters of their names (City of Wildomar n.d.; Lech 2021). In 1886, the Wildomar Elementary School, a post office, and a railroad depot were built, and a year later the Hotel Wildomar opened for business (Lech 2021). This development was short lived, however, as the town was hit hard during the bust of 1888.

Several decades later, in the 1920s and 30s, State Route (SR) 71 cut through Wildomar as it travelled north from US 80 (now I-8) in San Diego to US 66 (now SR 66) near Claremont (Faigin 2023). When the portion of the route that ran between San Diego and Temecula was redesignated US 395, it was rerouted to run from Pomona to Anguana. In 1973, the portion of SR 71 that ran from Temecula and Corona became I-15, which ushered in a period of urban growth to Wildomar (City of Wildomar n.d.; Faigin 2023).

3.0 METHODS

HELIX contacted the EIC at the University of California, Riverside on February 6, 2023, to obtain a records search of the project site and a one-half-mile radius. A follow-up email was sent on March 9, 2023. Records search results were received on August 1, 2023. The records search included a review of the California Historical Resources and the state Office of Historic Preservation (OHP) historic properties directories, and Local Register. The records search maps are included as Appendix B (confidential, bound separately) to this report.

HELIX archaeologists also reviewed historic maps and aerial photographs to assess the potential for historic archaeological resources to be present and review past land use to determine the level of disturbance within the project area and the adjacent land.

The Native American Heritage Commission (NAHC) was contacted on February 2, 2023, for a Sacred Lands File search and list of Native American contacts, which were received on February 16, 2023. Letters were sent on February 27, 2023, to the contacts listed by the NAHC. Native American correspondence is included as Appendix C (confidential, bound separately) to this report.

HELIX archaeologist Mary Villalobos and Luiseño Native American monitor Julio Marquez from Pechanga conducted a pedestrian survey of the project site was conducted on February 8, 2023. The project area was walked in transects spaced approximately 3 meters (m) apart.

4.0 RESULTS

4.1 RECORDS SEARCH

4.1.1 Previous Surveys

The cultural resources records search conducted at the EIC indicated that 18 cultural resources studies have been previously conducted within a one-half-mile radius of the project area (Table 1, *Previous Studies within One-Half Mile of the Project Area*). None of these studies included the project area. Records search results are located in Appendix B (confidential, bound separately).

Table 1
PREVIOUS STUDIES WITHIN ONE-HALF MILE OF THE PROJECT AREA

Report No. (RI-)	Report Title	Author, Date
02313	An Archaeological Assessment of TTM # 23281, Riverside County, California	Keller, Jean Salpas, 1988
03305	An Archaeological Assessment of A 2300+ Foot Sewer Alignment Located in the City of Lake Elsinore, Riverside County	White, Robert, 1991
04661	Historic/Archaeological Resources Survey Report: Bundy Canyon Restaurant Project, 33950 Angels Lane, Wildomar, Riverside County, California	Hogan, Michael, et al., 2003
05578	A Cultural Resources Assessment of A 39.5 Acre Parcel as Shown on TTM 32024, Located Adjacent to Monte Vista Drive, Wildomar, Riverside County	White, Robert & Laura S. White, 2004
05617	A Cultural Resources Assessment of 6.23 Acres of Land Located at the Southeast Corner of Bundy Canyon Road and Interstate 15, Wildomar, Riverside County, CA	White, Robert & Laura S. White, 2003
06465	Historical/Archaeological Resources Survey Report, Tentative Tract Map No. 31409, Near the Community of Wildomar, Riverside County, CA	Tang, Bai, et al., 2004
06596	Historical/Archaeological Resources Survey Report, The Bundy Project, Secco Hills Area, Riverside County, California	Tang, Bai "Tom", et al., 2006
06905	Archaeological Survey Report for the Southern California Edison Company, DSPDOROF 12Kv Circuit Project, Riverside County, California (WO# 6077-5395; AI# 6-5301 and 6-5302)	Jordan, Stacey C., 2006
07471	A Phase I Cultural Resources Assessment of APN 366-210-052 thru 054, +- 3.72 Acres of Land in the City of Lake Elsinore, Riverside County, California, USGS Lake Elsinore, California Quadrangle, 7.5' Series	Keller, Jean A., 2007
07852	Built-Environment Historic Resources Technical Memorandum for Bundy Canyon Scott Road Improvement Project	Smith, Francesca G. & Caprice D. (Kip) Harper, 2007
09039	A Phase I Cultural Resources Investigation of the Wildomar Walmart Superstore Project Area in the City of Wildomar, Riverside County, California	McKenna, Jeanette A. & Richard S. Shepard, 2013

Report No. (RI-)	Report Title	Author, Date
09291	A Phase I Cultural Resources Assessment of Public Use Permit 778, Revised Permit No. 5 APN 367-210-008, 018, 034, 035, 039, 041, 043 and 367-140-008	Keller, Jean A., 2014
09441	Cultural Resources Assessment, Elsinore Valley Municipal Water District, Waite Street Reservoir and Pipeline Project, Wildomar, Riverside County, California	Brunzell, David, 2012
09967	Phase 1 Cultural Resources Survey for the Bundy Canyon Project City of Wildomar, California APNs 367-100-018, -021, -025, -029, and -031	Anderson, Stephen P. & Brian F. Smith, 2016
10290	Historical/Archaeological Resources Survey Report: Assessor's Parcel Nos. 367-140-008, -010 And -012, City of Wildomar, Riverside County, California	Tang, Bai "Tom", et al., 2017
10530	Phase I Cultural Resources Assessment of the Elsinore Valley Municipal Water District Wildomar Recycled Water System Phase 1 - Off-Site Facilities Project, Riverside County	White, Laura S. & Robert S. White, 2009
10768	Cultural Resources Monitoring Report for the Monte Vista Ranch Project (Tentative Tract Map 32024), City of Wildomar, Riverside County, California (APNs 367-140-007 and -011)	Smith, Brian F., 2019
10773	Cultural Resource Monitoring Report for the Monte Vista Ranch Project	Smith, Brian F., 2019

4.1.2 Previously Recorded Resources

The EIC cultural resources records search indicated that no cultural resources have been previously identified within the project area or the search radius. Because of this, no resources map or list were provided.

4.2 OTHER ARCHIVAL RESEARCH

Various additional archival sources were also consulted, including historic topographic maps and aerial imagery. These include aerials from 1938, 1967, 1968, 1982, 1994, and 2002 (Nationwide Environmental Title Research, Inc. [NETR Online] 2023) and several USGS topographic maps, including the 1901 Elsinore (1:125,000), the 1953 and 1973 Elsinore (1:24000), and the 1973, 1982, 1988, and 1997 Lake Elsinore (1:24,000) topographic maps. The purpose of this research was to identify historic structures and land use in the area and to review on-site development over time.

While no structures appear in the project area on the 1901 Elsinore map, several roads are present in the area and the Southern California Railroad is recorded to the west of the project area. Additionally, a small stream or spring is recorded to the southeast. The 1953 Elsinore map depicts two structures within the project area; the map also shows the original alignment of Orange Street to the west of the parcel. A reservoir and water tank are also recorded north of the project area. Both the 1973 Elsinore and Lake Elsinore maps show the newly constructed State Route (SR) 71 (now I-15) running adjacent to the project area. These maps, as well as the 1982 and 1988 maps, also depict the residential development of the area, with new houses being built to the north and west of the project area.

The 1988 Lake Elsinore (1:24,000) topographic map shows the newly developed I-15, with on- and off-ramps adjacent to the project area. Additionally, a road is recorded entering the northern portion of the project area, and new structures are present. Finally, the 1997 Lake Elsinore map shows new neighborhoods to the north and southwest of the project area.

The aerial photograph from 1938 shows the area containing the project as having been subdivided into large square agricultural plots—the project is located in the unplanted southern half of one of these such plots (NETR Online 2023). The 1953 aerial photograph shows a structure in the center of the project area, and new plant growth encompassing the western two thirds of the project (University of California, Santa Barbara [UCSB] Digital Library 2023). The structure remains visible in the 1961 aerial, though the newly paved Highway 395 cuts through the center of the plot. The 1967 and 1978 aerials show the clearing of the agriculture in the immediate area, and the development of small residences along the highway (NETR Online 2023). The 1978 photograph shows an additional structure in the northern portion of the project area. By the time the 1982 aerial was taken, Highway 395—now known as Interstate 15—had been expanded into a four-lane highway with an overpass located southwest of the project area. The subsequent aerial photographs show the project area remaining relatively unchanged until sometime between 1994 and 2002, when the northernmost structure was demolished (NETR Online 2023).

4.3 NATIVE AMERICAN CONTACT PROGRAM

HELIX contacted the NAHC on February 2, 2023, for a Sacred Lands File search and list of Native American contacts for the project area. The NAHC indicated in a response dated February 16, 2023, that no known sacred lands or Native American cultural resources are within the project area, but that the area is sensitive for cultural resources. Letters were sent on February 27, 2023, to Native American representatives and interested parties identified by the NAHC. Five responses have been received to date (Table 2, *Native American Contact Program Responses*). The Agua Caliente Band of Cahuilla Indians (Agua Caliente) and the Fort Yuma Quechan Indian Tribe (Ft. Yuma) responded that the project area is outside of their traditional use area and deferred to closer tribes. The Augustine Band of Cahuilla Indians (Augustine) and the Rincon Band of Luiseño Indians (Rincon) did not have any cultural resources information to share; however, Augustine requested to be notified if cultural resources are inadvertently discovered during development. The Morongo Band of Mission Indians (Moronga) stated that the project area is highly sensitive for tribal cultural resources and requested government-to-government consultation with the City. If any additional responses are received, they will be forwarded to City of Wildomar staff. Native American correspondence is included as Appendix C (confidential, bound separately).

During the course of outreach between the tribes and the City, reburial locations for any unanticipated Tribal Cultural Resources were identified. Reburial locations are confidential and not included in this report.

Table 2
NATIVE AMERICAN CONTACT PROGRAM RESPONSES

Contact/Tribe	Response
Agua Caliente Band of Cahuilla Indians	Responded via email on March 7, 2023; Project is not within Tribe's Traditional Use Area, and thus defers to local tribes.

Contact/Tribe	Response
Augustine Band of Cahuilla Mission Indians	Responded via email on March 7, 2023; Tribe wishes to be contacted following the discovery of cultural resources during development of the project.
Quechan Tribe of the Fort Yuma Reservation	Responded via email on March 9, 2023; Tribe defers to local tribes.
Rincon Band of Luiseño Indians	Responded via email on March 20, 2023; Tribe has no cultural resources information available to share and has no comments.
Morongo Band of Mission Indians	Responded via email on April 25, 2023; Tribe requests government-to-government consultation with the City.

4.4 SURVEY RESULTS

The ground within the project area was noted to be mostly flat, with visible disturbances caused by the activities of a previous residence (Plates 1-7). Rodent activity was also visible. The ground visibility within the southern portion of the project ranged from 10 to 70 percent due to the presence of gravel and native and non-native vegetation. The visibility in the northern portion of the project was poor and ranged from 0 to 20 percent due to the presence of a palm grove.

Several structural foundations and an abandoned, man-made pond were noted within the southwest section of the parcel, and a paved driveway was observed running from Cherry Street to the east side of these foundations (Plates 5-7). Chunks of concrete, bricks, and modern trash were scattered throughout the project area. Vegetation included native as well as non-native grasses and shrubs, including buckwheat, several large pepper trees, eucalyptus, California walnut trees, and a large, low lying palm grove located at the northern half of the parcel. These residential remains were recorded on Department of Parks and Recreation (DPR) forms located in Appendix D (confidential, bound separately) of this report.



Plate 1. Overview of the project area from the southernmost edge of parcel, view to the north. 2/8/2023.



Plate 2. Overview of the project area from the southernmost edge of parcel, view to the northwest. 2/8/2023.



Plate 3. Overview of the project area from the northern portion of parcel, view to the south. 2/8/2023.



Plate 4. Overview of the project area from the eastern portion of parcel, view to the west. 2/8/2023.



Plate 5. Man-made pond within southern portion of parcel, view to the east. 2/8/2023.



Plate 6. Patio foundation in the southern portion of parcel, view to the northeast. 2/8/2023.



Plate 7. Structural foundations in the southern portion of parcel, view to the north. 2/8/2023.

5.0 SUMMARY AND MANAGEMENT RECOMMENDATIONS

A study was undertaken to identify cultural resources that are present in the Cherry Outpost Project area and to determine the effects of the project on historical resources as defined by CEQA. A records search of cultural resources studies previously conducted and cultural resources previously identified within the project area and a one-half-mile radius indicated that 18 studies have been conducted, none of which included the project area. No cultural resources have been identified within the project area. Archival research of historic maps and aerial photographs reveals that the project area was subject to residential, agricultural, and transportation development. A pedestrian survey identified a historical archaeological site consisting of the foundations of a residence, concrete pond, associated structures, and a palm grove. This site lacks integrity and is not eligible for inclusion on the CRHR or NRHP. HELIX recorded the site on DPR forms, and no further measures are recommended for this historic period resource. Therefore, no impacts to historical resources, as defined by CEQA, are anticipated.

The Native American Heritage Commission's Sacred Lands File search was negative for cultural and tribal resources in the project vicinity. Outreach to tribes resulted in responses from the Agua Caliente Band of Cahuilla Indians, the Augustine Band of Cahuilla Indians, the Fort Yuma Quechan Indian Tribe, the Rincon Band of Luiseño Indians, and the Moronga Band of Mission Indians. Agua Caliente and Ft. Yuma responded that the project area is outside of their traditional use area and deferred to closer tribes. Augustine and Rincon did not have any cultural resources information to share; however, Augustine requested to be notified if cultural resources are inadvertently discovered during development. Morongo noted the cultural sensitivity of the project area and requested government-to-government consultation with the City. Outreach between the tribes and the City identified reburial locations for any unanticipated Tribal Cultural Resources. Reburial locations are confidential and not included in this report.

5.1 MANAGEMENT RECOMMENDATIONS

Based on the results of the current study, no historical resources as defined by CEQA will be affected by the Cherry Outpost Project. However, due to the culturally sensitive nature of the area, including proximity to Lake Elsinore, HELIX recommends an archaeological and Native American monitoring program. Initial ground-disturbance of native soil within the project site should be observed by a trained archaeologist and a Luiseño Native American monitor. Should the archaeological monitor and Native American monitor determine that there is no potential for cultural material to be uncovered, then the monitoring program will halt.

In the event that cultural material is encountered during ground-disturbing activities, work in the immediate vicinity will be suspended until the discovery is assessed by the archaeological and Native American monitors. Although there is no evidence to suggest the presence of human remains, in the unlikely event that human remains are encountered during ground-disturbing activities, all work will cease, and the county coroner will be contacted, per the California Public Resources Code. Should the remains be identified as Native American, the NAHC will be contacted within 48 hours to provide a Most Likely Descendent to determine appropriate actions.

Should the project design change to extend outside of the present project area, additional cultural resources studies will be required.

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Appendix A

Resumes of Key Personnel

James Turner, RPA

Staff Archaeologist

HELIX Environmental Planning

Summary of Qualifications

Mr. Turner is a Registered Professional Archaeologist (RPA) with a Master's degree in Anthropology and field and college-level teaching experience in archaeology. He is experienced in Section 106, the Native American Graves Protection and Repatriation Act (NAGPRA), and writing detailed reports. Mr. Turner has archaeological research and fieldwork expertise throughout southern California. He has also received training in identifying and analyzing animal remains in archaeological contexts, historic artifact identification, and technical writing. Mr. Turner's experience meets the Secretary of the Interior's Professional Qualification Standards for archaeology.

Selected Project Experience

Roselle Street Cultural Resources Services: Data Recovery Program Project (2020).

Seawater Controls Project (2020). Archaeologist for a proposed tank installation near the Scripps Institute of Oceanography in La Jolla. Performed monitoring of geotech borings and conducted a site survey. Work performed for University of California, San Diego.

SDGE ETS 42415.02 C211 FTZAP FT Poles Replacement (2020). Archaeologist for the replacement of several telecommunication poles in the community of Ranchita, San Diego County. Monitored the replacement of two poles and wrote the final monitoring report. Work performed for San Diego Gas and Electric.

43472 Monitoring (2020). Archaeologist for an erosion control and repair project in the community of Julian. Conducted cultural resource monitoring and prepared cultural resource monitoring report. Work performed for San Diego Gas & Electric.

43502.02 Banner Grade Monitoring (2020). Archaeologist for an underground conduit installation in the community of Julian. Performed archaeological monitoring of ground disturbance activities. Work performed for San Diego Gas & Electric.

Parkway Drive and Alvarado Road Trunk Sewer Phase 3 Upgrade Project (2020). Archaeologist for a sewer infrastructure improvement project in the city of La Mesa, San Diego County. Performed construction monitoring. Work performed for the City of La Mesa.

Escondido Country Club (2020). Archaeological monitor for the redevelopment of the Escondido Country Club. Performed construction monitoring. Work performed for Lennar Homes.

Education

Master of Arts, Anthropology, San Diego State University, 2018

Bachelor of Arts, Biology and Anthropology, San Diego State University, 2015

Registrations/ Certifications

RPA, Registered Professional Archaeologist #17338

Professional Affiliations

Society for Historical Archaeology

Society for California Archaeology

Lake Morena's Oak Shores Eastside Pipeline Looping Project (2020). Archaeologist for the Lake Morena's Oak Shores Mutual Water Company Eastside Pipeline Looping and Pipeline Abandonment Project. The project consisted of improvements to the existing water distribution system. Conducted archaeological monitoring and wrote a letter report summarizing the methods and results of the monitoring program. Work performed for Lake Morena's Oak Shores Mutual Water Company.

Salt Bay Design District Specific Plan EIR (2020). Archaeologist for a mixed-use development project, which proposes to include wholesale/retail shopping and light industrial uses. Participated in an archaeological testing program and produced artifact tables for report. Work performed for M & A Gabaee.

Draft EIS/Overseas EIS - Disposal of Decommissioned, Defueled Ex-Enterprise (CVN 65) & Associated Naval Reactor Plants (2020). Archaeologist for the Draft EIS for the disposal of the Navy ex-Enterprise. Responsible for background research and citation management and assisted with document preparation. Work performed for the NAVFAC SW as a subconsultant to ManTech.

Aliso Creek Canyon Restoration Project (2020). Archaeologist for an erosion repair project in Lake Forest. Conducted a field survey of the project area, performed background research, and produced a cultural resources report. Work performed for the Orange County Department of Public Works.

Mountain View Connector Pipeline - Cultural (2020). Archaeologist for a waterline replacement project in the community of Alpine. Conducted cultural resource monitoring and prepared the final monitoring report. Work performed for Padre Dam Municipal Water District.

Cordial Road Pipeline (2020). Archaeologist for a pipeline replacement project in the unincorporated portion of the City of El Cajon. Performed background research and field survey. Other responsibilities included the production of a letter report detailing the methods and results of the survey, as well as the completion of a site record update to submit to the South Coastal Information Center. Work performed for the Padre Dam Municipal Water District.

Gopher Canyon Water Pipeline Improvement IS/MND (2020). Archaeologist for a pipeline improvement project in five locations in the Bonsall area of northern San Diego County. Performed pedestrian survey and prepared cultural resources report, which included background research. Work performed for the Rainbow Municipal Water District.

Sage Canyon Project (2020). Archaeologist for a proposed multi-family residential apartment units within a 5.7-acre project area in the City of Encinitas. Performed intensive pedestrian survey and wrote report summarizing survey results and recommendations. Work performed for Sage Canyon Investors, LLC.

General Coatings Project (2020). Archaeologist for a due diligence project for the possible future expansion of the General Coatings property. Conducted background research, which included analyzing a records search and viewing historic maps and aerial photographs of the project area. Additional responsibilities included performing a field survey of the project area and producing a cultural resources due diligence report. Work performed for General Coatings.

Bounty & Waring Navajo Canyon Long Term Access Project (2020). Archaeologist for the repair of erosion on a long-term access path for the sewer infrastructure in Navajo Canyon. Performed an intensive pedestrian survey of the project area and wrote report summarizing survey results and recommendations. Work performed for the City of San Diego.

Lakeside Equestrian Facility (2020) Archaeologist for the construction of a 13.91-acre equestrian facility in Lakeside, California. Assisted in the creation of a cultural resources monitoring plan. Work performed for the County of San Diego.

Otay Valley Regional Park Bike Skills Park (2020) Archaeologist for the construction of a 3.2-acre bike park facility in the Otay Valley Regional Park, San Diego, California. Assisted in the creation of a cultural resources monitoring plan. Work performed for the County of San Diego.

Santa Ysabel Trail (2020) Archaeologist for a proposed 3 mile hiking trail in the unincorporated community of Julian. Performed background research for the cultural resources report, participated in an intensive pedestrian survey, and monitored geotechnical work. Work performed for the County of San Diego Department of Parks and Recreation.

Texas Telecom Monitoring (2020). Archaeologist for telecom installation project. Monitored construction and ground disturbance activities. Work performed for the City of Menifee.

Hays Verizon Site (2020). Archaeologist for telecom installation project. Prepared cultural resources monitoring report. Work performed for Terracon.

Copperhead Telecom Monitoring (2020). Archaeologist for telecom installation project. Prepared cultural resources monitoring report. Work performed for Terracon.

Eastlake Village Park (2020). Archaeologist for a telecommunication project in the community of Eastlake in the City of Chula Vista. Conducted cultural resource monitoring for the drilling of a caisson hole. Work performed for Terracon.

Stallion Telecom Monitoring (VZ Site # 802842) (2020). Archaeologist for telecom installation project. Conducted construction monitoring and prepared cultural resources monitoring report. Work performed for Terracon.

Jay Forty Site 5078398 (2020). Archaeologist for telecom installation project. Conducted construction monitoring and prepared cultural resources monitoring report. Work performed for Terracon.

Frolf Park (2020). Archaeologist for telecom installation project. Conducted construction monitoring and prepared cultural resources monitoring report. Work performed for Terracon.

White Park 1590 North Parks Road (2020). Archaeologist for telecom installation project. Conducted construction monitoring and prepared cultural resources monitoring report. Work performed for Terracon.

San Diego State University (2018 - 2020). Lecturer for Principles of Archaeology and Historical Archaeology courses. Lectured on historical archaeology, archaeological techniques, and theory. Created and delivered instructional plans and engaging subjects, using innovative methods including video and interactive class activities.

Dudek Environmental Consultants Projects (2017 - 2020). As-Needed Archaeological Field Technician identifying potential areas of cultural and historical significance and engaging in activities for cultural resources management in San Diego County.

Nicole Falvey

Cultural Resources Project Manager

HELIX Environmental Planning

Summary of Qualifications

Ms. Falvey is a professional archaeologist and environmental planner. She has worked on approximately 100 prehistoric and historic cultural resource management projects and over 100 NEPA categorical exclusions. Ms. Falvey has served in lab, field, and office capacities, completed record searches, co-authored technical reports, and authored NEPA process documents. Projects include transportation, commercial and residential developments, wind farms, utilities projects, and rail and road expansions. Project activities include pedestrian surveys, test excavations, data recovery programs, construction monitoring, project managing, research, and technical report authoring. Ms. Falvey specializes in the National Historic Preservation Act, the National Environmental Policy Act, and the California Environmental Quality Act.

Selected Project Experience

East County Advanced Water Purification Project (2022). Cultural Resources Project Manager for this multi-phase utility pipeline project. The Joint Powers Authority is the lead agency.

Interstate 5 North Coast Corridor (2020-2022) Archaeological Project Manager responsible for coordinating construction monitoring for the construction phase of the I-5 expansion from San Elijo Lagoon north to Jefferson Street in San Diego County.

State Route 163 Bridge Rail (2020-2022) Environmental Planner for this project proposing to upgrade the bridge rails of four historic bridges spanning the SR-163 in the National Register of Historic Places-listed Cabrillo Historic District in the City of San Diego.

Archaeological Survey for the Alpine 21 Project (2016 - 2017). Crew Chief for this proposed residential development in the City of Alpine. Conducted records search, supervised field survey crew,and co-authored technical report.

Archaeological Monitoring for the Paseo Del Norte Project (2016 - 2016)**.** Staff Archaeologist for this commercial development in the City of Carlsbad. Conducted cultural resources construction monitoring.

Keystone Way Archaeological Survey Project (2016 - 2016)**.** Staff Archaeologist for this proposed commercialdevelopment in the City of Vista. Conducted records search, conducted field survey, and co-authored technical report. The City of Vista was the lead agency.

Presidio Apartments Survey Project (2016 - 2016)**.** Staff Archaeologist for this proposed multi-family residential development in the City of Oceanside. Conducted

Education

Bachelor of Arts, Anthropology with a concentration in Archaeology, University of California, San Diego, 2013

Associate of Arts, Anthropology, Mira Costa Community College, California, 2011

Registrations/ Certifications

North County Transit District (NCTD) Roadway Worker ID #C00901, 2015

HAZWOPER, 24 hours

Professional Affiliations

San Diego County Archaeological Society, Board of Directors, Second Vice President (2014-2015), First Vice President (2015-2016)

Society for California Archaeology, Member

records search, conducted field survey, and co-authored technical report. The City ofOceanside was the lead agency.

City of Oceanside As-Needed Environmental Consulting Services (2013 - 2015)**.** Staff Archaeologist for construction of a new facility at the Mission Basin Desalting Facility near the San Luis Rey River. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of prehistoric artifacts and cultural features, and daily field notes.Work performed for the City of Oceanside.

Vista Grande Archaeological Testing (2015 - 2016)**.** Crew Chief for this proposed residential development in theCity of Vista. Responsible for supervising test excavation of the prehistoric archaeological site, including placing shovel test pits (STPs), plotting in STPs using a Trimble GPS, supervision of a three-person crew in excavating STPs, completing documentation, collecting surface artifacts, andcoordination with a Native American monitor. Co-authored technical report. Work performed for the City of Vista.

City of Carlsbad Trails Master Plan Constraints Analysis (2015 - 2015). Staff Archaeologist for the constraints analysis for this proposed trails master planin the City of Carlsbad. Assisted in research for the cultural resources portion of the constraints analysis, including locating previously recorded prehistoric archaeological sites within the proposed trail system and determining their potential for effects. Work performed for the City of Carlsbad.

Pujols Shearwater Monitoring (2015 - 2016)**.** Staff Archaeologist for this residential development in the City of Temecula, Riverside County. Conducted cultural resources construction monitoring, completed Department of Parks and Recreation forms for prehistoric resources, and co-authored technical report.

Ticonderoga Street and Morena Boulevard (2015 - 2015)**.** Staff Archaeologist for this proposed residential development in the City of San Diego. Co-authored technical report.

Campo Creek Bridge Replacement Monitoring (2016 - 2017)**.** Staff Archaeologist for this bridge replacement project in the community of Campo, San Diego County. Conducted cultural resources monitoring. Work performed for CalTrans.

Grandview Pointe IS/MND Survey and Structres Evaluation (2016 - 2018)**.** Staff Archaeologist for this proposed residential development in the City of Oceanside. Conducted a historical evaluation and reconnaissance survey of the two historical residences on the property and co-authored technical report. Work performed for the City of Oceanside.

Archaeological Testing for the Buena Sanitation District Green Oak Sewer Replacement Project (2016 - 2017)**.** Staff Archaeologist for this sewer main replacement project located in the City of Vista. Assisted in prehistoric archaeological testing set-up and co-authored technical report. Work performed for the City of Vista.

Archaeoogical Survey for the Riverpark Project (2015 - 2017)**.** Crew Chief for this mitigation bank project near the community of Nuevo in Riverside County. Supervised the survey of this 613-acre property with a three-person crew, including the recordation of encountered prehistoric cultural resources.

964 Urania Avenue Archaeological Testing (2017 - 2018)**.** Crew Chief for this proposed residential development in the City of Encinitas. Responsible for supervising a two-person crew in excavating shovel test pits (STPs), including the completion of notes and the collection and labeling of artifacts. Completed Department of Parks and Recreation forms for prehistoric archaeological sites and co-authored technical report. Work performed for the City of Encinitas.

Daisy Avenue Archaeological Testing Project (2014 - 2018)**.** Staff Archaeologist for this proposed residential development in the City of Long Beach, Orange County. Participated in prehistoric archaeological testing and co-authored technical report.

Villa Storia Archaeological Evaluation (2014 - 2015)**.** Crew Chief for the cultural resources assessment of this property in the City of Oceanside. Responsible for supervising a four-person crew in archaeological testing by the excavation of shovel test pits (STPs).

Buena Creek Due Dilligence Study (2015 - 2015)**.** Staff Archaeologist for this proposed residential development near the City of Vista, San Diego County. Conducted records search, conducted field survey, and co-authored technical report. The County of San Diego is the lead agency.

312-400 South Euclid Historic Building Evaluation (2016 - 2017)**.** Staff Archaeologist for this proposed residential development in the City of Anaheim, Orange County. Conducted records search, conducted site visit, including historical building assessment, and co-authored technical report. Work performed for KB Homes.

Lakeside 6 Survey (2016 - 2016)**.** Staff Archaeologist for this proposed residential project in the community of Lakeside, San Diego County. Conducted cultural resources field survey, conducted historical property research, and co-authored technical report. Work performed for KB Homes.

San Elijo Joint Powers Authority Preliminary Design of Land Outfall Replacement and Permitting/CEQA Compliance Study (2015 - 2016)**.** Staff Archaeologist for this CEQA compliance project in the City of Encinitas. Conducted records search, conducted cultural resources field survey, and co-authored technical report. Work performed for the San Elijo Joint Powers Authority.

Palmdale Water District - Palmdale Regional Groundwater Recharge and Recovery Preliminary Design EIR, EA, FONSI. Staff Archaeologist for this water district project Environmental Impact Report in the Palmdale Water District, Los Angeles County. Co-authored the cultural resources section (section 5.3) of the Environmental Impact Report. Work performed for the Palmdale Water District.

Otay Crossings Commerce Park EIR Survey (2016 - 2019)**.** Staff Archaeologist for this proposed commercial project Environmental Impact Report in the Otay Mesa area of San Diego County. Conducted records search, conducted cultural resources field survey, completed Department of Parks and

Recreation prehistoric site record update, and co-authored technical report in accordance with Army Corps of Engineers standards. Work performed for the County of San Diego.

Orange County Sanitation District Newhope-Placentia Trunk Sewer Replacement, No. 2-72A (2015 - 2016)**.** Staff Archaeologist for this trunk sewer replacement project in the Orange County Sanitation District, Orange County. Conducted historical research at the Fullerton Library, conducted a site visit to determine the presence of historically significant or potentially significant structures within the project area, and co-authored technical report. Work performed for the Orange County Sanitation District.

Mast Park Monitoring (2015 - 2016)**.** Project Staff Archaeologist for this wetland habitat restoration project in the City of Santee. Conducted cultural resources construction monitoring, completed Department of Parks and Recreation prehistoric site records, and co-authored technical report. Work performed for HELIX Construction Group and the City of Santee.

SDG&E Solar Sites Testing (2014 - 2017)**.** Crew Chief for solar project near Pala Indian Reservation in the County of San Diego. Supervised a three-person crew in Phase II testing; responsible for test unit placement and excavation, prehistoric artifact identification, notes. Also conducted cultural resources construction monitoring for Pala solar project and solar project in the community of Ramona, San Diego County. Co-authored report for Pala solar project. Work performed for Merkel & Associates, Inc.

USD Master Plan and Conditional Use Permit (2015 - 2016)**.** Staff Archaeologist for the cultural resources technical report for USD's Master Plan EIR. Co-authored technical report. Work performed as a subconsultant to M.W. Steele Group, Inc., with University of San Diego as the lead agency.

Archaeological Montioring for the Old Mission San Luis Rey Cemetery Expansion Project (2016 - 2017)**.** Staff Archaeologist for a cultural resources monitoring program for the expansion of the cemetery at Old Mission San Luis Rey, an area of sensitivity in terms of archaeological, historic, and Native American cultural resources. Conducted cultural resources construction monitoring. Worked performed for Old Mission San Luis Rey, with the City of Oceanside as the lead agency.

Interstate 8 Water Main Crossing at Viewside Lane Environmental and Cultural Resources Services (2015 - 2016). Staff Archaeologist for proposed water main crossing in the community of Alpine, San Diego County. Conducted records search, conducted cultural resources field survey, and co-authored technical report. Work performed for the Padre Dam Municipal Water District.

Green Oak Villas Greenhouse Gas and Cultural Resources Testing (2016 - 2016). Staff Archaeologist for proposed residential development in the City of Vista. Conducted records search, conducted cultural resources field survey, acted as co-crew chief for Phase II testing, and co-authored technical report. Work performed for Providence Capital Group, Inc. with the City of Vista as the lead agency.

Archaeological Testing for the F11 Development (2015 - 2017). Staff Archaeologist for a proposed mixed-use commercial and residential tower in downtown San Diego. Participated in Phase II archaeological testing and laboratory work, including cleaning, sorting, labeling, and researching historic

artifacts. Work performed for the Richman Group of Companies with the City of San Diego as the lead agency.

San Ysidro Community Plan Update (2016 - 2016)**.** Staff Archaeologist for a Program EIR (PEIR) addressing a proposed update to the San Ysidro Community Planthat covers approximately 1,800 acres near the international border with Mexico. Co-authored PEIR Section 4.7 Historical Resources. Work performed for the City of San Diego.

Pottery Canyon Mitigation Monitoring (2014 - 2016). Staff Archaeologist for a cultural resources monitoring program in conjunction with contaminated soils remediation program at a significant historic archaeological site in Pottery Canyon Park in the City of San Diego. Responsible for monitoring of contaminated soils capping, collection and cataloging of artifacts outside the capped area, and co-authoring of a monitoring report. Work performed for the City of San Diego.

Archaeological Monitoring for 28th Street between Island Avenue and Clay Avenue (2014 - 2018)**.** Staff Archaeologist for undergrounding utilities project in the Sherman Heights neighborhood of the City of San Diego. Conducted field, laboratory, and office work including: cultural resources construction monitoring; cleaning, sorting, labeling, cataloging, and researching of artifacts; completing Department of Parks and Recreation site records; and co-authoring technical report. Work performed for the City of San Diego.

Surveys for the Nestor Creek Channel Maintenance - Permitting and MMP Individual Assessments (2015-2016)**.** Staff Archaeologist for creek channel maintenance program assessment in the City of San Diego. Conducted cultural resources field surveys and co-authored IHA. Work performed for the City of San Diego.

Survey for the Smythe Channel Maintenance - Permitting and MMP Individual Assessments (2015-2016). Staff Archaeologist for channel maintenance project in the City of San Diego. Conducted records search, conducted cultural resources field survey, and co-authored IHA. Work performed for the City of San Diego.

Archaeological Survey for the 12 Oaks Winery Resort and Golf Community (2015 - 2018)**.** Staff Archaeologist for a cultural resources survey of approximately 650 acres for a proposed project in the County of Riverside. Participated in cultural resources field survey, completed Department of Parks and Recreation prehistoric site records, and co-authored technical report. Work performed for Standard Portfolio Temecula, LLC.

SR-266 Road Widening D-List Categorical Exclusion (2019-2020). Author for this Federal Highway Administration-approved NEPA document in Rutherford County, Tennessee. Completed the Section 4(f) De Minimis process for multiple recreation areas and authored the report based upon archaeology,historical preservation, ecology, hazardous materials, air and noise, Native American coordination, and multimodal transportation studies.

SR-13 Road Realignment D-List Categorical Exclusion (2019-2020). Author for this Federal Highway Administration-approved NEPA document in Perry County, Tennessee. Authored the report based upon archaeology, historical preservation, ecology, hazardous materials, air and noise, Native American coordination, and multimodal transportation studies.

Coachella Valley Pole Replacements (2014). Staff archaeologist for electrical pole replacement for the County of Riverside. Conducted record search.

Juan Street Pothole Investigation (2014). Staff archaeologist for storm drain project in the City of San Diego, Assisted in report preparation.

Southern California Edison Pole Surveys (2014). Staff archaeologist for electrical pole replacement for the Counties of Riverside, Mono, and Inyo. Conducted record searched, pedestrian surveys and assisted in report preparation; responsible for artifact identification and field notes.

Sunset Cliffs Archaeological Monitoring (2014). Staff archaeologist for sewer pipeline in the City of San Diego. Conducted cultural resource monitoring; responsible for artifact identification, monitoring notes, and assisting in report preparation.

Verizon Rose Creek Data Recovery (2014). Staff archaeologist for cell phone tower installation in the City of San Diego. Participated in Phase I data recovery; responsible for excavation of shovel test pits, field notes.

Mission Cove Archaeological Data Recovery (2014 - 2015)**.** Project Staff archaeologist for residential development in the City of Oceanside. Participated in Phase II data recovery; responsible for excavation of shovel test units, field notes.

San Diego Fish and Game Wetland Rehab Survey (2013). Staff archaeologist for wetland rehabilitation for the County of San Diego in the unincorporated community of Jamul. Conducted a pedestrian survey; responsible for artifact identification.

El Toro Recycled Water Monitoring (2013). Staff archaeologist for recycled water pipeline in the City of El Toro. Conducted cultural resource monitoring; responsible for artifact identification, monitoring notes.

Newland Sierra (2013). Staff archaeologist for commercial development in the City of Escondido. Conducted laboratory analysis; responsible for artifact labeling, analysis, cataloging.

North County Transit District San Onofre Archaeological Monitoring and Testing (2013). Staff archaeologist for the expansion of railroad tracks on Marine Corps Base Camp Pendleton. Conducted cultural resource monitoring, test excavations, laboratory analysis; responsible for artifact identification, monitoring notes, artifact labeling.

Ortega Highway Interchange Monitoring (2013). Staff archaeologist for highway improvements in the City of San Juan Capistrano. Conducted cultural resource monitoring; responsible for artifact identification, monitoring notes.

Poseidon Desalination Plant Monitoring (2013-2014). Staff archaeologist for water pipeline in the City of Carlsbad. Conducted cultural resource monitoring, laboratory analysis; responsible for artifact identification, monitoring notes, artifact analysis, cataloging.

Rincon Point (2013). Staff archaeologist for residential development in the County of Santa Barbara. Assisted in laboratory analysis; responsible for artifact identification and labeling.

Smoking Tree Survey (2013). Staff archaeologist for the installation of wind turbines in the City of Palm Springs. Conducted pedestrian survey; responsible for artifact identification, field notes.

Yokohl Ranch (2013). Staff archaeologist for residential development in the County of Tulare. Conducted laboratory analysis; responsible for artifact analysis, cataloging, soil flotation, wet screening.

Silver Strand State Beach Monitoring (2012). Archaeological intern for underground utilities in Silver Strand State Beach in the City of San Diego. Conducted cultural resource monitoring; responsible for artifact identification, monitoring notes.

Cuyamaca Rancho School Camp Monitoring (2010). Archaeological intern for landscaping in Cuyamaca Rancho State Park in the County of San Diego. Conducted cultural resource monitoring; responsible for artifact identification, monitoring notes.

Theodore G. Cooley, MA, RPA

Education
MA, Anthropology, California State University, Los Angeles, 1982
BA, Anthropology, California State College, Long Beach, 1970

Professional Registration
Registered Professional Archaeologist (RPA)

Professional Affiliations
Member, Society for American Archaeology
Member, Society for California Archaeology
Member, Register of Professional Archaeologists

Certifications
County of San Diego, CA, Certified Consultant List for Archaeological Resources
City of San Diego, CA, Certified Principal Investigator for Monitoring Projects
County of Orange, CA, Certified Cultural Resources Consultant Principal Investigator
County of Riverside, CA, Certified Cultural Resources Consultant Principal Investigator
Approved lists in the Counties of San Luis Obispo, Santa Barbara, Ventura, and Los Angeles, CA

Training
40-Hour HAZWOPER Training (not current)

Professional History
2009–2019 Staff and Senior Archaeologist, AECOM/EDAW, San Diego, CA.
1997–2009: Staff Senior Archaeologist, ICF/Jones & Stokes/Mooney and Associates, San Diego, California.
1985–1997: Staff Senior Archaeologist/Department Manager, Ogden Environmental Services Company/ERCI/Westec Services, San Diego and Santa Barbara, CA.
1984: Project Archaeologist, Field Director (1 year project), California State University Fullerton, Archaeological Research Facility, Fullerton, CA.
1982–1983: Project Archaeologist, Field Director (1 year project), Dames & Moore, Wirth Environmental Services Division, San Diego, CA.
1978–1982: Staff Project Archaeologist/Operations Manager, Archaeological Resource Management Corporation (ARMC), Anaheim, California.
1977: Project Archaeologist, Field Director (1 year project), California State University Los Angeles Foundation, Los Angeles, CA.
1975–1976: Graduate Teaching Assistant for Archaeological Field Methods class; Graduate Teaching Assistant for Archaeological Laboratory Analysis Methods class, California State University, Los Angeles, CA.
1970–1974: Staff Project Archaeologist, Archaeological Research, Inc. (ARI), Costa Mesa, CA.

Mr. Cooley has over 45 years of experience in archaeological resource management. He has directed test and data recovery investigations, monitoring programs, and archaeological site surveys of large and small tracts, and has prepared reports for various cultural resource management projects. He is well-versed in National Historic Preservation Act, National Environmental Policy Act (NEPA), and California Environmental Quality Act (CEQA) regulations and processes. Mr. Cooley's experience also includes Native American consultation for monitoring of archaeological field projects, including some with human remains and reburial-related compliance issues.

Project Experience

NextEra Energy, Genesis Solar Energy Project, Riverside County, CA.
The project involved identification, evaluation, and treatment of unanticipated discoveries encountered during survey and construction monitoring, for compliance with Section 106 regulations through the Bureau of Land Management (BLM)and CEQA through the California Public Utilities Commission (CPUC). Performed analyses of 1,238 prehistoric flaked lithic and ground stone artifacts produced from survey and monitoring conducted as part of compliance for the construction of a 2,000-acre solar project west of Blythe, California. Wrote technical report results sections from analyses. [03/2012 –04/ 2014]

Sacramento Municipal Utility District (SMUD), Upper American River Project (UARP), Sacramento, CA.
Performed analyses of 1,143 prehistoric flaked lithic artifacts produced from investigations conducted at 16 archaeological sites, located in the Sierra Nevada Mountains in the Eldorado National Forest, Eldorado County, CA, as part of treatment program of archaeological sites in the Eldorado National Forest in compliance with Section 106 regulations through a Programmatic Agreement with the Federal Regulatory Commission (FERC) and State Historic Preservation Office (SHPO). Wrote technical report results sections from analyses. [11/2015 – 05/2016]

County of San Diego Department of Parks and Recreation, Phase I Cultural Resources Survey and Inventory, Sycamore Canyon/Goodan Ranch Preserve, Cielo and Wu Additions, San Diego County, CA
Supervisory archaeologist for Phase I pedestrian survey and cultural resource inventory of 139 acres of proposed parcel additions to the existing Sycamore Canyon/Goodan Ranch natural park preserve located in coastal foothills of unincorporated west-central San Diego County. Participated in the field survey for prehistoric and historic archaeological resources within the parcel additions and was senior co-author of the technical report of results from the survey program. [03/2016 – 05/2016**]**

San Diego County Water Authority, Archaeological Survey Report for the Moosa Canyon Pipeline Protection Project, San Diego County, CA
Supervisory archaeologist for Phase I pedestrian survey and cultural resources inventory of a 7.2-acre area for proposed protective measures for three parallel underground pipelines at their crossing of the Moosa Canyon drainage, in the coastal foothills of north-central San Diego County. Conducted preparation the field survey for prehistoric and historic archaeological resources within the survey area and co-authored of the technical report of results from the survey program. [12/2014 – 02/2015**]**

County of San Diego Department of Parks and Recreation, Phase I Cultural Resources Survey and Inventory of the University Heights Parcel Additions to the Escondido Creek Preserve, San Diego County, CA
Supervisory archaeologist for Phase I pedestrian survey and cultural resource inventory 262 acres of proposed parcel additions to the existing of the Escondido Creek Open Space Preserve located in coastal foothills in unincorporated west-central San Diego County. Participated in the field survey for prehistoric and historic archaeological resources and was senior co-author of the technical report of results from the survey program. [07/2015 – 09/2015**]**

County of San Diego Department of Parks and Recreation, Cultural Resources Study in Support of the Mesa Trail and Restoration and Dairy Mart Pond Overlook Projects, Tijuana River Valley Regional Park, San Diego, CA
Supervisory archaeologist for Phase I pedestrian survey and cultural resources inventory of 281 acres of proposed restoration and trail construction within the Tijuana River Valley Regional Park located in coastal area of southwestern San Diego County. Participant in the field survey for prehistoric and historic archaeological resources within the survey area. Co-author of the technical report of results from the survey program. [05/2014 – 07/2014**]**

US Department of the Navy, Naval Facilities Engineering Command Southwest, Cultural Resources Studies for Construction and Operation of Solar Photovoltaic Systems at Naval Weapons Station Seal Beach, CA
Field director for archaeological survey of an approximately 86 acre area of Naval Weapons Station Seal Beach proposed for the construction of Solar Panels. Duties included direction of the field crew, and participation in the analysis and report preparation. [12/2014 – 02/2015**]**

US Department of the Navy, Naval Facilities Engineering Command Southwest, Cultural Resources Inventories in Support of the proposed Conversion of Building H-100 for Administrative Reuse (MILCON P-1131), marine Corps Base Camp Pendleton, CA
Field director for archaeological survey for the proposed renovation of Building H-100 and associated facilities, and of locations proposed for the demolition of 37 buildings and structures in various areas on the base. Duties included direction of the field crew, and participation in the analysis and report preparation. [03/2015 – 06/2015**]**

RE Barren Ridge 1. LLC, Cinco, Solar Project Cultural Resources Project, Kern County, CA
As supervisory archaeologist, directed the field survey and site documentation for prehistoric and historic archaeological resources within 800 acres including a 600 acre plant facility site and three proposed Gen-Tie power electrical line corridor alternatives for the solar plant facility, located along the eastern base of the southern Sierra Nevada Mountains near Mojave, CA. Co-authored the technical reports of results from the survey program. The program was conducted under both Section 106 regulations due to the Gen-Tie lines on BLM land and CEQA for the solar facility site on private land. [04/2014 – 09/2014**]**

Sacramento Area Flood Control Agency (SAFCA) Natomas Levee Improvement Program (NLIP), Landslide Improvements Project, Sacramento County, CA.
Performed analyses of 4,085 prehistoric flaked lithic artifacts produced from investigations conducted at archaeological sites CA-SAC-1142, CA-SAC-15 , and CA-SAC-16, located along the Sacramento River as part of a treatment program of archaeological sites in compliance with Section 106 regulations administered by the United States Army Corps of Engineers (USACE) for levee improvements along the Sacramento River. Wrote technical report results sections of the analyses. for [05/2012 – 03/2014**]**

US Department of the Navy, Naval Facilities Engineering Command Southwest, Marine Corps Base Camp Pendleton (MCBCP), Section 110, Resource Delineation and Evaluation Study, San Diego County, CA
Participant in the investigations conducted for resource delineation and evaluation of National Register of Historic Places-eligible prehistoric archaeological site CA-SDI-1313/14791. Involved conducting archaeological excavations for the delineation of the site to allow MCBCP to successfully

plan, under Section 110, for the protection of this significant resource from potential future adverse affects. Involvement included artifact analyst of 1,280 flaked lithic artifacts, preparation of results sections of the lithic analysis, and co-authorship of technical report. [09/2011 – 11/2013]

Los Angeles County Department of Public Works, Archaeological Data Recovery for the Topanga Library Project, Los Angeles County, CA
Participant in the data recovery investigations conducted at prehistoric archaeological site CA-LAN-8 in the community of Topanga in the Santa Monica Mountains. Involved conducting archaeological excavations for data recovery within the Area of Potential Effects for pipeline construction associated with construction of a new public library. Involvement included field work participation, lithic artifact analyst, and co-authorship of technical report. [08/2011 – 08/2013]

US Department of the Navy, Naval Facilities Engineering Command Southwest, Marine Corps Base Camp Pendleton, Geomorphological Investigations San Diego County, CA
Field supervisory archaeologist for the conduct of geomorphological investigations along three drainages within Marine Corps Base Camp Pendleton to assess the potential for the presence of deeply buried prehistoric archaeological deposits. Duties included the design, coordination, and execution of the field geomorphological investigations; participation in the analysis of the results; and co-authorship of the technical report. [09/2009 – 07/2013]

California High-Speed Rail Authority, High Speed Train Project, CA
Field director for a Phase I Cultural Resources Survey and Inventory of three alternative high-speed train alignment corridors, extending from Merced to Fresno in the San Joaquin Valley. Duties included direction of the field crew, participation in the analysis of results, and report preparation. [01/2011 – 03/2013]

US Department of the Navy, Naval Facilities Engineering Command Southwest, San Nicolas Island Archaeological Evaluations, Ventura County, CA
Field director for archaeological test investigations for the delineation and evaluation of prehistoric site CA-SNI-41 on San Nicolas Island in the Channel Islands of the California Bight. Involved testing for depth and horizontal extent, as well as significance evaluation of this Middle and Late Holocene site. Duties included direction of the field crew, participation in the analysis, and report preparation. [05/2010 – 07/2012]

US Department of the Navy, Naval Facilities Engineering Command Southwest, Marine Corps Base Camp Pendleton, Compliance Documentation Support Services for Environmental Security Section, San Diego County, CA
Provided compliance documentation support services to the Camp Pendleton Cultural Resources Branch Head for the preparation of documentation and correspondence for agency submittal for federal NEPA and Section 106 compliance requirements, principally to the State Historic Preservation Office and Advisory Council for Historic Preservation, for several large construction projects. [01/2010 – 07/2012]

Solar Millennium, Ridgecrest Solar Project Cultural Resources Inventory Program, Kern County, CA
Co-field director of field survey for prehistoric and historic archaeological resources within a proposed 1,757-acre solar facility in the Mojave Desert. Participated in the preparation of the Department of Parks and Recreation site forms and contributing author of the technical report of results from the survey program. [05/2009 – 01/2011]

US Department of the Navy, Naval Facilities Engineering Command Southwest, Seal Beach Naval Weapons Station Archaeological Evaluations, Orange County, CA
Field director for archaeological test investigations for the delineation and evaluation of prehistoric site P-30-1503 within the Seal Beach Naval Weapons Station along the margin of the Anaheim Creek drainage wetlands system. Involved testing for the depth and horizontal extent, as well as a significance evaluation of this Late Holocene site. Duties included direction of the field crew, participation in the analysis, and report preparation. [10/2010 – 09/2011]

US Department of the Navy, Naval Facilities Engineering Command Southwest, San Nicolas Island Archaeological Evaluations, Ventura County, CA
Field archaeologist for archaeological evaluation of prehistoric sites CA-SNI-316, CA-SNI-361, and CA-SNI-550 on San Nicolas Island in the Channel Islands of the California Bight. Involved significance testing and evaluation of these Middle and Late Holocene sites, and the analysis and synthesis of results with existing island-wide archaeological data. Duties included field crew member, participation in the analysis, and report preparation. [10/2009 – 04/2011]

Olivenhain Municipal Water District, Raw Water Pipeline Phase I Cultural Resources Survey and Inventory Project, San Diego County, CA
Project archaeologist and principal investigator for a Phase I Cultural Resources Survey and Inventory of two alternative pipeline alignment corridors totalling approximately 9 miles in length. Author of the technical report of results from the survey and inventory program. [10/2009 – 10/2010]

County of San Diego Department of Parks and Recreation, Sage Hill Preserve Cultural Resources Inventory, San Diego County, CA
Supervisory archaeologist for Phase I pedestrian survey and

cultural resource inventory of the Sage Hill Open Space Preserve in unincorporated west-central San Diego County. Directed the field survey for prehistoric and historic archaeological resources within the proposed 234-acre natural park preserve located in coastal foothills. Co-authored the technical report of results from the survey program. [09/2009 – 02/2010**]**

RRG Weldon, Solar Project Cultural Resources Inventory Program, Kern County, CA
As supervisory archaeologist, directed the field survey and site documentation for prehistoric and historic archaeological resources within a proposed 425-acre solar facility near Lake Isabella in the southern Sierra Nevada Mountains. Co-author of the technical report of results from the survey program. The program was conducted under CEQA and local guidelines of the County of Kern for the implementation of CEQA. [06/2009 – 10/2010**]**

Abengoa Mojave Solar, Cultural Resources Inventory and Resource Evaluation Program, San Bernardino County, CA
As supervisory archaeologist, supervised the survey of a proposed 1,765-acre solar facility in the Mojave Desert. Also supervised the archaeological documentation and Phase II testing efforts, and co-authored the technical reports of results from the survey and testing programs. [05/2009 – 11/2010**]**

County of San Diego Department of Parks and Recreation, Boulder Oaks, Lakeside Linkage, Sycamore/Goodan, and Lusardi Open Space Preserves and Regional Parks Cultural Resources Inventories, San Diego County, CA
Supervisory archaeologist for Phase I pedestrian survey and cultural resource inventories of four open space preserves and regional parks in unincorporated central San Diego County. The projects involved identification and documentation of prehistoric and historic resources, built environment features, and existing infrastructure. Separate inventory reports were prepared for each preserve that included extensive archival research and historical narrative, an inventory of identified sites, and management guidelines for potentially significant cultural resources developed in consultation with Native Americans. [Prior to 2009]

County of Orange Department of Public Works, Laguna Canyon, State Route (SR) 133 Revegetation Project, Orange County, CA
Supervisory archaeologist and field monitor for earth-disturbing activities associated with the revegetation of portions of old Laguna Canyon Road, abandoned with the construction of new route segments for SR-133, in unincorporated Orange County. Involved monitoring grading and other mechanical earth-moving activities in areas around and adjacent to preserved California Register of Historic Resources and National Register of Historic Places-eligible archaeological site deposits. Because of the presence of these significant resources and the overall archaeological sensitivity of the area, the county required a County-Certified Archaeologist to monitor throughout the revegetation project. [Prior to 2009]

Parsons Brinkerhoff, State Route 94 Operational Improvements Inventory and Evaluation, San Diego County, CA
Supervisory archaeologist of cultural resources field survey efforts, and documentation and evaluation related to proposed operational improvements along an 18-mile-long stretch of State Route 94 in San Diego County. Development of documentation in the California Department of Transportation (Caltrans) format for archaeological and built environment resources. [Prior to 2009]

Southern California Edison, As-Needed Archaeological Services, Statewide, CA
Supervisory archaeologist for surveys, resource identification, documentation, testing, and evaluation efforts related to infrastructure replacements and development throughout the state on both private and public lands, including the Bureau of Land Management, US Army Corps of Engineers, and US Forest Service. Project involved completion of California Department of Parks and Recreation forms, assessment of resource significance according to National Register of Historic Places eligibility and CEQA significance criteria, and management recommendations. [Prior to 2009]

Blackwater USA, West Cultural Resources Phase I and Phase II Studies, Potrero, CA
As supervisory archaeologist, supervised the survey of an approximately 850-acre area in eastern San Diego County and the test excavation of identified prehistoric sites. Supervised the archaeological documentation, extended Phase I testing, and Phase II testing efforts under the County of San Diego guidelines implemented in September 2006. [Prior to 2009**]**

Private Development Client, Circle P Ranch Housing Development Project, San Diego County, CA
Principal investigator for a Phase I cultural resources inventory and survey and extended Phase I site testing program involving a prehistoric and historic site, CA-SDI-17,910/H, located within the approximately 15-acre property near Valley Center, California. Project duties consisted of supervision of fieldwork personnel, interaction with Native American monitors, and supervision and participation in the analysis and technical report preparation. The program was conducted under CEQA and local guidelines of the County of San Diego for the implementation of CEQA. [Prior to 2009**]**

Private Development Client, Blossom Valley Housing Development Project, San Diego County, CA
Principal investigator for a Phase I cultural resources

inventory and survey and extended Phase I site testing program involving prehistoric site CA-SDI-17,968 within the approximately 50-acre property in Blossom Valley, California. Project duties consisted of supervision of fieldwork personnel, interaction with Native American monitors, and supervision and participation in the analysis and technical report preparation. The program was conducted under CEQA and local guidelines of the County of San Diego for the implementation of CEQA. [Prior to 2009]

County of San Diego Department of Public Works (DPW), Jacumba Community Park Restroom Facility National Register and CEQA Testing Program, San Diego County, CA
Principal investigator for a National Register of Historic Places and CEQA significance testing program conducted at prehistoric archaeological site CA-SDI-17,979 to be impacted by construction. Directed all project archaeological activities, including analysis and report preparation. The project required interaction with DPW personnel and Native American monitors. [Prior to 2009]

City of Goleta, General Plan EIR Cultural and Paleontological Resources Section, Santa Barbara County, CA
Task manager for and participant in the preparation of the cultural resources section of the environmental impact report (EIR) for the Goleta General Plan. The project required gathering and synthesis of background information, existing conditions, paleontological data, and regulatory requirements, and interaction with local individuals, interest groups, and personnel of the city of Goleta. [Prior to AECOM]

Big Sandy Rancheria of Mono Indians, Big Sandy Rancheria Casino, Fresno County, CA
Supervisory archeologist for a field survey and cultural resources site testing program for a proposed gaming facility near Friant, California. Responsibilities included assisting in the supervision of field survey and site testing, and participation in report preparation. [Prior to 2009]

Otay Water District, 30-inch Recycled Water Pipeline, Reservoir, and Pump Station, San Diego, CA
Principal investigator for a Historic Properties Inventory and Survey for a 6.1-mile-long 30-inch-diamter recycled water pipeline route, and for a reservoir site pump station. A National Register of Historic Places and CEQA significance testing program was conducted at prehistoric archaeological site CA-SDI-17,668 to be impacted by construction. Directed all project archaeological activities, including analysis and report preparation. Required interaction with the Otay Water District, private contractor personnel, and Native American monitors. [Prior to 2009]

Private Development Client, Emerald Oaks Housing Development Project, Ramona, CA
Supervising archaeologist and co-principal investigator for a cultural resources survey and extended Phase I site boundary testing and Phase II evaluation program involving five prehistoric sites within a 311-acre property. Duties consisted of supervision of fieldwork personnel, supervision and participation in the analysis, and technical report preparation. The program was conducted under CEQA and local guidelines of the County of San Diego for the implementation of CEQA. [Prior to 2009]

Starwood Development Company, Crosby Estate Golf Course Development, San Diego County, CA
Supervising archaeologist for a cultural resources evaluation and site-indexing program involving the C.W. Harris Site Complex and other adjacent historic and prehistoric sites within the property and adjacent open space. Duties consisted of direction of fieldwork, monitoring construction activities, and supervision and participation in the analysis and technical report preparation. The program was conducted for US Army Corps of Engineers 404 Permit compliance. [Prior to 2009]

San Diego County Water Authority (SDCWA), As-Needed Surveys for Geotechnical and Water Facility Construction, San Diego, CA
Project manager and principal investigator for six archaeological survey and/or monitoring projects conducted over a 3-year period. The programs, all situated in western San Diego County, consisted of evaluations through background research and field surveys of proposed drilling/boring sites, pump stations, and other facility locations, and, when required, monitoring of drilling/boring and facility construction operations situated in areas determined as sensitive. Included background research, field surveys, preparation of technical reports, interaction with SDCWA engineers for project redesign, and interaction with construction personnel for successful monitoring. [Prior to 2009]

Mark S. and Colleen J. McArthur, and Donald C. "Skip" White, Oak Country Estates, Ramona, CA
Supervising archaeologist and co-principal investigator for a cultural resources survey and extended Phase I site boundary testing and Phase II evaluation program involving 30 mostly late-prehistoric sites within the 648-acre property. Duties consisted of supervision of fieldwork personnel, and supervision and participation in the analysis and technical report preparation. The program was conducted under CEQA and local guidelines of the County of San Diego for the implementation of CEQA. [Prior to 2009]

Tetra Tech EM, San Luis Rey Land Outfall Pipeline Alternatives Constraints Study, Oceanside, CA
Principal investigator and overall field supervisor for this archaeological resource inventory and constraints study program, conducted in compliance with CEQA. The purpose of this project was to assess the relative cultural resources impacts within four alternative route corridors for a proposed additional outfall pipeline from an existing inland water treatment plant. The project consisted of background research, spot check field survey of the alternative alignment corridors, and completion of the project data analysis and technical report preparation. [Prior to 2009]

Davis-Eagle Property, Archaeological Survey and Constraints Study, Ramona, CA
Supervising archaeologist and co-project manager of an archaeological survey of 1,231 acres for a development constraints analysis. The project required the discovery and recordation of all cultural resources on the property to provide data for an analysis of the constraints that cultural resources might represent relative to future development. Served as overall supervisor of archaeological field and site recordation activities, co-managed the project, and conducted the cultural resources constraints analysis and report preparation. [Prior to 2009]

City of San Diego Water Department, San Pasqual Reclaimed Water Project Cultural Resources Inventory Study, San Diego, CA
Principal investigator for a cultural resources study of 8.15 miles of reclaimed water pipeline route and 12 acres of water tank facility construction. Responsibilities included background research, field survey direction, and technical report preparation. The project was conducted under CEQA and local guidelines of the city of San Diego for the implementation of CEQA. [Prior to 2009]

California State Department of Parks and Recreation, Point Magu State Park Water Pipeline Route Archaeological Survey, Ventura County, CA
Principal investigator for cultural resources survey of an 8-mile-long water pipeline route along Big Sycamore Canyon. Project responsibilities included background research, field survey direction, GPS site location, and technical report preparation. The program was conducted under CEQA. [Prior to 2009]

California State Department of Parks and Recreation, Malibu Creek State Park Archaeological Survey, Los Angeles County, CA
Principal investigator for cultural resources survey of the 94-acre Tapia Park sub-unit within Malibu Creek State Park. Responsibilities included background research, field survey direction, GPS site location, and technical report preparation. The program was conducted under CEQA. [Prior to 2009]

US Department of Agriculture Forest Service, Cleveland National Forest Archaeological Overview, Cleveland National Forest, CA
As researcher/document co-author, participated in the preparation of an Archaeological Overview. The project consisted of a review and assessment of existing archaeological resources data on file at the Cleveland National Forest. Responsibilities included participation in background research, data analysis, and technical report preparation. The project was conducted in compliance with Section 110 of the National Historic Preservation Act. [Prior to 2009]

County of San Diego Department of Public Works (DPW), Ramona Soils Source Project, Ramona, CA
Principal investigator for Phase I survey of a 30-acre property and Phase II testing/evaluation program of prehistoric site CA-SDI-16,386 and historic site CA-SDI-16,399. Supervised all archaeological activities, including data analysis and report preparation. Required interaction with the Native America Heritage Commission and County of San Diego DPW personnel. [Prior to 2009]

US Department of the Navy, Naval Facilities Engineering Command Southwest, Naval Submarine Base Point Loma Data Recovery Project, San Diego, CA
Co-author of the technical document, Archaeological Data Recovery Report, for a Portion CA-SDI-48 at Buildings 139 and 158, Naval Submarine Base, San Diego. Project consisted of a data recovery program conducted at National Register of Historic Places prehistoric archaeological site CA-SDI-48. Responsibilities included participation in background research, data analysis, and report preparation. [Prior to 2009]

California Public Utilities Commission, Metromedia Fiber-Optic Line Project, CA
Archaeologist for cultural resources studies conducted in compliance with CEQA of more than 300 miles of proposed routes for placement of fiber-optic cable lines along existing streets and railroad rights-of-way within San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Marin, Los Angeles, Orange, and San Diego Counties. Included background research, field surveys, site recordation, and technical report preparation. [Prior to 2009]

Calvary Lutheran Church, Data Recovery Project, Solana Beach, CA
Co-principal investigator for a data recovery program conducted at prehistoric archaeological site CA-SDI-10,238 (SDM-W-36), important under CEQA. Responsibilities consisted of completion of background research, overall supervision of field personnel, data analysis, and technical report preparation. Also required interaction with Calvary Lutheran Church personnel, Native American consultants, the

city of Solana Beach, and the State Historic Preservation Office. [Prior to 2009]

San Diego County Water Authority, Mexico/United States Colorado River Conveyance Facility, San Diego and Imperial Counties, CA
Principal investigator for archaeological surveys and monitoring of geotechnical drilling/boring sites. Consisted of evaluations, background research, and field survey of 26 proposed drilling/boring site locations and the subsequent monitoring of five of the drilling/boring operations situated in areas determined as sensitive. The locations were distributed along two proposed pipeline routes between San Vicente Lake and the Yuha Basin. Involvement included background research, field surveys, preparation of technical reports, and interaction with the San Diego County Water Authority, Bureau of Land Management, and US Department of Agriculture Forest Service. [Prior to 2009]

Private Development Client, Dry Creek Native American Gaming Facility, Sonoma County, CA
Archaeologist for cultural resources field survey for a proposed gaming facility in Dry Creek Valley. Responsibilities included field surveys and report preparation. [Prior to 2009]

Bennett Consolidated, Otay Travel Center Project, Otay Mesa, CA
Principal investigator for a significance testing program of two prehistoric sites: CA-SDI-10,067 and CA-SDI-12,878. Directed all archaeological activities, including data analysis and report preparation. Required interaction with subcontractors and County of San Diego planning personnel. [Prior to 2009]

City of American Canyon, Wastewater Facility & Sewer Line Extension Routes, Napa County, CA
Archaeologist for cultural resources field surveys of proposed emplacement of sewer pipelines along future and existing city streets within the city of American Canyon. Responsibilities included field surveys, site recordation, and report preparation. [Prior to 2009]

US Department of the Navy, Naval Facilities Engineering Command Southwest, Fallbrook Naval Ordinance Center Historic Properties Inventory, Seal Beach, CA
Project manager, principal investigator, and overall field supervisor for an archaeological resource inventory program that consisted of background research, field surveys of 5,800 acres, and completion of the project data analysis and technical report preparation. The program was conducted in compliance with Section 110 of the National Historic Preservation Act. [Prior to 2009]

Talega Associates, Focused Data Recovery Project, San Juan Capistrano, CA
Co-principal investigator for a focused data recovery program conducted at prehistoric archaeological site CA-ORA-907, Locus A, important under CEQA, located in Orange County, California. Responsibilities consisted of completion of background research, direct supervision of field personnel, data analysis, and technical report preparation. Also required interaction with Native American consultants and County of Orange personnel. [Prior to 2009]

US Department of the Navy, Naval Facilities Engineering Command Southwest, Naval Air Station Miramar Environmental Impact Statement Cultural Resources Studies for the Base Realignment and Closure Project, San Diego, CA
For more than 2 years, served as task manager and overall field supervisor for cultural resources studies with principal investigator responsibilities on this major cultural resource program. Consisted of background research for, and field surveys of, more than 3,500 acres for numerous proposed facility locations. Duties consisted of overall direction of fieldwork, and supervision of and participation in the project data analysis, technical report preparation, and field construction monitoring for US Army Corps of Engineers 404 Permit compliance. [Prior to 2009]

US Department of the Navy, Naval Facilities Engineering Command Southwest, Marine Corps Camp Pendleton Helicopter Outlying Landing Field Project, San Diego, CA
Directed cultural resources studies as project manager and principal investigator for this 3-year Environmental Assessment program consisting of a Phase Ⅰ inventory and Phase Ⅱ evaluation for the construction of a helicopter outlying landing field. Four alternative locations were inventoried and three prehistoric sites, located within the preferred alternative, were tested for National Register of Historic Places eligibility. Duties included overall direction and supervision of the project fieldwork, data analysis, technical report preparation, and interaction with various base and agency personnel. [Prior to 2009

San Diego County Water Authority, Emergency Water Storage Project, San Diego, CA
Principal investigator for archaeological surveys and site evaluations. This large-scale project lasted for more than 2 years and included field surveys of more than 3,500 acres for alternative reservoir sites and appurtenant facilities, and approximately 40 miles of alternative pipeline routes. Included interaction with local Native American groups. [Prior to 2009]

US Navy, Point Loma Submarine Base Data Recovery, San Diego, CA
Project manager and co-principal investigator for a data recovery program conducted at National Register of Historic Places prehistoric archaeological site CA-SDI-10,945, located on the Point Loma Naval Submarine Base. Required interaction and coordination with base personnel, and

interaction with the State Historic Preservation Office and the Advisory Council on Historic Preservation. [Prior to 2009]

Metropolitan Transit District Board, Mission Valley West Light Transit Limited Data Recovery, San Diego, CA
Task manager and principal investigator for a Limited Data Recovery Program conducted at National Register of Historic Places prehistoric archaeological site CA-SDI-11,767, located on the Star Dust Golf Course. Required interaction and coordination with Native American monitors and US Army Corps of Engineers personnel for 404 Permit requirements. [Prior to 2009]

PCL Civil Contractors, East Mission Gorge Interceptor Pump Station and Force Main Cultural Resources Data Recovery, San Diego, CA
Principal investigator and co-project manager for a data recovery program conducted at National Register of Historic Places-eligible prehistoric archaeological site CA-SDI-9,243 to be impacted by construction of a reclaimed water force main pipeline. Directed all archaeological activities, including analysis and report preparation. Required interaction with city of San Diego water utilities personnel and Native American monitors. [Prior to 2009]

City of Chula Vista and County of San Diego, Otay Ranch Planned Development Archaeological Reconnaissance Survey, Chula Vista, CA
Principal investigator and co-project manager of an archaeological survey of 6,000 acres of proposed development on 23,088 acres. Required evaluation of all cultural resources on the property. Directed archaeological activities, co-managed the project, supervised analysis and report preparation, and interacted with County of San Diego and City of Chula Vista personnel. [Prior to 2009]

City of San Diego Water Utilities Department, Crown Point and Rose Creek Portion of the Mission Bay Sewage Interceptor System Phase V Archaeological Testing Program-Department No. 90-0540, San Diego, CA
Principal investigator and project manager for a testing program of two large prehistoric sites, CA-SDI-11,571 and CA-SDI-5,017, during Phase V of the project involving the placement of pipelines along city streets in the Crown Point and Rose Creek areas, adjacent to Mission Bay. Directed all archaeological activities, including analysis and report preparation. Required interaction with construction subcontractors and city of San Diego Water Utilities personnel. [Prior to 2009]

All American Celeron Pipeline Company, Pipeline Studies, Santa Barbara County, CA
Project manager for more than 3 years on this major cultural resource program that consisted of surveys of alternative pipeline routes, testing of sites to be impacted, final data recovery on 17 prehistoric sites, monitoring of construction activities, and planning and coordination with local Native American groups and Native American monitors. [Prior to 2009]

US Army Corps of Engineers, US Air Force Housing Archaeological Study, Los Angeles County, CA
Supervising archaeologist of a testing program of three sites on the Palos Verdes Peninsula. Directed field work and participated in analysis and report preparation. [Prior to 2009]

Texaco Trading and Transportation Company, Marine Terminal Construction, Santa Barbara County, CA
Co-principal investigator and supervising archaeologist for more than 1 year for the project, a cultural resources evaluation and data recovery program involving one historic and four prehistoric sites in Gaviota, Santa Barbara County. Duties consisted of direction of fieldwork and construction monitoring activities, planning and coordination with local Native American groups and Native American monitors, and supervision and participation in analysis and report preparation. [Prior to 2009]

Chevron USA, Point Arguello Pipeline Studies, Santa Barbara County, CA
Archaeologist with responsibilities as field director and co-principal investigator for more than 3 years on this major cultural resources program that consisted of surveys of alternative pipeline routes, testing of sites to be impacted for National Register of Historic Places (NRHP) assessment, final data recovery on 34 NRHP-quality sites, monitoring of construction activities, and planning and coordination with local Native American groups and Native American monitors. [Prior to 2009]

San Diego Gas & Electric, Southwest Powerlink Transmission Line Corridor, Imperial County, CA
Field director for a major 2-year archaeological Data Recovery Program that included monitoring portions of 35 sites along a 27-mile-long transmission line corridor located in the Picacho Basin and East Mesa areas. Responsibilities included coordination and supervision of three crew chiefs and their field crews, a field laboratory director and laboratory crew, Bureau of Land Management agency personnel, and local Native American groups and Native American monitors. [Prior to AECOM]

US Department of the Navy, Pacific Missile Test Facilities, San Nicolas Island Cultural Resources Survey, Point Mugu, Ventura County, CA
Field archaeologist for the cultural resources survey. Involved field survey of the entire island and recordation of more than 350 previously recorded and/or newly discovered sites on the island. Participated in the preparation of Department of Parks and Recreation site forms. [Prior to 2009]

Mission Viejo Land Development Company, Archaeological Studies, Mission Viejo, CA
Archaeologist/field director of archaeological surveys of 2,700-acre, 3,000-acre, and 7,000-acre development properties, and of a testing and data recovery program of prehistoric archaeological site CA-ORA-947 to be impacted by development. Directed field work and conducted the analysis and report preparation. [Prior to 2009]

Cayman Development Company, Archaeological Data Recovery Program, Los Angeles County, CA
Archaeologist/field director of the test and salvage excavations of prehistoric archaeological sites CA-LAN-844 and CA-LAN-845, located on Palos Verdes Peninsula. Directed field work and conducted the analysis and report preparation. [Prior to 2009]

Signal Landmark Properties, Land Development Archaeological Studies, Huntington Beach, CA
Archaeologist/field director of test, and co-field director of data recovery excavations of archaeological site CA-ORA-183. Directed field work, conducted analysis and report preparation of the testing phase, and co-directed and participated in analysis and report preparation of the data recovery phase. [Prior to 2009]

Professional Papers and Presentations

Cooley, T. 2018. San Dieguito and Other Cultural Patterns at Sites Investigated Adjacent to the C.W. Harris Site (SDI-149). Paper presented at the Society for California Archaeology Meetings, San Diego, California, March.

Cooley, T. 2018. Prehistoric Lithic Procurement Patterns Observed at Sites Recorded during San Diego County Parks Preserve Surveys. Paper presented at the Society for California Archaeology Meetings, San Diego, California, March.

Cooley, T. 2013. Investigations at Archaeological Site CA-SDI-316 Relating to the San Dieguito and other Cultural Patterns at the C. W. Harris Site (CA-SDI-149). Paper presented at the Society for California Archaeology Meetings, Berkeley, California, March.

Cooley, T. 2008. Dating at the Spindrift Site Relative to Other La Jolla Sites and the Adjacent San Diego Coastal Area. Paper presented at the Society for California Archaeology Meetings, Burbank, California, March.

Cooley, T. 2006. Continuing Discoveries of the San Dieguito and Other Cultural Patterns In and Around the C.W. Harris Site (SDI-149). Paper presented at the Society for California Archaeology Meetings, Ventura, California, March.

Cooley, T., and L. Barrie. 2003. Archaeological Excavation at the Village of Pámu, Ramona Valley, California. Paper presented by the junior author at the Society for California Archaeology Meetings, Sacramento, California, March.

Cooley, T. 1998. Review of the Biface Reduction Technique Exhibited at a Southern California Quarry Site. Paper presented at the Society for California Archaeology Meetings, San Diego, California, March.

Cooley, T. 1997. Observations on Settlement and Subsistence During the La Jolla Complex-Preceramic Interface as Evidenced at Site CA-SDI-11,767, Lower San Diego River Valley, San Diego County, California. Paper presented at the Society for California Archaeology Meetings, Rohnert Park, California, March.

Cooley, T. 1994. Results of a Data Recovery Program Conducted on a Portion of Stratified Prehistoric Site CA-SDI-9,243, San Diego County, California. Paper presented at the Society for California Archaeology Meetings, Ventura, California, March.

Cooley, T. 1991. Investigations at CA-SBa-2028. Paper presented at the Society for California Archaeology Meetings, Sacramento, California, March.

Cooley, T. 1991. Description and Analysis of Biface Artifacts Recently Excavated from the C. W. Harris Site Complex, San Diego County, California. Paper presented at the Society for California Archaeology Meetings, Sacramento, California, March.

Cooley, T. 1990. Preliminary Analysis and Description of Biface Artifacts Recently Excavated from the C. W. Harris Site Complex, San Diego County, California. Paper Presented at the Society for California Archaeology Southern California Data Sharing Meeting, Riverside, California, October.

Cooley, T. 1984. Diagnostic Artifacts and Temporal Considerations at Rancho San Clemente: A Preliminary Appraisal. Paper Presented at the Society for California Archaeology Southern California Data Sharing Meeting, Fullerton, California, October.

Cooley, T. 1984. Thermal Applications and Lithic Tool Manufacture and Use at LAN-844. Paper presented at the Society for California Archaeology Meetings, Asilomar, California, March.

Cooley, T. 1983. The Biface Reduction Technique Exhibited at a Southern California Quarry Site. Paper presented at the Southwestern Anthropological Society Meetings, San Diego, California, March.

Cooley, T. 1983. Project Results of the Picacho Basin Studies. Paper presented at the Society for California Archaeology Meetings, San Diego, California, March.

Publications

Archaeological Excavation at the Village of Pámu, Ramona Valley, California. (with Laura Barrie). *Proceedings of the Society for California Archaeology*, Vol. 17, pp. 43–56 (2004).

Observations on Settlement and Subsistence During the Late La Jolla Complex–Preceramic Interface as Evidenced at Site CA-SDI-11,767, Lower San Diego River Valley, San Diego County, California. *Proceedings of the Society for California Archaeology*, Vol. 11, pp. 1–6 (1998).

Early Period Results from Data Recovery Conducted on a Portion of Stratified Prehistoric Site, CA-SDI-9,243, San Diego County, California. *Proceedings of the Society for California Archaeology*, Vol. 8, pp. 227–238 (1995).

Observations on Hydration Measurements of Obsidian Deriving from Buried Deposits from Site CA-SBA-2028, at Gaviota, Santa Barbara County, California. *Coyote Press Archives of California Prehistory*, No. 37, pp. 27–30 (1992).

Archaeological Investigations at CA-SBA-97: A Multicomponent Coastal Site at Gaviota, California (with Jon M. Erlandson, Roy Dugger, and Richard Carrico). *Coyote Press Archives of California Prehistory*, No. 37, pp. 49–80 (1992).

Contributing Author. Archaeological Investigations on the Rancho San Clemente, Orange County, California. (Principal Author Constance Cameron). *Coyote Press Archives of California Prehistory*, No. 27 (1989).

A Fluted Projectile Point Fragment from the Southern California Coast: Chronology and Context at CA-SBa-1951 (with Jon M. Erlandson and Richard Carrico). *Journal of California and Great Basin Anthropology* Volume 9, Number 1, pp. 120–128 (1987).

Excavations and Investigations at CA-Ora-183, the Newland House Site, Huntington Beach, California (with Marie Cottrell, Constance Cameron, Vada Drummy-Chapel, and Adella Schroth). *Pacific Coast Archaeological Society Quarterly* Volume 21, Number 1, January, pp. 1–77 (1985).

The Biface Reduction Technique Exhibited at a Southern California Quarry Workshop Site: LAn-844. *Pacific Coast Archaeological Society Quarterly* Volume 20, Number 3, July pp. 5–17 (1984).

Investigations of CA-SCal-137 Bulrush Canyon, Catalina Island, California (with Marie G. Cottrell and Joyce M. Clevenger). *Pacific Coast Archaeological Society Quarterly* Volume 16, Numbers 1 and 2, January and April, pp. 5–25 (1980).

Mary Robbins-Wade, RPA

Cultural Resources Group Manager

HELIX Environmental Planning

Summary of Qualifications

Ms. Robbins-Wade has 41 years of extensive experience in both archaeological research and general environmental studies. She oversees the management of all archaeological, historic, and interpretive projects; prepares and administers budgets and contracts; designs research programs; supervises personnel; and writes reports. Ms. Robbins-Wade has managed or participated in hundreds of projects under the California Environmental Quality Act (CEQA), as well as numerous archaeological studies under various federal jurisdictions, addressing Section 106 compliance and National Environmental Policy Act (NEPA) issues. She has excellent relationships with local Native American communities and the Native American Heritage Commission (NAHC), as well as has supported a number of local agency clients with Native American consultation under State Bill 18 and assistance with notification and Native American outreach for Assembly Bill 52 consultation. Ms. Robbins-Wade is a Registered Professional Archaeologist (RPA) and meets the U.S. Secretary of the Interior's Professional Qualifications for prehistoric and historic archaeology.

Selected Project Experience

12 Oaks Winery Resort. Project Manager/ Principal Investigator for a cultural resources survey of approximately 650 acres for a proposed project in the County of Riverside. Oversaw background research, field survey, site record updates, Native American coordination, and report preparation. Met with Pechanga Cultural Resources staff to discuss Native American concerns. Worked with applicant and Pechanga to design the project to avoid impacts to cultural resources. Work performed for Standard Portfolio Temecula, LLC.

28th Street between Island Avenue and Clay Avenue Utilities Undergrounding Archaeological Monitoring. Project Manager/Principal Investigator for a utilities undergrounding project in a historic neighborhood of East San Diego. Responsible for project management; coordination of archaeological and Native American monitors; coordination with forensic anthropologist, Native American representative/Most Likely Descendent, and City staff regarding treatment of possible human remains; oversaw identification of artifacts and cultural features, report preparation, and resource documentation. Work performed for the City of San Diego.

Archaeological Testing F11 Project. Project Manager for a cultural resources study for a proposed mixed-use commercial and residential tower in downtown San Diego. Initial work included an archaeological records search and a historic study, including assessment of the potential for historic archaeological resources. Subsequent work included development and implementation of an archaeological testing plan, as well as construction monitoring and the assessment of historic archaeological resources encountered. Work performed for the Richman Group of Companies.

Education

Master of Arts, Anthropology, San Diego State University, California, 1990

Bachelor of Arts, Anthropology, University of California, Santa Barbara, 1981

Registrations/ Certifications

Caltrans, Professionally Qualified Staff-Equivalent Principal Investigator for prehistoric archaeology, , Bureau of Land Management Statewide Cultural Resource Use Permit (California), permit #CA-18-35, , Register of Professional Archaeologists #10294, 1991

County of San Diego, Approved CEQA Consultant for Archaeological Resources, 2007 , Orange County Approved Archaeologist, 2016

Blended Reverse Osmosis (RO) Line Project. Project Manager/ Principal Investigator for cultural resources monitoring during construction of a 24-inch recycled water pipeline in the City of Escondido. Oversaw monitoring program, including Worker Environmental Awareness Training; responsible for Native American outreach/coordination, coordination with City staff and construction crews, and general project management. Work performed for the City of Escondido.

Buena Sanitation District Green Oak Sewer Replacement Project. Project Manager/Principal Investigator for a cultural resources testing program in conjunction with a proposed sewer replacement project for the City of Vista. Oversaw background research, fieldwork, site record update, Native American coordination, and report preparation. Work performed for Harris & Associates, Inc., with the City of Vista as the lead agency.

Cactus II Feeder Transmission Pipeline IS/MND. Cultural Resources Task Lead for this project in the City of Moreno Valley. Eastern Municipal Water District proposed to construct approximately five miles of new 30-inch to 42 inch-diameter pipeline; the project would address existing system deficiencies within the City and provide supply for developing areas. Oversaw background research, field survey, and report preparation. Responsible for Native American outreach for cultural resources survey. Assisted District with Native American outreach and consultation under AB 52. Work performed under an as-needed contract for Eastern Municipal Water District.

Dale 2199C Pressure Zone Looping Pipeline Project. Cultural Resources Task Lead for this project in Moreno Valley. Eastern Municipal Water District proposed construction of a new pipeline to connect two existing pipelines in the District's 2199C Pressure Zone. The pipeline would consist of an 18-inch-diameter pipeline between Kitching Street and Alta Vista Drive that would connect to an existing 12-inch-diameter pipeline in the northern end of Kitching Street and to an existing 18-inch-diameter pipeline at the eastern end of Alta Vista Drive. The project will improve reliability and boost the Dale Pressure Zone's baseline pressure and fire flow availabilities. Four potential alignments were under consideration; three of these bisect undeveloped land to varying degrees, while the other is entirely situated within developed roadways. Oversaw background research and field survey. Responsible for Native American outreach for cultural resources survey and co-authored technical report. Work performed under an as-needed contract for Eastern Municipal Water District.

Downtown Riverside Metrolink Station Track & Platform Project. Cultural Resources Task Lead for this project involving changes to and expansion of the Downtown Riverside Metrolink Station. Overseeing records search and background information, archaeological survey, and report preparation. Responsible for coordination with Native American Heritage Commission, Riverside County Transportation Commission (RCTC), and Federal Transportation Authority (FTA) on Native American outreach. Work performed for Riverside County Transportation Commission as a subconsultant to HNTB Corporation.

Mary Villalobos

Staff Archaeologist

HELIX Environmental Planning

Summary of Qualifications

Ms. Villalobos serves as a field archaeologist on a number of cultural resource projects in southern California, including surveys, testing programs, and monitoring. She has also served as a laboratory assistant for major universities, museums, and archaeological centers. She has expertise in cultural resource surveying, cataloging site excavation data, and monitoring. Ms. Villalobos' experience includes international work for a key archaeological project in Peru focused on a temple excavation.

Selected Project Experience

1125 S. Cleveland Street -Cultural & Native American Monitoring (2016). Archaeological monitor for a housing project in the City of Oceanside, CA. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for Hallmark Communities. Lead agency was City of Oceanside.

12 Oaks Winery Resort (2015 - 2018). Field Archaeologist for survey of an approximately 600-acre project near Temecula in Riverside County, CA. Responsibilities included identification of cultural material during field survey. Work performed for Standard Portfolio Temecula, LLC, with County of Riverside as the lead agency.

28th Street between Island Avenue and Clay Avenue Archaeological Monitoring (2016 - 2018). Archaeological Monitor for a utilities undergrounding project in a historic neighborhood of East San Diego, CA. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of San Diego.

4th & J Project (2017). Archaeological monitor for a residential project in a historic neighborhood in the City of San Diego, CA. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for Legacy Partners, lead agency is City of San Diego.

Oceanside As-Needed Environmental Consulting Services (2015 - 2016). Archaeological Monitor for construction of a new facility at the Mission Basin Desalting Facility near the San Luis Rey River, in the City of Oceanside, CA. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of Oceanside.

Education

Bachelor of Arts, Anthropology, concentration in Archaeology, University of California San Diego, CA, 2013

Registrations/ Certifications

Technical Safety Institute, HAZWOPER 40 Hour, Issue No. F183292: Hazardous Waste Operations and Emergency Response, 2018

City of San Diego As-Needed Permitting Assistance for O & M Activities and Emergencies (2016 - 2016). Archaeological monitor for the removal of sediment at culvert outlets at Hotel Circle, in the City of San Diego, CA, to help alleviate flooding in the area. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of San Diego

Storage Buildings Construction Monitoring, San Marcos Campus (2017). Archaeological monitor for the construction of storage facilities on the campus of Palomar College in the City of San Marcos, California. Cultural resources are located near the project area. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for Palomar College.

Cemetery Area Water Pipeline Replacement (2015 - 2016). Archaeological Monitor for a water pipeline replacement project in eastern Escondido, CA. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of Escondido.

Da Vinci (2018). Archaeological monitor during potholing to find existing utilities for the construction of a telecommunication tower. Responsible for field monitoring, coordination with construction crew, identification of artifacts and cultural features, and daily monitoring notes. Work performed for Terracon. Lead agency is Verizon.

DePratti, Inc. Telespan Lake Wohlford (2017). Field archaeologist for a testing program to determine the northern extent of an important archaeological site near Lake Wohlford in the community of Bear Valley in the County of San Diego, California. Responsibilities included excavation of test units, identification of cultural material, and preparation of field notes. Work performed for DePratti, Inc. Lead agency is County of San Diego.

El Camino Real Road Widening-Archaeological Monitoring (2016). Archaeological Monitor for a road widening project in an area with archaeological and cultural sensitivity in the City of Carlsbad, CA. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for the City of Carlsbad.

Magnolia Trails (2016). Archaeological Monitor for a residential development in the City of El Cajon, CA. Responsible for field monitoring, coordination with construction crew and Native American monitors, identification of artifacts and cultural features, and daily field notes. Work performed for KB Home. Lead agency was City of El Cajon.

Appendix B

Records Search
(Confidential; Bound Separately)

Appendix C

Native American Correspondence (Confidential; Bound Separately)

Appendix D

Department of Parks and Recreation
Archaeological Site Form
(Confidential; Bound Separately)

Appendix 5

Preliminary Geotechnical Investigation for Proposed Cherry Outpost

PRELIMINARY GEOTECHNICAL INVESTIGATION

PROPOSED CHERRY OUTPOST
ASSESSOR'S PARCELS
366-290-007 & -008
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

CHERRY OUTPOST, LP
CORONA, CALIFORNIA

JANUARY 6, 2023
PROJECT NO. T3010-22-01

Project No. T3010-22-01
January 6, 2023

Cherry Outpost, LP.
139 Radio Road
Corona, California 92879

Attention: Ms. Claudia Grajeda, Project Manager

Subject: PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED CHERRY OUTPOST
ASSESSOR'S PARCELS 366-290-007 & -008
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Dear Ms. Grajeda:

In accordance with your authorization of Geocon's Proposal IE-4018 dated November 8, 2022, Geocon West, Inc. (Geocon) herein submits the results of our preliminary geotechnical investigation for the proposed development. The accompanying report presents the results of our study, conclusions, and recommendations pertaining to the geotechnical aspects of the proposed development. The site is considered suitable for the proposed development provided the recommendations of this report are followed.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON WEST, INC.

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PRELIMINARY GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of our preliminary geotechnical investigation for the planning and design of Cherry Outpost planned for 6.65 acres located northwest of the intersection of Bundy Canyon Road and Cherry Street in Wildomar, California (see *Vicinity Map*, Figure 1). The purpose of the investigation is to evaluate subsurface soil and geologic conditions at the site, and based on the conditions encountered, provide preliminary recommendations pertaining to the geotechnical aspects of the proposed construction.

The scope of our investigation included review of published geotechnical information, site reconnaissance, Underground Service Alert mark out and notification, private utility location, drilling and logging of geotechnical and percolation borings, collection of soil samples, percolation testing, laboratory testing, engineering analyses, and preparation of this report. A summary of the information and documentation reviewed for this study is presented in the *List of References*.

Our field investigation was performed on November 30 and December 1, 2022 by drilling of eight geotechnical borings (B-1 through B-8) and four percolation borings (P-1 through P-4) with a CME-75 truck mounted drill rig, in accessible areas, to depths ranging between approximately 21 and 26 feet (geotechnical borings) and 5 feet (percolation borings) below existing ground surface. The borings were drilled to observe the subsurface geotechnical conditions and collect soil samples for laboratory testing. The percolation testing was performed in the lowest elevation areas, within the southern area of the property and in accordance with Riverside County Flood Control and Water Conservation District's (RCFC) *Low Impact Development Best Management Practices Handbook*. The approximate locations of the exploratory and percolation borings are depicted on the *Geologic Map (*Figure 2).

A detailed discussion of the field investigation, logs of the geotechnical and percolation borings, and the percolation test results are presented in *Appendix A*. Laboratory tests were performed on select soil samples obtained to evaluate pertinent physical and chemical soil properties for use in engineering analysis. *Appendix B* presents a summary of the laboratory test results.

2. SITE AND PROJECT DESCRIPTION

The roughly triangular site is located immediately northwest of Bundy Canyon Road and Cherry Street and encompasses APNs 366-290-007 and -008. The site was previously occupied by a single-family residence and a palm tree nursery. The residence was demolished at the end of 2013; however, young palms are still located within the northern half of the site. The site is bounded by Cherry Street to the east, Bundy Canyon to the south, Interstate 15 to the west, and rural residences to the north. The latitude and longitude of the site are 33.6280 degrees and -117.2717 degrees, respectively.

The elevation of the site varies from 1,406 feet above mean sea level (MSL) in the south to the 1,437 feet MSL in the northeast corner. Drainage is directed to a south flowing valley along the east side of the site.

Based the *Conceptual Site Plan* prepared by KTGY, dated September 30, 2022, the site development will include a 4-story hotel, convenience store, gas station, drive through restaurant, and carwash. Approximately 70 feet of the site's southern area will be utilized to widen Bundy Canyon Road. We also expect Cherry Street will be improved on the east side of the site. Finished grade elevations are not known at the time of this report; however, based on the current site elevations and surrounding grades we expect maximum proposed cuts and fills to be 10 feet or less. Based on our understanding of the general plan for the site, we do not expect slopes to be constructed; however, retaining walls up to 5 feet high may be required.

We expect the structures will be lightly loaded two- to four-story buildings with spread foundations and slab-on-grade floors. Although structural plans and loading information is unavailable at this time, we expect column loads will not exceed 200 kips and wall loads will not exceed 4 kips per linear foot. Preliminary geotechnical recommendations for design of the structure are based on these assumptions and provided herein. If actual plans differ, supplementary geotechnical recommendations may be necessary.

The locations and descriptions provided herein are based on a site reconnaissance, our field exploration, and project information provided by the client. If project details differ significantly from those described, Geocon should be contacted for review and possible revision to this report.

3. GEOLOGIC SETTING

The site is located along the northeastern margin of the Elsinore Trough within the Peninsular Ranges Geomorphic Province. The Peninsular Ranges are bounded on the north by the Transverse Ranges and the Cucamonga/Sierra Madre faults, the east by the San Jacinto fault, the west by the Elsinore fault and the Santa Ana Mountains. The Peninsular Ranges extend southward into Mexico. They are characterized by granitic highlands of low to moderate relief surrounded by alluvial plains and valleys. Locally, the Elsinore Trough is the dominant geomorphic feature of the area and is a graben that formed as a result of a left step over from the Wildomar to the Glen Ivy North branches of the Elsinore fault. Locally, the Glen Ivy North fault is geologically mapped one quarter mile southwest of the site. No faulting is mapped within or projecting on to the site. Faulting is discussed in detail in the *Surface Fault Rupture* section, below.

4. GEOLOGIC MATERIALS

4.1 General

The primary geologic units at the site consist of young alluvial fan deposits and Pauba Sandstone. Localized areas of undocumented fill are present near the previous residence, the residential driveway, and within the occasional end dump piles. Topsoil was encountered up to a depth of approximately 2½ feet within B-3 and is expected throughout the palm tree area. The geologic nomenclature follows that of Morton, D.M. and Weber, F.H. (2003). The soil and geologic units encountered at the site are summarized below and described on the boring logs in *Appendix A*.

4.2 Undocumented Artificial Fill (afu)

Undocumented artificial fill is present at the vicinity of the previous residence and within the driveway to the residence. Potential utility conflicts prevented excavation of a borings in these areas and the condition and extent of the fill is not known at this time. However, we expect the fill was derived from local sources and is similar to the young alluvial fan deposits and Pauba sandstone described below.

4.3 Young Alluvial Fan Deposits (Qyf)

Young alluvial fan deposits were encountered within the percolation test borings and within geotechnical borings B-1, B-2, and B-4 to depths between approximately 2½ and 6 feet below existing ground surface. It consists of silty sand that can be characterized as loose to medium dense, dry to moist, and strong brown to dark brown.

4.4 Pauba Formation (Qps)

Pleistocene-age Pauba Sandstone was observed near the surface and below the younger alluvial fan deposits to the maximum depth explored of approximately 26 feet. It is described herein as a soil because, although it is considered bedrock, it behaves like a soil and its engineering properties are closer to a soil than a rock. The Pauba, as encountered, can be characterized as silty sand which is dense to very dense, dry to moist, and shades of brown, orange-brown, and grayish brown.

5. GROUNDWATER

Groundwater was not encountered in the borings excavated for this study to depths of 26 feet. Well data from the California Department of Water Resources was available for 2019. Well 336251N1172930W001 located west of the site reported groundwater depths of between 357 and 389 feet below existing ground surface. Well 336200N1172734W001 located south of the site reported a groundwater depth of 44 feet below existing ground surface. Groundwater and seepage are dependent on seasonal precipitation, irrigation, land use, among other factors, and varies as a result. It is not uncommon for seepage conditions to develop where none previously existed. Proper surface drainage will be important to future performance of the planned improvements.

6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in southern California include active, potentially active, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS), formerly known as California Division of Mines and Geology (CDMG), for the Alquist-Priolo Earthquake Fault Zone Program (Byrant and Hart, 2007). By definition, an active fault is one that has had surface displacement within Holocene time (about the last 11,700 years). A potentially active fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a currently established State of California Fault Zone or a Riverside County Fault Hazard Zone. The closest active fault to the site is the Glen Ivy North branch of the Elsinore fault zone located approximately 1/4 mile southwest. Faults within a 50-mile radius of the site are listed in Table 6.1. Historic earthquakes in southern California of magnitude 6.0 and greater, their magnitude, distance, and direction from the site are listed in Table 6.2.

TABLE 6.1
ACTIVE FAULTS WITHIN 50 MILES OF THE SITE

Fault Name	Maximum Magnitude (Mw)	Geometry (Slip Character)	Slip Rate (mm/yr)	Distance from Site (mi)	Direction from Site
Elsinore Fault (Glen Ivy)	6.8	RL-SS	5.0	1/4	SW
Elsinore (Wildomar)	6.8	RL-SS	5.0	2	S
San Jacinto (Casa Loma)	6.9	RL-SS	12.0	20	NE
San Jacinto (Claremont)	6.7	RL-SS	12.0	23	NE
Chino	6.7	RL-R-O	1.0	25	NW
Whittier	6.8	RL-R-O	2.5	30	NW
San Andreas (San Bernardino)	7.5	RL-SS	24.0	35	NE
San Gorgonio Pass	n/a	THRUST	n/a	35	NE
San Jacinto (Clark)	7.2	RL-SS	12.0	35	E
Cucamonga	6.9	R	5.0	40	NW
San Jacinto (Glen Helen)	6.7	RL-SS	12.0	40	N
Pinto Mountain	7.2	LL-SS	2.5	45	NE
San Jacinto (Coyote Creek)	6.8	RL-SS	4.0	45	SE
Morongo Valley	7.2	LL-SS	2.5	47	NE
S Branch San Andreas Fault	7.5	RL-SS	24.0	48	NE
N Branch San Andreas Fault	7.4	RL-SS	30.0	50	NE

6.2 Seismicity

As with all southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. A number of earthquakes of moderate to major magnitude have occurred in the southern California area within the last 100 years. A partial list of these earthquakes is included in the following table.

TABLE 6.2
LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Near Redlands	July 23, 1923	6.3	26	N
Long Beach	March 10, 1933	6.4	40	W
Tehachapi	July 21, 1952	7.5	137	NW
San Fernando	February 9, 1971	6.6	84	NW
Whittier Narrows	October 1, 1987	5.9	55	WNW
Sierra Madre	June 28, 1991	5.8	60	NW
Landers	June 28, 1992	7.3	62	NE
Big Bear	June 28, 1992	6.4	47	NE
Northridge	January 17, 1994	6.7	83	WNW
Hector Mine	October 16, 1999	7.1	88	NE
Ridgecrest China Lake Fault	July 5, 2019	7.1	149	N

6.3 Liquefaction

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Additionally, seismically induced "dry-sand" settlement may occur whether the potential for liquefaction exists or not.

The current standard of practice as outlined in the *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California* (SCEC, 1999) requires a liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be enough to induce liquefaction.

According to the *Map My County* GIS system (RCIT, 2022), the site is located within an area mapped as having a moderate potential for liquefaction. However, due to the presence of Pauba Sandstone at or near the surface, liquefaction is not considered a design consideration for this site.

6.4 Expansive Soil

The on-site surficial soils generally consist of silty sands. Laboratory test results on a select sample indicate that the expansion potential of site soils is 19 which is considered "very low" per ASTM D4829.

6.5 Landslides

We did not observe evidence of previous or incipient slope instability within the site or adjacent hillsides during our site investigation. Further, no landslides have been geologically mapped on or adjacent to the site (Morton & Weber, 2003). Therefore, landslide hazard to the site is not a design consideration.

6.6 Tsunamis and Seiches

A tsunami is a series of long period waves generated in the ocean by a sudden displacement of large volumes of water. Causes of tsunamis include underwater earthquakes, volcanic eruptions, or offshore slope failures. The first order driving force for locally generated tsunamis offshore southern California is expected to be tectonic deformation from large earthquakes (Legg et al., 2002). The site is located more than 24 miles from the nearest coastline, with the Santa Ana Mountains lying between the site and the Pacific Ocean; therefore, the risk associated with tsunamis is not a design consideration.

A seiche is a run-up of water within a lake or embayment triggered by fault- or landslide-induced ground displacement. The site is located almost 3.5 miles from the shore of Lake Elsinore and is up slope from the lake, therefore, a seiche hazard from Lake Elsinore is not a design consideration.

6.7 Slope Stability

A grading plan was not available at the time of this report. In general, it is our opinion that permanent, graded fill slopes constructed of on-site soils and free of any surcharge with gradients of 2:1 (horizontal to vertical) or flatter and vertical heights of 15 feet or less will possess adequate factors of safety for global and surficial stability in static conditions. However, evaluation of the stability of proposed slopes, if any, may need to be performed once detailed grading plans depicting proposed slopes are available.

7. PERCOLATION TESTING

Percolation testing was conducted in accordance with the procedures in the *Riverside County Flood Control and Water Conservation District LID BMP, Appendix A* (Handbook), at the proposed location of the proposed site BMPs. The percolation test locations are depicted on the *Geologic Map* (see Figure 2).

Four percolation test holes were excavated to depths of 5 feet (P-1 through P-4) below the existing ground surface using an 8-inch diameter auger. The geologic conditions at the percolation test locations consist of Alluvium (Silty Sand) over Pauba Sandstone. The deep geotechnical boring (B-1) did not encounter groundwater or impenetrable bedrock within 10 feet of the bottom of the percolation test depths. Approximately two inches of gravel was placed at the bottom of each test hole and a perforated

pipe was placed at top the gravel to keep the test hole open. Gravel was placed around the bottom of the test hole to support the test pipe. The test locations were pre-saturated prior to testing. Infiltration test results are included as Figures A-13 through A-16. Results of the converted percolation test rates to infiltration test rates are presented in Table 7.0 below. The *Handbook* requires a factor of safety of 3 be applied to the values below based on the test method used.

TABLE 7.0
INFILTRATION TEST RATES

Parameter	P-1	P-2	P-3	P-4
Depth (inches)	60	60	60	60
Test Type	Normal	Normal	Normal	Normal
Change in head over time: ΔH (inches)	2.5	3	5.5	5
Average head: Havg (in)	39	40.3	37.5	38
Time Interval (minutes): Δt (minutes)	30	30	30	30
Radius of test hole: r (inches)	4	4	4	4
Tested Infiltration Rate: It (inches/hour)	0.2	0.3	0.6	0.5

The results of the infiltration testing indicate that infiltration at the locations tested ranges from 0.2 to 0.6 inches per hour. These rates are the calculated infiltration rates from the tested percolation rates. The *Handbook* requires a factor of safety of 3 be applied to the values above based on the test method used.

The *in-situ* field percolation tests performed provide short-term infiltration rates, which apply mainly to the initiation of the infiltration process due to the short time of the test (hours instead of days) and the amount of water used. Where appropriate, the short-term infiltration rates are converted to long-term infiltration rates using reduction factors depending upon the degree of infiltrate quality, maintenance access and frequency, site variability, subsurface stratigraphy variation, and other factors. The small-scale percolation testing cannot model the complexity of the effect of interbedded layers of different soil composition, and our test results should be considered only as index values of infiltration rates.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 General

8.1.1 Soil or geologic conditions were not encountered during the investigation that would preclude the construction of the proposed development, provided the recommendations presented herein are followed and implemented during design and construction.

8.1.2 Potential geologic hazards at the site include seismic shaking, and compressible near surface soils.

8.1.3 The existing undocumented artificial fill, topsoil, young alluvial fan deposits, and upper few feet of Pauba Sandstone are not suitable for the support of engineered fill or settlement-sensitive improvements. The earth materials are suitable for re-use as engineered fill provided the recommendations in this geotechnical investigation report are followed. Remedial grading of the uppermost earth materials will be required as discussed herein.

8.1.4 The *in-situ* moisture content of upper site soils is below optimum moisture content. Therefore, moisture conditioning site soils to be used as fill material throughout the grading and backfill processes will be required.

8.1.5 Proper surface drainage should be maintained to prevent ponding and saturation of the fill in pad areas. Recommendations for site drainage are provided herein.

8.1.6 An evaluation of seismically induced "dry-sand" settlement during earthquake indicates that the existing young alluvial fan deposits could be prone to minor settlement during a high-magnitude earthquake; however, the recommended site grading will minimize or eliminate this risk since these soils will be properly compacted.

8.1.7 Once the design and civil grading plans are made available, the recommendations within this report should be reviewed and revised, as necessary. Additionally, as the project design progresses toward a final design, changes in the design, location, or elevation of the proposed improvements should be reviewed by this office. Geocon should be contacted to evaluate the necessity for review and possible revision of this report.

8.2 Soil Characteristics

8.2.1 Based on the earth materials encountered in the field, the soils are expected to be "non-expansive" (Expansion Index [EI] 20 or less) as defined by 2019 California Building Code (CBC) Section 1803.5.3. The existing soil possesses a "very low" expansion potential (expansion index of 19) in accordance with ASTM D 4829. Table 8.2.1 presents soil classifications based on the expansion index.

TABLE 8.2.1
SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	ASTM Expansion Classification	2019 CBC Expansion Classification
0 – 20	**Very Low**	**Non-Expansive**
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

8.2.2 Additional testing for expansion potential should be performed during finish grading along with plasticity index testing on soils with expansion indices of more than 20.

8.2.3 Laboratory tests performed on samples of the site materials indicate that the on-site materials possess a "S0" sulfate exposure to concrete structures as defined by 2019 CBC Section 1904.3 and ACI 318. Table 8.2.3 presents a summary of concrete requirements set forth by 2019 CBC Section 1904.3 and ACI 318. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

TABLE 8.2.3
REQUIREMENTS FOR CONCRETE
EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Exposure Class	Water-Soluble Sulfate Percent by Weight	Cement Type	Maximum Water to Cement Ratio by Weight	Minimum Compressive Strength (psi)
S0	**0.00-0.10**	**--**	**--**	**2,500**
S1	0.10-0.20	II	0.50	4,000
S2	0.20-2.00	V	0.45	4,500
S3	> 2.00	V+ Pozzolan or Slag	0.45	4,500

8.2.4 Laboratory testing has been performed on two representative bulk samples of soil obtained in the upper five feet in Borings B-3 and B-6. Boring locations are depicted in Figure 2 and results are presented in the following table.

TABLE 8.2.4
LABORATORY RESULTS

Sample	Depth (ft)	Resistivity (OHM CM)	Chloride (PPM)	Sulfate (PPM)	pH
B-3	0-5	1900	121	1	9.3
B-6	0-5	4400	75	0	8.8

8.2.5 Test results for B-3 and B-6 show Resistivity of 1,900 and 4,400 ohm-cm, pH of 9.3 and 8.8, chloride content of 121 and 75 ppm. The site soils are not classified as corrosive to metal improvements in accordance with Caltrans Corrosion Guidelines, provided in Table 8.2.5 below. (Caltrans, 2021).

TABLE 8.2.5
CALTRANS CORROSION GUIDELINES

Corrosion Exposure	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	pH
Corrosive	<1,500	500 or greater	1,500 or greater	5.5 or less

8.2.6 Geocon does not practice in the field of corrosion engineering. Therefore, further evaluation by a corrosion engineer may be performed if improvements that could be susceptible to corrosion are planned.

8.3 Consolidation and Settlement

8.3.1 Undocumented artificial fill, topsoil, alluvium, and the upper few feet of Pauba Sandstone at the site are subject to consolidation settlement (densification by the removal of water within the soil) under loads imposed by placement of fill or structure loads. Appendix B presents the laboratory consolidation test results.

8.4 Hydrocollapse

8.4.1 The Hydrocollapse is the tendency of unsaturated soil structure to collapse upon saturation resulting in the overall settlement of the effected soil and overlying foundations or improvements supported thereon. Recommended removals to Pauba Sandstone and proper compaction of the upper younger, compressible surficial earth materials will minimize the potential for settlement due to hydrocollapse.

8.5 Grading

8.5.1 Grading should be performed in accordance with the *Recommended Grading Specifications* of *Appendix C* and the grading ordinances of the City of Wildomar.

8.5.2 Prior to commencing grading, a preconstruction conference should be held at the site with the City Inspector, Owner or Developer, Grading Contractor, Civil Engineer, and Geotechnical Engineer in attendance. Special soil handling and/or the grading plans can be discussed at that time.

8.5.3 Site preparation should begin with the removal of existing improvements, deleterious material, debris and vegetation. The depth of removal should be such that material exposed in cut areas or soil to be used as fill is relatively free of organic matter. Material generated during stripping and/or site demolition should be exported from the site.

8.5.4 The undocumented artificial fill, topsoil, alluvium and upper few feet of Pauba Sandstone within a 1:1 (h:v) projection of the limits of grading should be removed to expose competent Pauba Sandstone bedrock. Areas of loose, dry, or compressible soils will require deeper excavation and processing prior to fill placement. The approximate remedial removal depths are depicted on the *Geologic Map*, Figure 2. The excavation bottoms should expose dense Pauba Sandstone. The engineering geologist should evaluate the actual depth of removal during grading operations. Where over-excavation and compaction is to be conducted, the excavations should be extended laterally a minimum distance of 5 feet beyond the foundation footprint or for a distance equal to the depth of removal plus additional fill, whichever is greater. Patios and building appurtenances should be considered as part of the building footprint when determining the limits of lateral excavation. Grading should be performed under the full-time observation and testing of Geocon.

8.5.5 Proposed spread foundations for each building may derive support in either Pauba Sandstone, or engineered fill, but not a combination of both. Foundations should maintain a minimum depth of 18 inches below the ground surface. Foundations deriving support in Pauba Sandstone should be deepened as necessary to maintain a minimum embedment of 12-inches into the competent Pauba Sandstone. Foundations deriving support in newly placed engineered fill should be underlain by a minimum of 3 feet of engineered fill.

8.5.6 Proposed building slabs-on-grade may derive support directly in newly placed engineered fill, approved Pauba Sandstone, or a combination of both if exposed at the building pad elevation.

8.5.7 The site should be brought to finish grade elevations with engineered fill compacted in layers. Layers of fill should be no thicker than will allow for adequate bonding and compaction. Fill, including backfill and scarified ground surfaces, should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density at or slightly above optimum moisture content (as determined by ASTM D1557). Fill materials placed below optimum moisture content may require additional moisture conditioning prior to placing additional fill.

8.5.8 The fill placed within 4 feet of proposed finish grade should possess a "very low" to "low" expansion potential (EI of 51 or less), where practical.

8.5.9 Import fill (if necessary) should consist of granular materials with a "very low" expansion potential (EI of 20 or less), generally free of deleterious material and rock fragments larger than 6 inches and should be compacted as recommended herein. Geocon should be notified of the import soil source and should perform laboratory testing of import soil prior to its arrival at the site to evaluate its suitability as fill material.

8.6 Utility Trench Backfill

8.6.1 Utility trenches should be properly backfilled in accordance with the requirements of the City of Wildomar and the latest edition of the *Standard Specifications for Public Works Construction* (Greenbook). The pipes should be bedded with well-graded crushed rock or clean sand (Sand Equivalent greater than 30) to a depth of at least one foot over the pipe. If open graded rock is used it should be wrapped in filter fabric to prevent finer soils from migrating into the rock voids. The remainder of the trench backfill may be derived from onsite soil or approved import soil. Backfill of utility trenches should not contain rocks greater than 3 inches in diameter. The use of 2-sack slurry and controlled low strength material (CLSM) are also acceptable as backfill. However, consideration should be given to the possibility of differential settlement where the slurry ends and earthen backfill begins. These transitions should be minimized, and additional stabilization should be considered at these transitions.

8.6.2 Utility trench backfill should be placed in layers no thicker than will allow for adequate bonding and compaction. Utility backfill should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density and moisture conditioned at or slightly above optimum moisture content (as determined by ASTM D1557). Backfill at the finish subgrade elevation of new pavements should be compacted to at least 95 percent of the maximum dry density. Backfill materials placed below the recommended moisture content may require additional moisture conditioning prior to placing additional fill.

8.7 Seismic Design Criteria

8.7.1 The following table summarizes site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. We used the computer program *U.S. Seismic Design Maps*, provided by the OSHPD to calculate the seismic design parameters. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented herein are for the risk-targeted maximum considered earthquake (MCE_R).

TABLE 8.7.1
2019 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	C	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.669g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.618g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.2	Table 1613.2.3(1)
Site Coefficient, F_V	1.4	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	2.012g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.866g	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.341g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.578	Section 1613.2.4 (Eqn 16-39)

8.7.2 The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

TABLE 8.7.2
ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-10 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.725g	Figure 22-7
Site Coefficient, F_{PGA}	1.2	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.87g	Section 11.8.3 (Eqn 11.8-1)

8.7.3 The Maximum Considered Earthquake Ground Motion (MCE) is the level of ground motion that has a 2 percent chance of exceedance in 50 years, with a statistical return period of 2,475 years. According to the 2019 California Building Code and ASCE 7-16, the MCE is to be utilized for the evaluation of liquefaction, lateral spreading, seismic settlements, and it is our understanding that the intent of the Building Code is to maintain "Life Safety" during an MCE event. The Design Earthquake Ground Motion (DE) is the level of ground motion that has a 10 percent chance of exceedance in 50 years, with a statistical return period of 475 years.

8.7.4 Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition. The result of the deaggregation analysis indicates that the predominant earthquake contributing to the MCE peak ground acceleration is characterized as a 7.71 magnitude event occurring at a hypo central distance of 2.37 kilometers from the site.

8.7.5 Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the predominant earthquake contributing to the DE peak ground acceleration is characterized as a 6.8 magnitude occurring at a hypocentral distance of 12.58 kilometers from the site.

8.7.6 Conformance to the criteria for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

8.8 Foundation and Concrete Slabs-On-Grade Recommendations

8.8.1 The foundation recommendations presented herein are intended for all structures after completion of the recommended grading. Spread foundations are recommended for support of proposed site structures and improvements.

8.8.2 The foundation recommendations have been separated into two categories based on either the maximum and differential fill thickness or Expansion Index, as provided in Table 8.8.2. Structures will be Category I; however, the category may be increased to II where maximum fill dictates. Final foundation categories will be evaluated once site grading has been completed.

TABLE 8.8.2
FOUNDATION CATEGORY CRITERIA

Foundation Category	Maximum Fill Thickness, T (Feet)	Differential Fill Thickness, D (Feet)	Expansion Index (EI)
I	$T<20$	$D<10$	$EI\leq50$
II	$20\leq T<50$	$10\leq D<20$	$50<EI\leq90$

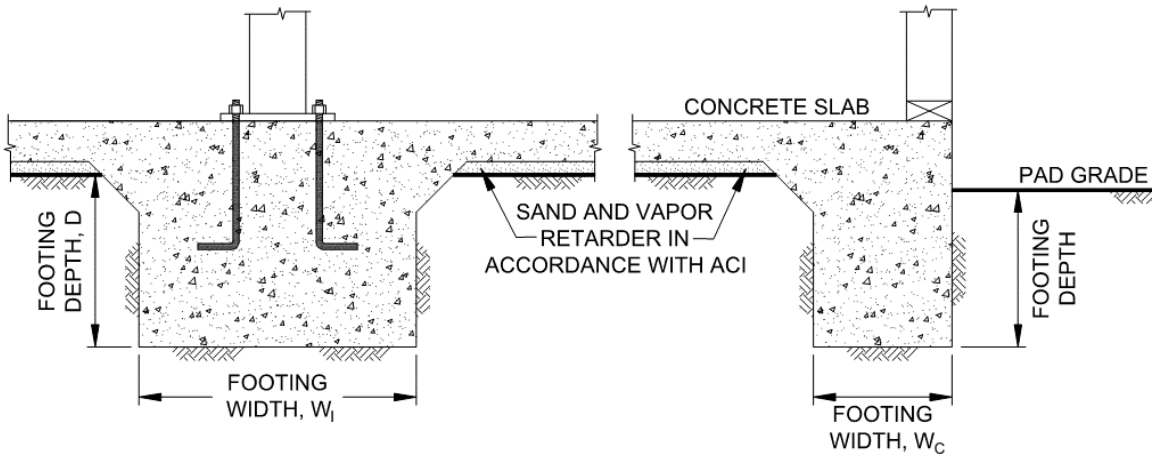
8.8.3 Proposed spread foundations for each building may derive support in either Pauba Sandstone, or engineered fill, but not a combination of both. Foundations should maintain a minimum depth of 18 inches below the ground surface (24 inches for Category II). Foundations deriving support in Pauba Sandstone should be deepened as necessary to maintain a minimum embedment of 18-inches into the Pauba Sandstone. Foundations deriving support in newly placed engineered fill should be underlain by a minimum of 3 feet of engineered fill.

8.8.4 Table 8.8.4 provides a summary of the foundation design recommendations.

TABLE 8.8.4
SUMMARY OF FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Continuous Foundation Width, W_C	12 inches
Minimum Isolated Foundation Width, W_I	24 inches
Minimum Foundation Depth, D	18 Inches Below Lowest Adjacent Grade
Minimum Steel Reinforcement	4 No. 4 Bars, 2 at the Top and 2 at the Bottom
Allowable Bearing Capacity	3,500 psf
Bearing Capacity Increase	500 psf per Foot of Depth
	250 psf per Foot of Width
Maximum Allowable Bearing Capacity	4,500 psf
Estimated Total Settlement	1 Inch
Estimated Differential Settlement	½ Inch in 30 Feet (One-Story Buildings)
Footing Size Used for Settlement	6-Foot Square
Design Expansion Index	20 or less

8.8.5 The foundations should be embedded in accordance with the recommendations herein and the Wall/Column Footing Dimension Detail. The embedment depths should be measured from the lowest adjacent pad grade for both interior and exterior footings. If there is any slope designed footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope (unless designed with a post-tensioned foundation system as discussed herein).



Wall/Column Footing Dimension Detail

8.8.6 The bearing capacity values presented herein are for dead plus live loads and may be increased by one-third when considering transient loads due to wind or seismic forces.

8.8.7 We should observe the foundation excavations prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are similar to those expected and that they have been extended to the appropriate bearing strata. Foundation modifications may be required if unexpected soil conditions are encountered.

8.8.8 Proposed building slabs-on-grade may derive support directly in newly placed engineered fill, approved Pauba Sandstone, or a combination of both if exposed at the building pad elevation.

8.8.9 Table 8.8.9 presents minimum foundation and interior concrete slab design criteria for conventional shallow foundation systems.

TABLE 8.8.9
CONVENTIONAL FOUNDATION RECOMMENDATIONS BY CATEGORY

Foundation Category	Minimum Footing Embedment Depth (inches)	Continuous Footing Reinforcement	Interior Slab Reinforcement
I	18	Four No. 4 bars, two top and two bottom	No. 3 bars at 24 inches on center, both directions
II	24	Four No. 5 bars, two top and two bottom	No. 3 bars at 18 inches on center, both directions

8.8.10 The concrete slab-on-grade should be a minimum of 4 inches thick for Foundation Category I, and 5 inches thick for Foundation Category II.

8.8.11 Slabs-on-grade that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) *Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials* (ACI 302.2R-06) and should be installed in general conformance with ASTM E1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. The vapor retarder should be puncture resistant and durable, so as to avoid perforations during its installation.

8.8.12 The bedding sand thickness should be determined by the project foundation engineer, architect, and/or developer. However, we should be contacted to provide recommendations if the bedding sand is thicker than 4 inches. Placement of 3 inches and 4 inches of sand is common practice in southern California. The foundation engineer should provide appropriate concrete mix design criteria and curing measures that may be utilized to assure proper curing of the slab to reduce the potential for rapid moisture loss and subsequent cracking and/or slab curl.

8.8.13 As an alternative to the conventional foundation recommendations, consideration should be given to the use of post-tensioned concrete slab and foundation systems for the support of the proposed structures. The post-tensioned systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or *WRI/CRSI Design of Slab-on-Ground Foundations*, as required by the 2019 California Building Code (CBC Section 1808.6.2). Although this procedure was developed for expansive soil conditions, it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented in Table 8.8.9 for the Foundation Category designated. The parameters presented in Table 8.8.13 are based on the guidelines presented in the PTI DC 10.5 design manual.

TABLE 8.8.13
POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) DC 10.5-12 Design Parameters	Foundation Category	
	I	II
1. Thornthwaite Index	-20	-20
2. Equilibrium Suction	3.9	3.9
3. Edge Lift Moisture Variation Distance, e_M (Feet)	5.3	5.1
4. Edge Lift, y_M (Inches)	0.61	1.10
5. Center Lift Moisture Variation Distance, e_M (Feet)	9.0	9.0
6. Center Lift, y_M (Inches)	0.30	0.66

8.8.14 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is planned, the slab should possess a thickened edge with a minimum width of 18 inches and extend below the clean sand or crushed rock layer.

8.8.15 If the structural engineer proposes a post-tensioned foundation design method other than the 2019 CBC:

- The deflection criteria presented in Table 8.8.9 are still applicable.
- Interior stiffener beams should be used for Foundation Category II.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 18 inches, and 24 inches for foundation categories I, and II, respectively. The embedment depths should be measured from the lowest adjacent pad grade.

8.8.16 Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

8.8.17 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless designed by the structural engineer.

8.8.18 Foundations may be designed for an allowable soil bearing pressure of 3,500 pounds per square foot (psf) (dead plus live load) for the site. This bearing pressure may be increased by one-third for transient loads due to wind or seismic forces.

8.8.19 The maximum expected static settlement for the planned structures, supported on conventional foundation systems with the above allowable bearing pressures, and deriving support in engineered fill is estimated to be 1 inch and to occur below the heaviest loaded structural element. Settlement of the foundation system is expected to occur on initial application of loading. Differential settlement due to foundation loads is not expected to exceed ½ inch over a horizontal distance of 30 feet.

8.8.20 Isolated footings outside of the slab area, if present, should have the minimum embedment depth and width recommended for conventional foundations for a Foundation Category. In addition, consideration should be given to connecting patio slabs that exceed 5 feet in width to the building foundation, to reduce the potential for future separation to occur.

8.8.21 Interior stiffening beams should be incorporated into the design of the foundation system in accordance with the PTI design procedures.

8.8.22 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned at or slightly above optimum moisture content.

8.8.23 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

8.8.24 Concrete slabs should be provided with adequate crack-control joints, construction joints and/or expansion joints to reduce unsightly shrinkage cracking. The design of joints should consider criteria of the American Concrete Institute when establishing crack-control spacing. Additional reinforcing steel, concrete admixtures and/or closer crack control joint spacing should be considered where concrete-exposed finished floors are planned.

8.8.25 Geocon should be consulted to provide additional design parameters as required by the structural engineer.

8.9 Exterior Concrete Flatwork

8.9.1 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations herein assuming the subgrade materials possess an Expansion Index of 30 or less. Subgrade soils should be compacted to 90 percent relative compaction at or slightly above optimum moisture content. Slab panels should be a minimum of 4 inches thick and when in excess of 8 feet square should be reinforced with No. 3 reinforcing bars spaced 24 inches center-to-center in both directions to reduce the potential for cracking. In addition, concrete flatwork should be provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted in accordance with criteria presented in the *Grading* section prior to concrete placement. Subgrade soil should be properly compacted, and the moisture content of subgrade soil should be verified prior to placing concrete. Base materials will not be required below concrete improvements.

8.9.2 The reinforcement steel should overlap continuously in flatwork to reduce the potential for vertical offsets within flatwork. Additionally, flatwork should be structurally connected to the curbs, where possible, to reduce the potential for offsets between the curbs and the flatwork.

8.9.3 Where exterior flatwork abuts the structure at entrant or exit points, the exterior slab should be dowelled into the structure's foundation stem wall. This recommendation is intended to reduce the potential for differential elevations that could result from differential settlement or minor heave of the flatwork. Dowelling details should be designed by the project structural engineer.

8.9.4 The recommendations presented herein are intended to reduce the potential for cracking of exterior slabs as a result of differential movement. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still crack. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, the use of crack control joints and proper concrete placement and curing. Crack control joints should be spaced at intervals no greater than 12 feet. Literature provided by the Portland Concrete Association (PCA) and American Concrete Institute (ACI) present recommendations for proper concrete mix, construction, and curing practices, and should be incorporated into project construction.

8.10 Conventional Retaining Walls

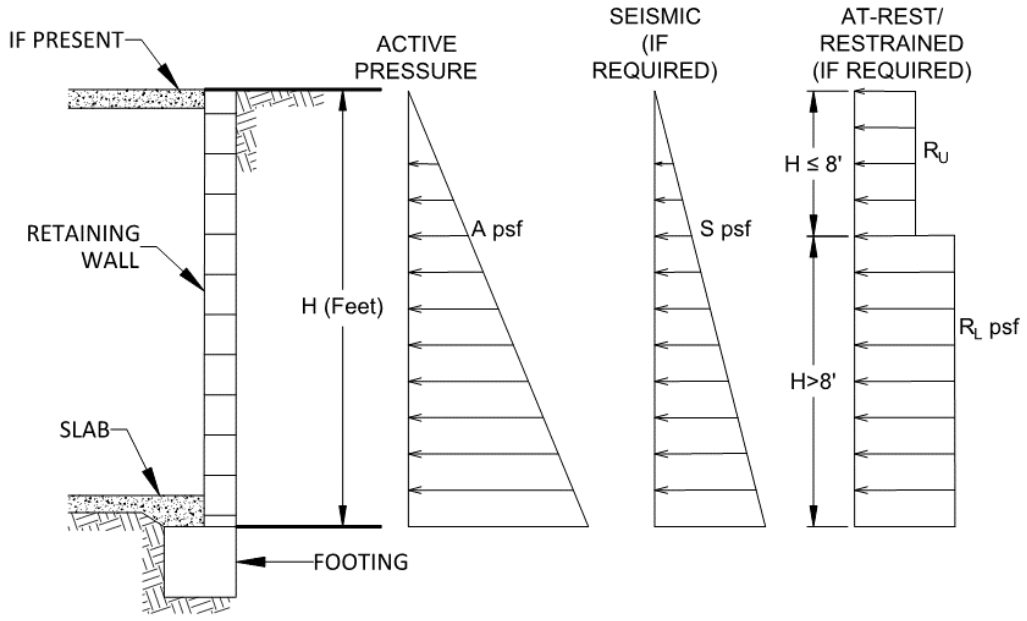
8.10.1 Spread foundations are recommended for support of proposed retaining walls. Soil with an expansion index (EI) of greater than 30 should not be used as backfill material behind retaining walls.

TABLE 8.10.1
RETAINING WALL DESIGN RECOMMENDATIONS

Parameter	Value
Active Soil Pressure, A (Fluid Density, Level Backfill)	30 pcf
Active Soil Pressure, A (Fluid Density, 2:1 Sloping Backfill)	50 pcf
Seismic Pressure, S	15H psf
At-Rest/Restrained Walls Additional Uniform Pressure, R_U (0 to 8 Feet High)	7H psf
At-Rest/Restrained Walls Additional Uniform Pressure, R_L (8+ Feet High)	13H psf
Expected Expansion Index for the Subject Property	EI≤30

H equals the height of the retaining portion of the wall

8.10.2 The project retaining walls should be designed as shown in the Retaining Wall Loading Diagram.



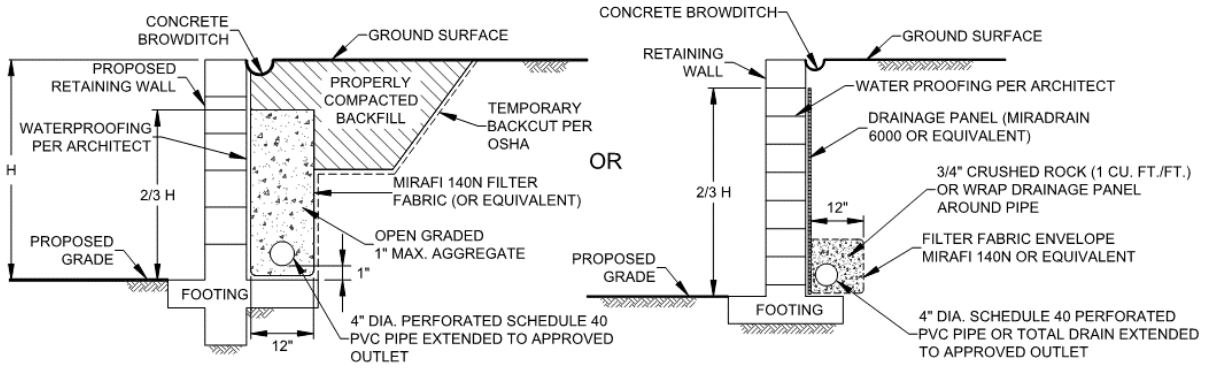
Retaining Wall Loading Diagram

8.10.3 Unrestrained walls are those that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall) at the top of the wall. Where walls are restrained from movement at the top (at-rest condition), an additional uniform pressure should be applied to the wall. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to 2 feet of fill soil should be added to the upper 10 feet of the retaining wall.

8.10.4 The structural engineer should determine the Seismic Design Category for the project in accordance with Section 1613.3.5 of the 2019 CBC or Section 11.6 of ASCE 7-16. For structures assigned to Seismic Design Category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 1803.5.12 of the 2019 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall.

8.10.5 Retaining walls should be designed to ensure stability against overturning sliding, and excessive foundation pressure. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, it is not necessary to consider active pressure on the keyway.

8.10.6 Drainage openings through the base of the wall (weep holes) should not be used where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The recommendations herein assume a properly compacted granular (EI of 90 or less) free-draining backfill material with no hydrostatic forces or imposed surcharge load. The retaining wall should be properly drained as shown in the Typical Retaining Wall Drainage Detail. If conditions different than those described are expected, or if specific drainage details are desired, Geocon should be contacted for additional recommendations.



Typical Retaining Wall Drainage Detail

8.10.7 The retaining walls may be designed using either the active and restrained (at-rest) loading condition or the active and seismic loading condition as suggested by the structural engineer. Typically, it appears the design of the restrained condition for retaining wall loading may be adequate for the seismic design of the retaining walls. However, the active earth pressure combined with the seismic design load should be reviewed and also considered in the design of the retaining walls.

8.10.8 In general, wall foundations should be designed in accordance with Table 8.10.8. The proximity of the foundation to the top of a slope steeper than 3:1 could impact the allowable soil bearing pressure. Therefore, retaining wall foundations should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.

TABLE 8.10.8
SUMMARY OF RETAINING WALL FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Retaining Wall Foundation Width	12 inches
Minimum Retaining Wall Foundation Depth	18 Inches
Minimum Steel Reinforcement	Per Structural Engineer
Allowable Bearing Capacity	3,500 psf
Bearing Capacity Increase	500 psf per Foot of Depth
	300 psf per Foot of Width
Maximum Allowable Bearing Capacity	4,500 psf
Estimated Total Settlement	1 Inch
Estimated Differential Settlement	½ Inch in 30 Feet

8.10.9 The recommendations presented herein are generally applicable to the design of rigid concrete or masonry retaining walls. In the event that other types of walls (such as mechanically stabilized earth [MSE] walls, soil nail walls, or soldier pile walls) are planned, Geocon should be consulted for additional recommendations.

8.10.10 It is common to see retaining walls constructed in the areas of the elevator pits. The retaining walls should be properly drained and designed in accordance with the recommendations presented herein. If the elevator pit walls are not drained, the walls should be designed with an increased active pressure with an equivalent fluid density of 90 pcf. It is also common to see seepage and water collection within the elevator pit. The pit should be designed and properly waterproofed to prevent seepage and water migration into the elevator pit.

8.10.11 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The retaining walls and improvements above the retaining walls should be designed to incorporate an appropriate amount of lateral deflection as determined by the structural engineer.

8.10.12 Soil contemplated for use as retaining wall backfill, including import materials, should be identified in the field prior to backfill. At that time, Geocon should obtain samples for laboratory testing to evaluate its suitability. Modified lateral earth pressures may be necessary if the backfill soil does not meet the required expansion index or shear strength. City or regional standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. In this regard, on-site soil to be used as backfill may or may not meet the values for standard wall designs. Geocon should be consulted to assess the suitability of the on-site soil for use as wall backfill if standard wall designs will be used.

8.10.13 Retaining walls up to 6 feet high and not restrained at the top and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid density of 30 pounds per cubic foot (pcf). Where the backfill will be inclined at no steeper than 2:1 (horizontal to vertical), an active soil pressure of 50 pcf is recommended. These soil pressures assume that the backfill materials within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall possess an EI of 30 or less. For walls where backfill materials do not conform to the criteria herein, Geocon should be consulted for additional recommendations.

8.10.14 Unrestrained walls are those that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Where walls are restrained from movement at the top, walls with a level backfill surface should be designed for a soil pressure equivalent to the pressure exerted by a fluid density of 50 pcf.

8.10.15 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The retaining walls and improvements above the retaining walls should be designed to incorporate an appropriate amount of lateral deflection as determined by the structural engineer.

8.10.16 Retaining walls should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and waterproofed as required by the project architect. The soil immediately adjacent to the backfilled retaining wall should be composed of free draining material completely wrapped in Mirafi 140N (or equivalent) filter fabric for a lateral

distance of 1 foot for the bottom two-thirds of the height of the retaining wall. The upper one-third should be backfilled with less permeable compacted fill to reduce water infiltration. Alternatively, a drainage panel, such as a Miradrain 6000 or equivalent, can be placed along the back of the wall. The use of drainage openings through the base of the wall (weep holes) is not recommended where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The recommendations herein assume a properly compacted backfill (EI of 20 or less) with no hydrostatic forces or imposed surcharge load. If conditions different than those described are expected or if specific drainage details are desired, Geocon should be contacted for additional recommendations. A graphic depicting typical retaining wall drainage is provided below.

8.11 Lateral Loading

8.11.1 To resist lateral loads, a passive pressure exerted by an equivalent fluid weight of 250 pounds per cubic foot (pcf) should be used for the design of footings or shear keys poured neat against compacted fill or Pauba Sandstone. The allowable passive pressure assumes a horizontal surface extending at least 5 feet or 3 times the surface generating the passive pressure, whichever is greater. The upper 12 inches of material in areas not protected by floor slabs or pavement should not be included in design for passive resistance.

8.11.2 If friction is to be used to resist lateral loads, an allowable coefficient of friction between compacted fill or Pauba Sandstone and concrete of 0.35 should be used for design.

8.12 Preliminary Pavement Recommendations

8.12.1 The final pavement design should be based on R-value testing of soils at road subgrade elevation. Roadways should be designed in accordance with the County of Riverside Ordinance No. 461, *Road Improvement Standards & Specifications*, Section 8.07 and Standard Drawing No. 114, *Roadway Design Requirements,* when final Traffic Indices (TI) and R-value test results of subgrade soils are completed.

8.12.2 For preliminary design purposes, we used an assumed R-value test result of 30 based on the material observed in the field. A value of 78 was considered for aggregate base materials for the purposes of this preliminary analysis. Pavements should meet the minimum requirement for pavement thickness per County of Riverside Ordinance No. 461, *Road Improvement Standards & Specifications*, Section 8.07 and Standard Drawing No. 114, *Roadway Design Requirements*. Preliminary flexible pavement sections are presented in Table 8.12.2. Geocon should be contacted if other roadway classifications and traffic indices are appropriate for the project.

TABLE 8.12.2
PRELIMINARY FLEXIBLE PAVEMENT SECTIONS

Road Classification	Assumed Traffic Index	Assumed Subgrade R-Value	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Local Street/Access Road	5.5	30	3	7
Enhanced Local Street at School or Park	6.5	30	4	8
Collector	7.0	30	4	10

8.12.3 The upper 12 inches of the roadway subgrade soil should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at or slightly above optimum moisture content (as determined by ASTM D1557).

8.12.4 The asphalt concrete materials should conform to Section 203-6, of the latest edition of the California *Greenbook*. Class 2 Aggregate Base should conform to Section 26 of the Caltrans *Standard Specifications*. Base materials should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at or slightly above optimum moisture content (as determined by ASTM D1557). Asphalt concrete should be compacted to a density of 95 percent of the laboratory Hveem density (as determined by ASTM D1561).

8.12.5 A rigid Portland cement concrete (PCC) pavement section should be placed in roadway aprons and cross gutters. We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330-21 *Commercial Concrete Parking Lots and Site Paving Design and Construction – Guide.* Table 8.12.5 provides the traffic categories and design parameters used for the calculations for 20-year design life.

TABLE 8.12.5
TRAFFIC CATEGORIES

Traffic Category	Description	Reliability (%)	Slabs Cracked at End of Design Life (%)
A	Car Parking Areas and Access Lanes	60	15
B	Entrance and Truck Service Lanes	60	15
C	School or City Buses (Excluding Large Articulated Buses)	75	15
D	Heavy Duty Trucks (Gross Weight of 80 Kips)	75	15
E	Garbage or Fire Truck Lane	75	15

8.12.6 We used the parameters presented in Table 8.12.6 to calculate the pavement design sections. We should be contacted to provide updated design sections, if necessary.

TABLE 8.12.6
RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of Subgrade Reaction, k	100 pci
Modulus of Rupture for Concrete, M_R	500 psi
Concrete Compressive Strength	3,000 psi
Concrete Modulus of Elasticity, E	3,150,000 psi

8.12.7 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in Table 8.12.7.

TABLE 8.12.7
RIGID VEHICULAR PAVEMENT RECOMMENDATIONS

Traffic Category	Trucks Per Day	Portland Cement Concrete, T (Inches)
A = Car Parking Areas and Access Lanes	10	6
B = Entrance and Truck Service Lanes	10	6½
B = Entrance and Truck Service Lanes	50	7
B = Entrance and Truck Service Lanes	100	7
C = School or City Buses	50	10
C = School or City Buses	100	10½
D = Heavy Duty Trucks	50	7½
D = Heavy Duty Trucks	100	8½
E = Garbage or Fire Truck Lanes	5	7½
E = Garbage or Fire Truck Lanes	10	7½

8.12.8 The PCC vehicular pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. The garbage truck pad should be large enough such that all wheels are on the concrete pad during the loading operations.

8.12.9 Adequate joint spacing should be incorporated into the design and construction of the rigid pavement in accordance with Table 8.12.9.

TABLE 8.12.9
MAXIMUM JOINT SPACING

Pavement Thickness, T (Inches)	Maximum Joint Spacing (Feet)
4<T<5	10
5≤T<6	12.5
6≤T	15

8.12.10 The rigid pavement should also be designed and constructed incorporating the parameters presented in Table 8.12.10.

TABLE 8.12.10
ADDITIONAL RIGID PAVEMENT RECOMMENDATIONS

Subject	Value
Thickened Edge	1.2 Times Slab Thickness Adjacent to Structures
	1.5 Times Slab Thickness Adjacent to Soil
	Minimum Increase of 2 Inches
	4 Feet Wide
Crack Control Joint Depth	Early Entry Sawn = T/6 to T/5, 1.25 Inch Minimum
	Conventional (Tooled or Conventional Sawing) = T/4 to T/3
Crack Control Joint Width	¼-Inch for Sealed Joints and Per Sealer Manufacturer's Recommendations
	$^{1}/_{16}$- to $^{1}/_{4}$-Inch is Common for Unsealed Joints

8.12.11 Reinforcing steel will not be necessary within the concrete for geotechnical purposes with the possible exception of dowels at construction joints as discussed herein.

8.12.12 To control the location and spread of concrete shrinkage cracks, crack-control joints (weakened plane joints) should be included in the design of the concrete pavement slab. Crack-control joints should be sealed with an appropriate sealant to prevent the migration of water through the control joint to the subgrade materials. The depth of the crack-control joints should be in accordance with the referenced ACI guide.

8.12.13 To provide load transfer between adjacent pavement slab sections, a butt-type construction joint should be constructed. The butt-type joint should be thickened by at least 20 percent at the edge and taper back at least 4 feet from the face of the slab.

8.12.14 Concrete curb/gutter should be placed on soil subgrade compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Cross-gutters that receives vehicular should be placed on subgrade soil compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Base materials should not be placed below the curb/gutter, or cross-gutters so water is not able to migrate from the adjacent parkways to the pavement sections. Where flatwork is located directly adjacent to the curb/gutter, the concrete flatwork should be structurally connected to the curbs to help reduce the potential for offsets between the curbs and the flatwork.

8.13 Temporary Excavations

8.13.1 The recommendations included herein are provided for stable excavations. It is the responsibility of the contractor and their competent person to ensure all excavations, temporary slopes and trenches are properly constructed and maintained in accordance with applicable OSHA guidelines in order to maintain safety and the stability of the excavations and adjacent improvements. These excavations should not be allowed to become saturated or to dry out. Surcharge loads should not be permitted to a distance equal to the height of the excavation from the top of the excavation. If there is any improvement designed, the top of the excavation should be a minimum of 15 feet from the edge of existing improvements. Excavations steeper than those recommended or closer than 15 feet from an existing surface improvement should be shored in accordance with applicable OSHA codes and regulations.

8.13.2 The stability of the excavations is dependent on the design and construction of the shoring system and site conditions. Therefore, Geocon cannot be responsible for site safety and the stability of the proposed excavations.

8.13.3 Where there is insufficient space for sloped excavations, shoring or trench shields should be used to support excavations. Shoring may also be necessary where sloped excavation could remove vertical or lateral support of existing improvements, including existing utilities and adjacent structures. Recommendations for temporary shoring are provided in the following section.

8.13.4 Where sloped embankments are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The contractor's competent person should inspect the soils exposed in the cut slopes during excavation in accordance with OSHA regulations so that modifications of the slopes can be made if variations in the soil conditions occur.

8.14 Site Drainage and Moisture Protection

8.14.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2019 CBC 1804.4 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

8.14.2 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks and detected leaks should be repaired promptly. Detrimental soil movement could occur if water can infiltrate the soil for prolonged periods of time.

8.14.3 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend that area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes be used. In addition, where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall or the use of an impermeable geosynthetic along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

8.14.4 Proposed infiltration systems should be offset from the outside edge of planned foundations a minimum lateral distance of 20 feet to reduce the occurrence of water migrating below the load projection of planned structures.

8.14.5 If not properly constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to infiltration areas. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeology study at the site. Downgradient and adjacent structures may be subjected to seeps, movement of foundations and slabs, or other impacts as a result of water infiltration.

8.15 Plan Review

8.15.1 Grading and foundation plans should be reviewed by the Geotechnical Engineer of Record prior to finalization of design to check that the plans have been prepared in substantial conformance with the recommendations of this report, and to provide additional analyses or recommendations, if necessary.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in this investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that expected herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials was not part of the scope of services provided by Geocon West, Inc.

This report is issued with the understanding that it is the responsibility of the owner, or of their representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The requirements for concrete and reinforcing steel presented in this report are preliminary recommendations from a geotechnical perspective. The Structural Engineer should provide the final recommendations for structural design of concrete and reinforcing steel for foundation systems, floor slabs, exterior concrete, or other systems where concrete and reinforcing steel are utilized, in accordance with the latest version of applicable codes.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project Geotechnical Engineer of Record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

LIST OF REFERENCES

1. American Concrete Institute, 2019, *Building Code Requirements for Structural Concrete*, Report by ACI Committee 318.

2. American Concrete Institute, 2008, *Guide for Design and Construction of Concrete Parking Lots*, Report by ACI Committee 330.

3. ASCE 7-16, 2019, *Minimum Design Loads for Buildings and Other Structures*.

4. California Building Standards Commission, 2019, *California Building Code (CBC)*, California Code of Regulations Title 24, Part 2.

5. California Geological Survey, 2003, *Earthquake Shaking Potential for California*, from USGS/CGS Seismic Hazards Model, CSSC No. 03-02.

6. California Department of Transportation (Caltrans), Division of Engineering Services, Materials Engineering and Testing Services, 2021, *Corrosion Guidelines, Version 3.2,* dated March.

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10. KTGY, 2022, *Conceptual Site Plan*, www.ktgy.com, dated September 30.

11. Legg, M.R., J.C. Borrero, and C.E. Synolakis, 2003*, Evaluation of Tsunami Risk to Southern California Coastal Cities*, EERI, NEHRP Professional Fellowship Report PF2002-11, dated January.

12. Morton, D.M. and Weber, F.H., 2003, *Preliminary Geologic Map of the Elsinore 7.5' Quadrangle, Riverside County, California*, U.S. Geological Survey, Open-File Report OF-2003-281, 1:24,000.BedGISIn View

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14. Riverside County GIS (RC GIS), *Map My County* website, http://mmc.rivcoit.org/MMC_Public/Custom/disclaimer/Default.htm; accessed December 2022.

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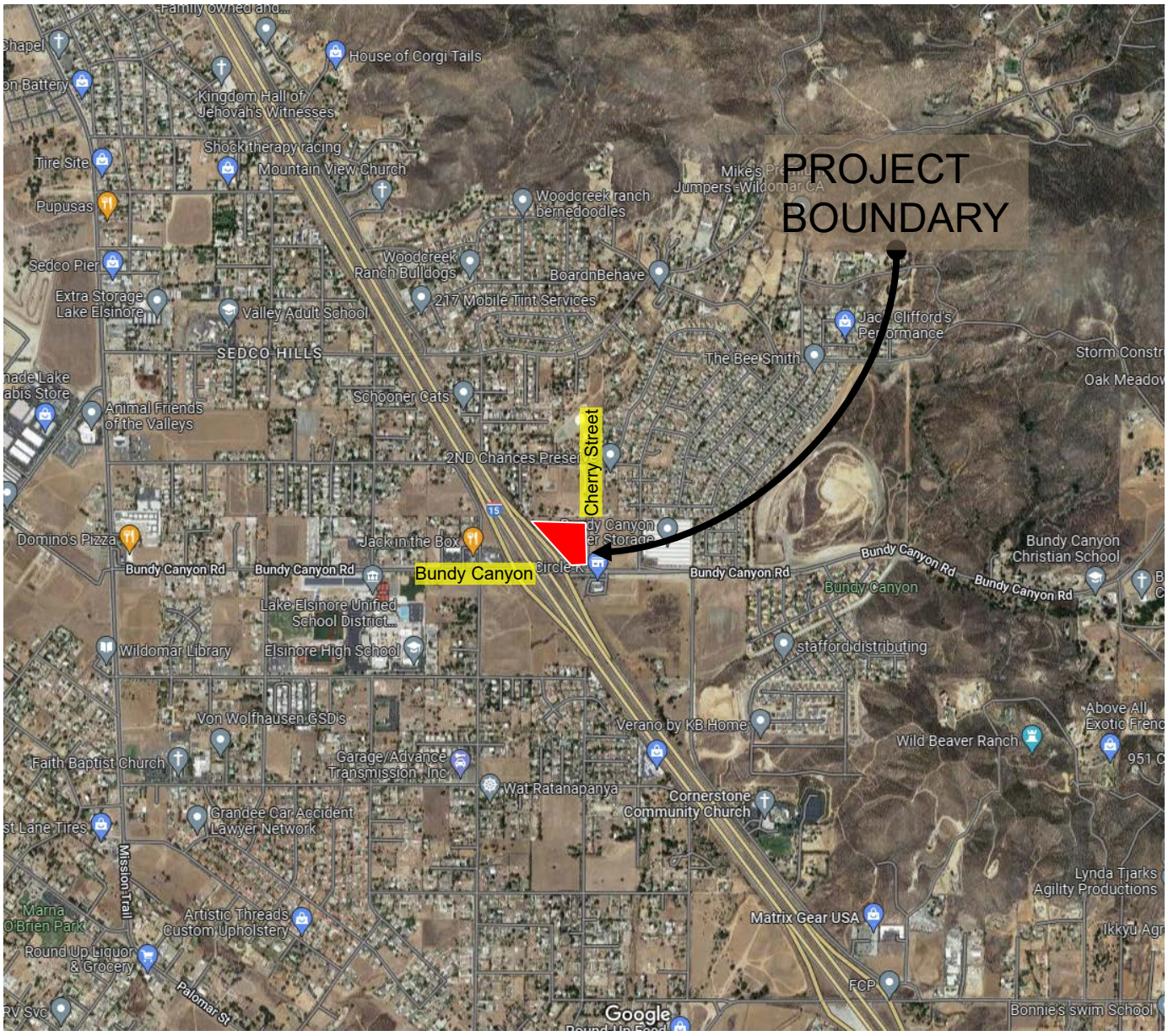


0’ 1000’ 2000’

SCALE: 1” = 1000’

N

SOURCE: Google Earth, 2022

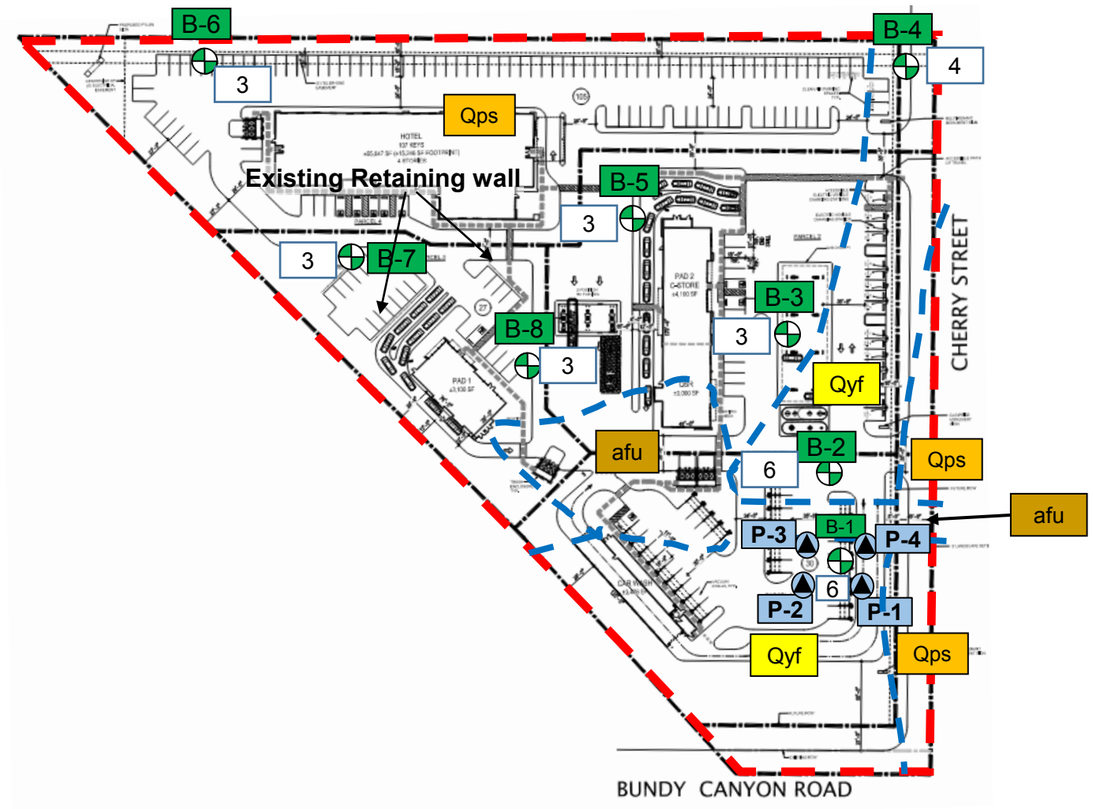
VICINITY MAP

GEOCON WEST, INC.
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS
41571 CORNING PLACE #101, MURRIETA, CALIFORNIA 92562
PHONE 951-304-2300 www.geoconinc.com

HD		

PROPOSED CHERRY OUTPOST
CHERRY ST & BUNDY CANYON RD
WILDOMAR, CALIFORNIA

JANUARY 2023	PROJECT NO. T3010-22-01	FIG. 1



GEOCON LEGEND

Locations are approximate

B-8 ..... HOLLOW STEM AUGER BORING LOCATION

6 ..... DEPTH OF EXPECTED REMEDIAL REMOVAL BELOW EXISTING GRADE (ft)

P-4 ..... PERCOLATION TEST LOCATION

..... LIMIT OF THE PROJECT

afu ..... UNDOCUMENTED ARTIFICIAL FILL

Qyf ..... YOUNG ALLUVIUM

Qps ..... POTATO SANDSTONE

..... GEOLOGIC CONTACT

0’ 50’ 100’

SCALE: 1” = 50’

N

Source: KTGY Architecture and Planning, 2022, *Conceptual Site Plan*, dated September 30.

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GEOLOGIC MAP

PROPOSED CHERRY OUTPOST
CHERRY ST & BUNDY CANYON RD
WILDOMAR, CALIFORNIA

HD			JANUARY 2023	PROJECT NO. T3010-22-01	FIG. 2

APPENDIX A

APPENDIX A

EXPLORATORY EXCAVATIONS

Eight exploratory borings and four percolation test borings were drilled on November 30, 2022. Percolation testing was conducted on December 1, 2022. The borings and percolation holes were drilled with a CME-75 truck mounted drill rig. Borings B-1 through B-8 were drilled to depths between 20½ and 26 feet. Percolation test borings were drilled to depths of 5 feet. Representative and relatively undisturbed samples were obtained by driving a 3-inch O. D., California Modified Sampler into the "undisturbed" soil mass with blows from an above-ground auto-hammer. The sampler was equipped with 1-inch by 2⅜-inch brass sampler rings to facilitate removal and testing. Bulk samples were also obtained. The soil conditions encountered in the excavations were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). Logs of the geotechnical borings are presented on Figures A-1 through A-8, with logs of the percolation test borings presented on Figures A-9 and A-12. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The approximate locations of the borings are indicated on the *Geotechnical Map* (see Figure 2).

Percolation testing was performed in accordance with *Riverside County Flood Control and Water Conservation District, LID BMP Manual, Appendix A*. The percolation tests were run in general accordance with *Section 2.3, Shallow Percolation Test*. Percolation test result data are presented on Figures A-13 and A-16.

PROJECT NO. T3010-22-01

BORING B-1

ELEV. (MSL.) **1410** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-1@0-5' (BULK/DRIVE)			SM	**Young ALLUVIAL Fan Deposits (Quall)** Silty SAND, loose to medium dense, moist, orange brown; fine to coarse sand; abundant small pores			
2								
4								
6	B-1@5'				**PAUBA SANDSTONE (Qps)** Silty SAND, very dense, dry, orange brown; fine to coarse sand; less pores	55	101.5	5.2
8								
10	B-1@10'					75/11"	121.0	7.8
12								
14								
16	B-1@15'				-Becomes cemented	50/6"	98.1	7.2
18								
20	B-1@20'				-Becomes moist; locally massive; driller added H2O to facilitate drilling	50/6"	122.0	5.3
22								
24								
	B-1@25'				-Becomes dry, strong brown to orange brown.	50/5"	119.7	6.2

Total Depth = 25'5"
Groundwater not encountered
Penetration resistance for 140-lb hammer falling 30 inches by auto hammer
Backfilled with cuttings 11/30/2022

T3010-22-02 BORING LOGS.GPJ

Figure A-1,
Log of Boring B-1, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-2

ELEV. (MSL.) **1418** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-2@0-5'			SM	**Young ALLUVIAL Fan Deposits (Quall)** Silty SAND, loose to dense, dry, dark brown; fine to coarse sand			
2								
4	B-2@2.5'				**PAUBA SANDSTONE (Qps)** Moist, Orange Brown, weathered, Cemneted	59	123.6	3.9
6	B-2@5'					85	127.8	6.0
8	B-2@7.5'				-Becomes dry, Very dense	90/10"	125.7	12.0
10	B-2@10'				-Becomes very dense	50/6"	125.3	6.8
12								
14								
16	B-2@15'					83/12"	122.9	4.6
18								
20	B-2@20'				-Becomes dense, light brown to strong brown; more cemented trace Clay	59	114.5	6.3
					Total Depth = 21'6" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-2,
Log of Boring B-2, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-3

ELEV. (MSL.) **1423** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, strong brown			
2							**PAUBA SANDSTONE (Qps)**			
	B-3@2.5'						Silty SAND, very dense, dry, light to orange brown; trace porousity	76/12"	110.5	5.2
4										
6	B-3@5' B-3@0-5'						-Becomes cemented	95/12"	116.1	10.9
8	B-3@7.5'						-Becomes very dense	77/12"	119.7	8.8
10	B-3@10'						Less dense	80	120.4	11.8
12										
14										
16	B-3@15'						Difficult Drilling	77/12"	119.5	9.9
18										
20	B-3@20'						Driller added water to facilitate drilling, very dense	80/12"	122.1	4.9
22										
24										
	B-3@25'							95/11"	127.6	4.4
							Total Depth = 25'11" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

T3010-22-02 BORING LOGS.GPJ

Figure A-3,
Log of Boring B-3, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-4

ELEV. (MSL.) **1431** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-4@0-5'					SM	**Young ALLUVIAL Fan Deposits (Quall)** Silty SAND, loose, moist, strong brown			
2										
4							**PAUBA SANDSTONE (Qps)** Silty SAND, dense, dry, light brown; cemented			
6	B-4@5'							85/11"	124.7	4.4
8										
10	B-4@10'							72	127.3	7.4
12										
14										
16	B-4@15'						-Becomes Clayey	64	126.5	5.7
18										
20	B-4@20'						-Increase in sand	63	126.6	3
							Total Depth = 21'6" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-4,
Log of Boring B-4, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-5

ELEV. (MSL.) **1428** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, strong brown			
2							**PAUBA SANDSTONE (Qps)** Silty SAND, dense, dry, light orange brown			
4										
6	B-5@5' B-5@0-5'							50	117.8	4.5
8										
10	B-5@10'						-gray to brown	49	122.7	2.1
12										
14										
16	B-5@15'						-Becomes very dense, dry; cemented	85/12"	129.9	4.8
18										
20	B-5@20'						-Becomes Clayey	78/12"	116.5	5.2
							Total Depth = 21' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-5,
Log of Boring B-5, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-6

ELEV. (MSL.) **1419** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, dry, strong brown			
2										
							PAUBA SANDSTONE (Qps) Silty SAND, dense, dry, strong brown; cemented			
4										
6	B-6@5' B-6@0-5'							90	116.1	6.6
8										
10	B-6@10'						-Becomes very dense, light brown	75/12"	118.8	5.7
12										
14										
16	B-6@15'						-Becomes dense, dry	82		
18										
20	B-6@20'						-Becomes lighter in color; increase in sand	71	121.8	3.0

Total Depth = 21'6"
Groundwater not encountered
Penetration resistance for 140-lb hammer falling 30 inches by auto hammer
Backfilled with cuttings 11/30/2022

T3010-22-02 BORING LOGS.GPJ

Figure A-6,
Log of Boring B-6, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-7

ELEV. (MSL.) **1419** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, dry, strong brown			
2										
							PAUBA SANDSTONE (Qps) Silty SAND, medium dense, dry, light brown to strong brown			
4										
6	B-7@5' B-7@0-5'							48	129.5	5.3
8										
10	B-7@10'						-Becomes cemented	49		
12										
14										
16	B-7@15'						-density increases with depth	75	132.5	8.4
18										
20	B-7@20'						-Becomes very dense	78/12"	129.8	7.7
							Total Depth = 21' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-7,
Log of Boring B-7, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-8

ELEV. (MSL.) **1421** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-8@0-5'					SM	**TOPSOIL** Silty SAND, loose, dry, strong brown			
2							**PAUBA SANDSTONE (Qps)**			
	B-8@2.5'						Silty SAND, dense, dry; strong brown Becomes medium dense	69	123.0	3.3
4										
	B-8@5'							28	118.0	3.5
6										
8	B-8@7.5'						-Becomes cemented	21	121.0	2.9
10	B-8@10'							44	120.1	2.7
12										
14										
	B-8@15'						-Becomes very dense	88	127.2	5.5
16										
18										
20	B-8@20'						-Difficult drilling	66	130.2	12.0
							Total Depth = 21'6" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-8,
Log of Boring B-8, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-1** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-9,
Log of Boring P-1, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-2** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-10,
Log of Boring P-2, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-3** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-11,
Log of Boring P-3, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-4** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-12,
Log of Boring P-4, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PERCOLATION TEST REPORT							
Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-1			**Date Excavated:**		11/30/2022
Length of Test Pipe:			60.0	inches	**Soil Classification:**		0
Height of Pipe above Ground:			6.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			54.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:00 AM 9:25 AM	25	25	39.0	37.0	2.0	12.5
2	9:25 AM 9:50 AM	25	50	40.0	35.5	4.5	5.6
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	10:00 AM 10:30 AM	30	30	40.8	37.5	3.3	9.2
2	10:30 AM 11:00 AM	30	60	41.0	38.0	3.0	10.0
3	11:00 AM 11:30 AM	30	90	38.0	35.0	3.0	10.0
4	11:30 AM 12:00 PM	30	120	41.0	38.3	2.8	10.9
5	12:00 PM 12:30 PM	30	150	38.3	35.5	2.8	10.9
6	12:30 PM 1:00 PM	30	180	40.0	37.3	2.8	10.9
7	1:00 PM 1:30 PM	30	210	37.3	34.8	2.5	12.0
8	1:30 PM 2:00 PM	30	240	41.5	39.0	2.5	12.0
9	2:00 PM 2:30 PM	30	270	39.0	36.5	2.5	12.0
10	2:30 PM 3:00 PM	30	300	40.8	38.3	2.5	12.0
11	3:00 PM 3:30 PM	30	330	38.3	35.8	2.5	12.0
12	3:30 PM 4:00 PM	30	360	40.3	37.8	2.5	12.0
Infiltration Rate (in/hr):			0.2				
Radius of test hole (in):			4				**Figure A-13**
Average Head (in):			39.0				

PERCOLATION TEST REPORT							
Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-2			**Date Excavated:**		11/30/2022
Length of Test Pipe:			60.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			5.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			55.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:01 AM 9:26 AM	25	25	41.5	38.0	3.5	7.1
2	9:26 AM 9:51 AM	25	50	43.0	39.0	4.0	6.2
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	10:00 AM 10:30 AM	30	30	43.8	39.0	4.8	6.3
2	10:30 AM 11:00 AM	30	60	45.0	40.8	4.3	7.1
3	11:00 AM 11:30 AM	30	90	40.8	36.8	4.0	7.5
4	11:30 AM 12:00 PM	30	120	44.5	40.8	3.8	8.0
5	12:00 PM 12:30 PM	30	150	40.8	37.0	3.8	8.0
6	12:30 PM 1:00 PM	30	180	44.5	41.0	3.5	8.6
7	1:00 PM 1:30 PM	30	210	41.0	37.5	3.5	8.6
8	1:30 PM 2:00 PM	30	240	44.8	41.5	3.3	9.2
9	2:00 PM 2:30 PM	30	270	41.5	38.3	3.3	9.2
10	2:30 PM 3:00 PM	30	300	43.8	40.8	3.0	10.0
11	3:00 PM 3:30 PM	30	330	40.8	37.8	3.0	10.0
12	3:30 PM 4:00 PM	30	360	41.8	38.8	3.0	10.0
Infiltration Rate (in/hr):			0.3				
Radius of test hole (in):			4				**Figure A-14**
Average Head (in):			40.3				

PERCOLATION TEST REPORT							
Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-3			**Date Excavated:**		11/30/2022
Length of Test Pipe:			63.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			6.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			57.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:02 AM 9:27 AM	25	25	46.0	41.0	5.0	5.0
2	9:27 AM 9:52 AM	25	50	43.5	38.0	5.5	4.5
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	10:02 AM 10:32 AM	30	30	44.0	38.3	5.8	5.2
2	10:32 AM 11:02 AM	30	60	45.0	38.8	6.3	4.8
3	11:02 AM 11:32 AM	30	90	38.8	32.8	6.0	5.0
4	11:32 AM 12:02 PM	30	120	45.0	38.8	6.3	4.8
5	12:02 PM 12:32 PM	30	150	38.8	32.3	6.5	4.6
6	12:32 PM 1:02 PM	30	180	44.8	38.8	6.0	5.0
7	1:02 PM 1:32 PM	30	210	38.8	32.8	6.0	5.0
8	1:32 PM 2:02 PM	30	240	42.8	37.0	5.8	5.2
9	2:02 PM 2:32 PM	30	270	37.0	31.3	5.8	5.2
10	2:32 PM 3:02 PM	30	300	43.5	38.0	5.5	5.5
11	3:02 PM 3:32 PM	30	330	45.8	40.3	5.5	5.5
12	3:32 PM 4:02 PM	30	360	40.3	34.8	5.5	5.5
Infiltration Rate (in/hr):			0.6				
Radius of test hole (in):			4				**Figure A-15**
Average Head (in):			37.5				

PERCOLATION TEST REPORT							
Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-4			**Date Excavated:**		11/30/2022
Length of Test Pipe:			60.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			6.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			54.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:03 AM 9:28 AM	25	25	40.5	35.0	5.5	4.5
2	9:28 AM 9:53 AM	25	50	39.0	33.3	5.8	4.3
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	10:03 AM 10:33 AM	30	30	38.0	31.8	6.3	4.8
2	10:33 AM 11:03 AM	30	60	40.0	33.8	6.3	4.8
3	11:03 AM 11:33 AM	30	90	33.8	27.5	6.3	4.8
4	11:33 AM 12:03 PM	30	120	34.5	28.8	5.8	5.2
5	12:03 PM 12:33 PM	30	150	28.8	23.0	5.8	5.2
6	12:33 PM 1:03 PM	30	180	39.5	34.0	5.5	5.5
7	1:03 PM 1:33 PM	30	210	34.0	28.5	5.5	5.5
8	1:33 PM 2:03 PM	30	240	37.5	32.3	5.3	5.7
9	2:03 PM 2:33 PM	30	270	32.3	27.0	5.3	5.7
10	2:33 PM 3:03 PM	30	300	42.8	37.8	5.0	6.0
11	3:03 PM 3:33 PM	30	330	37.8	32.8	5.0	6.0
12	3:33 PM 4:03 PM	30	360	40.5	35.5	5.0	6.0
Infiltration Rate (in/hr):			0.5				
Radius of test hole (in):			4				**Figure A-16**
Average Head (in):			38.0				

APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in accordance with current, generally accepted test methods of ASTM International (ASTM) or other suggested procedures. We analyzed selected soil samples for in-place dry density/moisture content, maximum dry density/optimum moisture content, expansion potential, corrosivity, grain size analysis, consolidation potential, and direct shear strength. The results of the laboratory tests are presented on Figures B-1 through B-13 and on the logs presented in *Appendix A*.

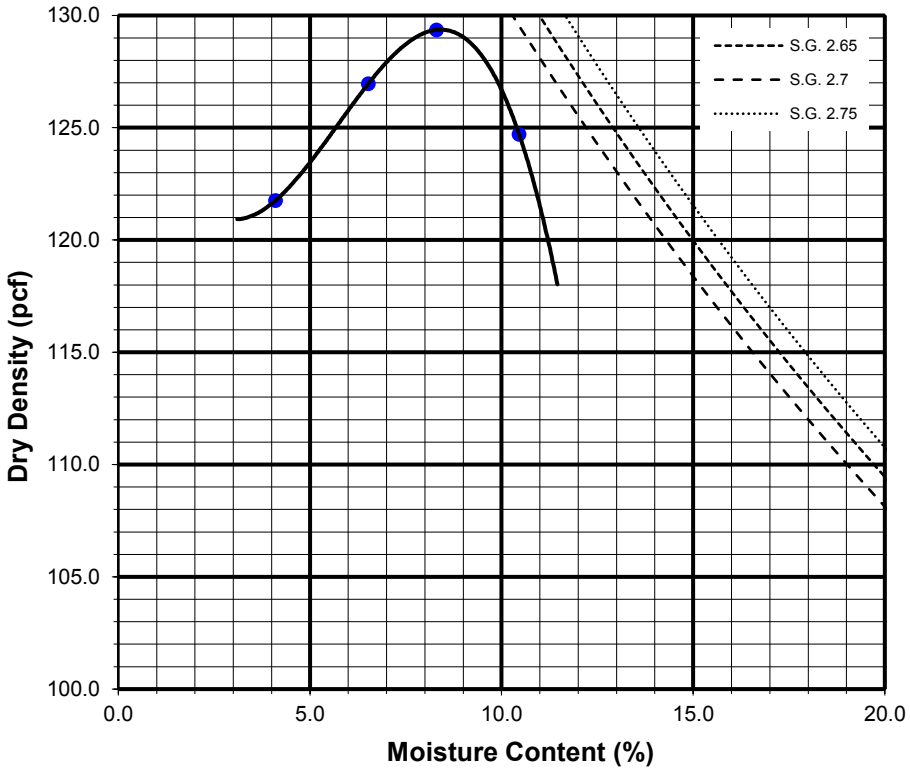
Sample No:

B1@0-5	Silty SAND (SM), brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6174	6302	6375	6340		
Weight of Mold	(g)	4259	4259	4259	4259		
Net Weight of Soil	(g)	1915	2043	2116	2081		
Wet Weight of Soil + Cont.	(g)	654.9	642.7	761.8	717.5		
Dry Weight of Soil + Cont.	(g)	639.2	619.1	723.3	674.1		
Weight of Container	(g)	256.4	257.2	259.4	259.1		
Moisture Content	(%)	4.1	6.5	8.3	10.5		
Wet Density	(pcf)	126.8	135.2	140.1	137.8		
Dry Density	(pcf)	121.8	127.0	129.4	124.7		

Maximum Dry Density (pcf)	**129.5**

Optimum Moisture Content (%)	**8.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

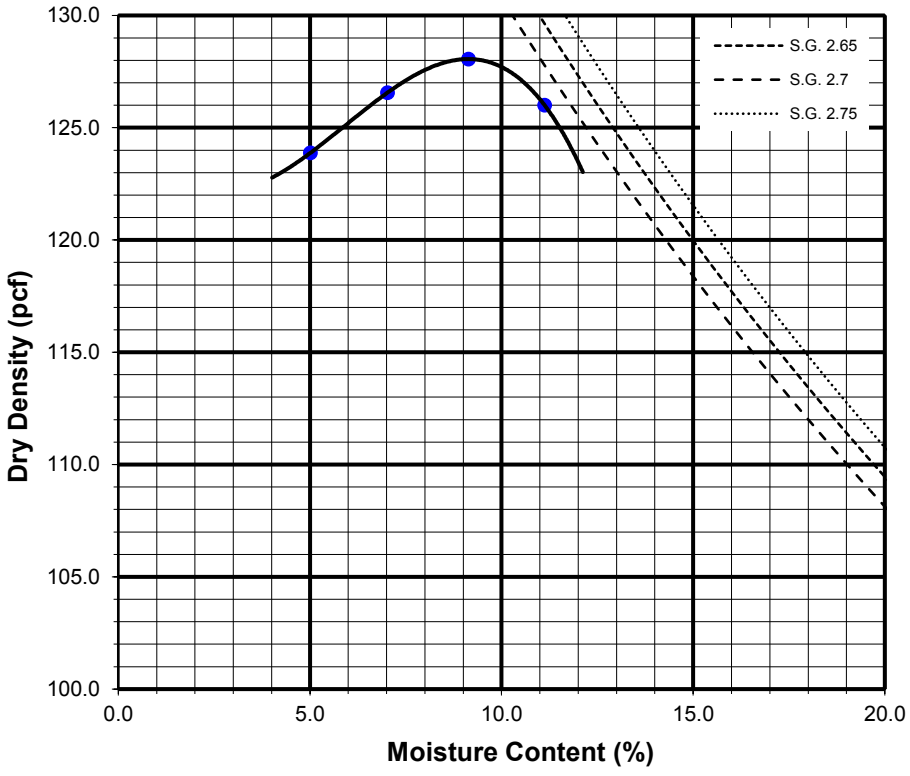
Jan 23 Figure B-1

Sample No:

B3@0-5'	Silty SAND (SM), brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6333	6337	6268	6187		
Weight of Mold	(g)	4222	4222	4222	4222		
Net Weight of Soil	(g)	2111	2115	2046	1965		
Wet Weight of Soil + Cont.	(g)	767.8	730.0	699.2	674.6		
Dry Weight of Soil + Cont.	(g)	719.0	675.4	665.4	651.2		
Weight of Container	(g)	184.8	184.4	184.2	184.4		
Moisture Content	(%)	9.1	11.1	7.0	5.0		
Wet Density	(pcf)	139.8	140.0	135.5	130.1		
Dry Density	(pcf)	128.1	126.0	126.6	123.9		

Maximum Dry Density (pcf)	**128.0**	**Optimum Moisture Content (%)**	**9.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

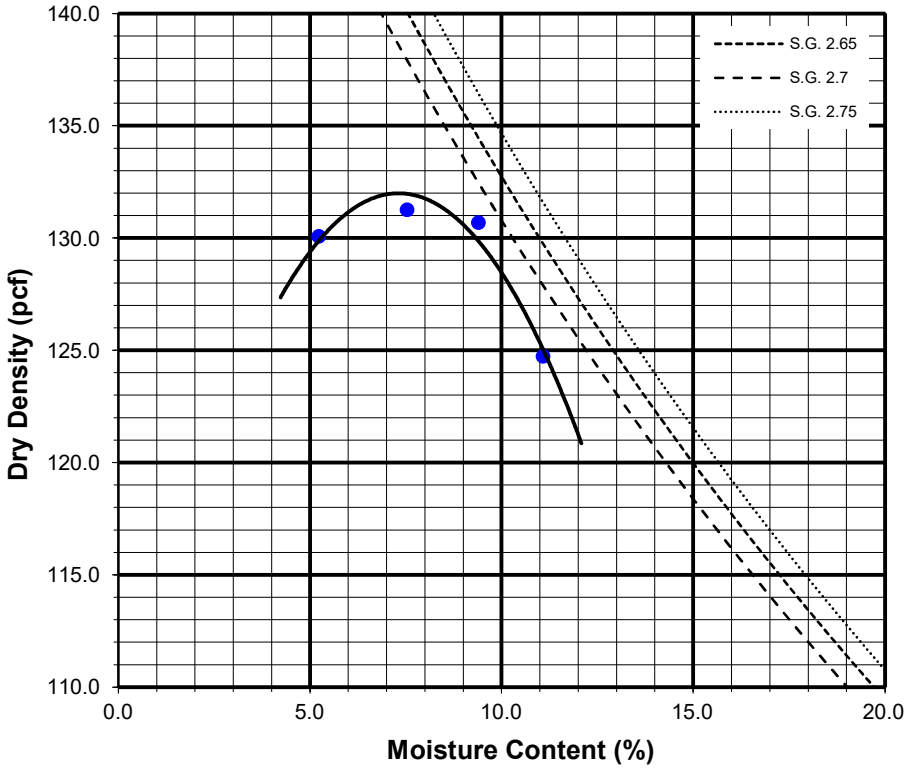
Jan 23 Figure B-2

Sample No:

B6@0-5	Silty SAND (SM), brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6327	6391	6419	6352		
Weight of Mold	(g)	4259	4259	4259	4259		
Net Weight of Soil	(g)	2068	2132	2160	2093		
Wet Weight of Soil + Cont.	(g)	674.3	707.6	776.2	730.5		
Dry Weight of Soil + Cont.	(g)	653.5	676.2	731.5	683.4		
Weight of Container	(g)	256.0	259.2	255.8	258.4		
Moisture Content	(%)	5.2	7.5	9.4	11.1		
Wet Density	(pcf)	136.9	141.1	143.0	138.6		
Dry Density	(pcf)	130.1	131.3	130.7	124.7		

Maximum Dry Density (pcf)	**131.5**	**Optimum Moisture Content (%)**	**8.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-3

B3@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	630.3	660.5
Wt. of Mold	(gm)	200.3	200.3
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	473.2	660.5
Dry Wt. of Soil + Cont.	(gm)	452.3	400.0
Wt. of Container	(gm)	173.2	200.3
Moisture Content	(%)	7.5	15.1
Wet Density	(pcf)	129.7	138.6
Dry Density	(pcf)	120.7	120.5
Void Ratio		0.4	0.4
Total Porosity		0.3	0.3
Pore Volume	(cc)	58.8	62.8
Degree of Saturation	(%) [S_{meas}]	51.4	95.8

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
12/14/2022	10:00	1.0	0	0.4069
12/14/2022	10:10	1.0	10	0.4066
Add Distilled Water to the Specimen				
12/15/2022	10:00	1.0	1430	0.4258
12/15/2022	11:00	1.0	1490	0.4258

Expansion Index (EI meas) =	19.2
Expansion Index (Report) =	19

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-4

SUMMARY OF LABORATORY
POTENTIAL OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
AASHTO T289 ASTM D4972 and AASHTO T288 ASTM G187

Sample No.	pH	Resistivity (ohm centimeters)
B3@0-5	9.3	1900 (Corrosive)
B6@0-5	8.8	4400 (Moderately Corrosive)

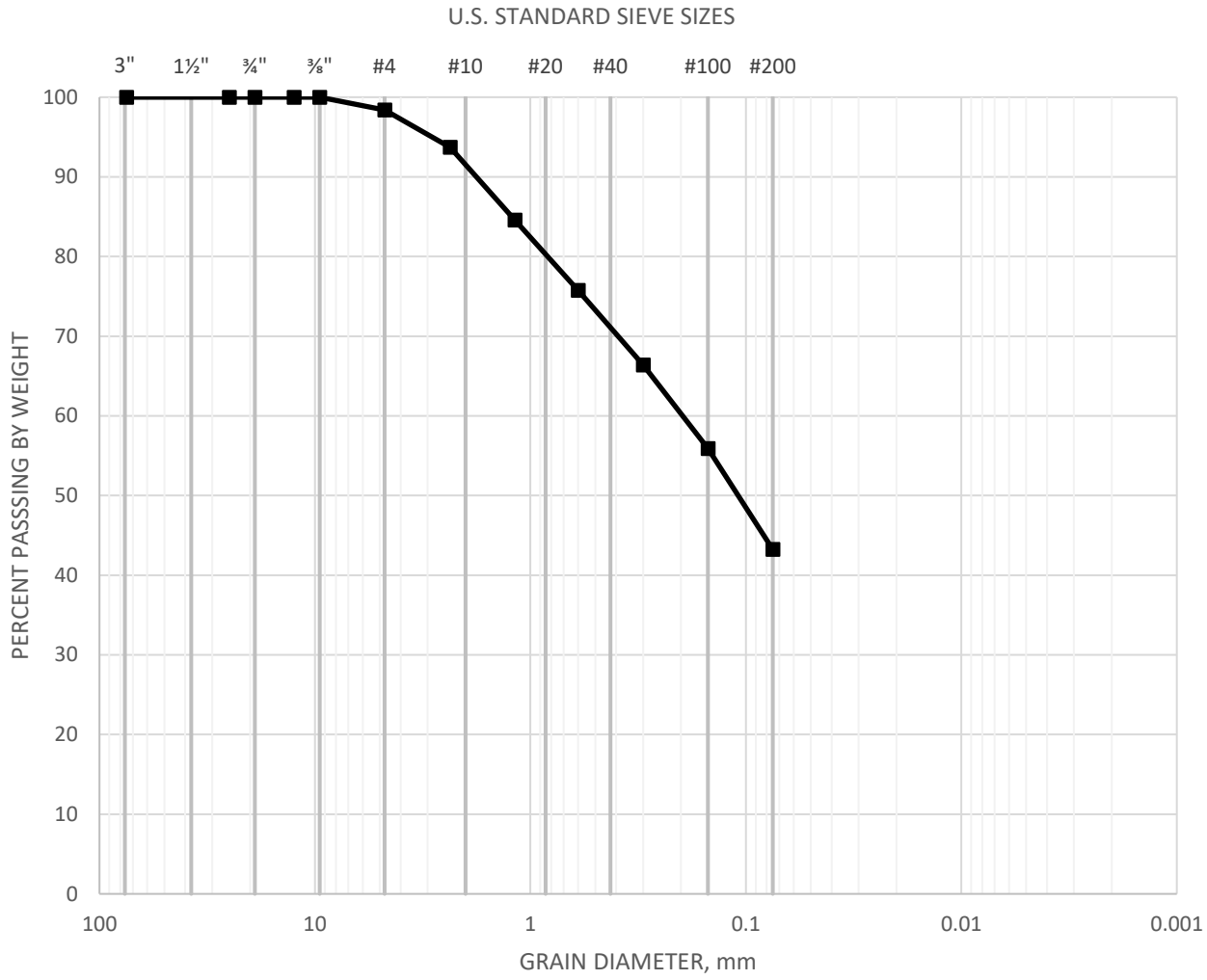
SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
AASHTO T291 ASTM C1218

Sample No.	Chloride Ion Content (%)
B3@0-5	0.012
B6@0-5	0.008

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
AASHTO T290 ASTM C1580

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure
B3@0-5	0.000	S0
B6@0-5	0.000	S0

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
B1@0-5	Silty SAND (SM), brown	0.2	0.075	0.075

GEOCON

GRAIN SIZE DISTRIBUTION

ASTM D 6913

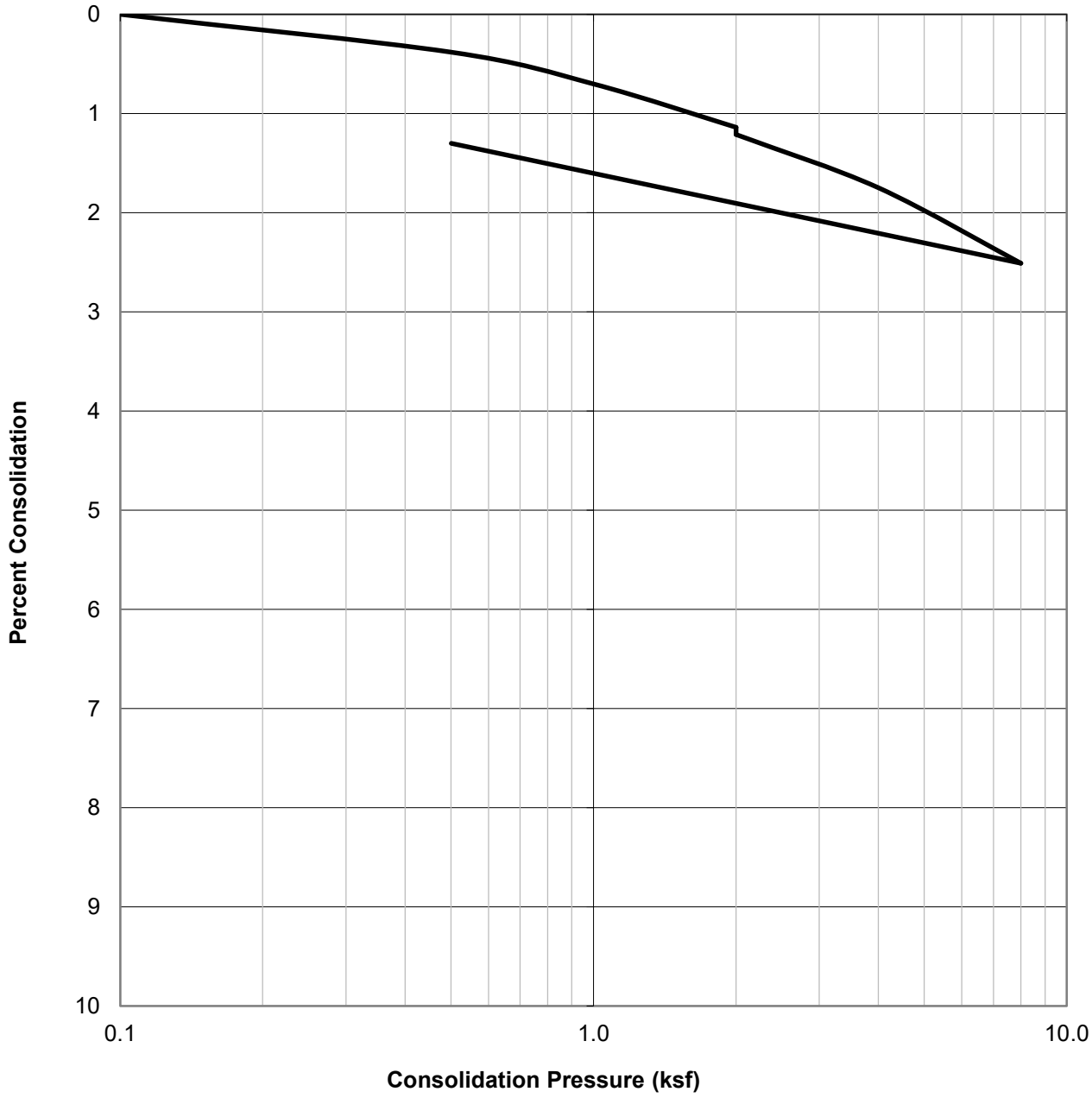
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@0-5	Silty SAND (SM), brown	122.2	8.9	13.6

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

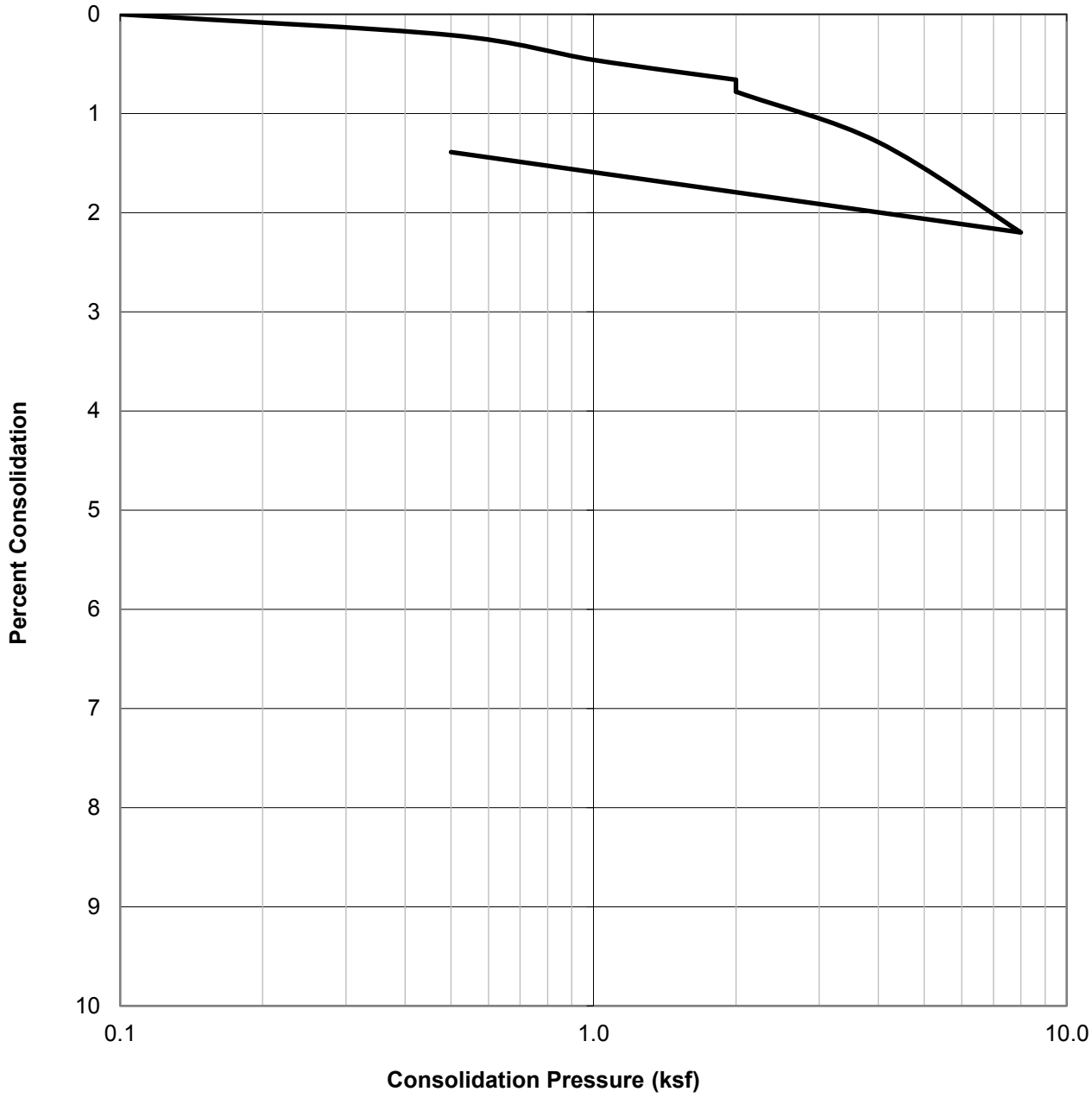
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-7

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B6@0-5	Silty SAND (SM), brown	117.4	9.0	14.3

GEOCON

CONSOLIDATION TEST RESULTS

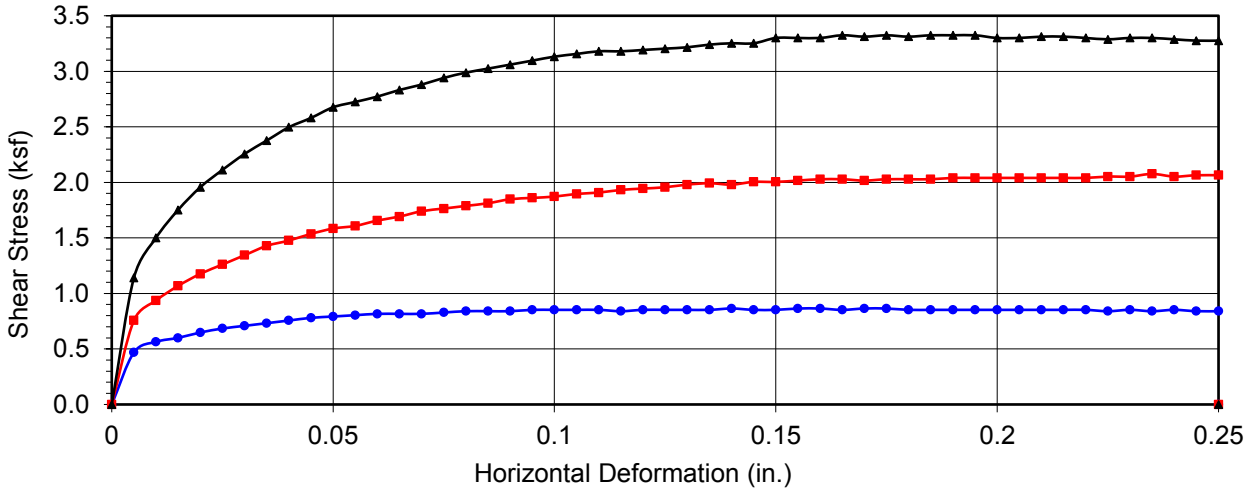
ASTM D-2435

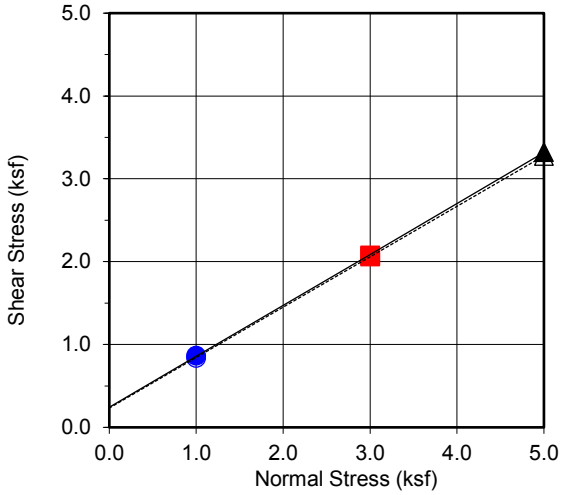
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-8





Boring No.	**B3**
Sample No.	**B3@0-5**
Depth (ft)	**0-5**
Sample Type:	Bulk

Soil Identification:

Silty SAND (SM), brown

Strength Parameters

	C (psf)	ϕ (°)
Peak	243	32
Ultimate	233	31

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.86	■ 2.08	▲ 3.32
Shear Stress @ End of Test (ksf)	○ 0.84	□ 2.06	△ 3.28
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	9.1	8.9	9.0
Initial Dry Density (pcf)	115.1	115.0	115.0
Initial Degree of Saturation (%)	52.7	51.3	52.0
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	14.6	12.6	10.9

GEOCON

DIRECT SHEAR TEST RESULTS

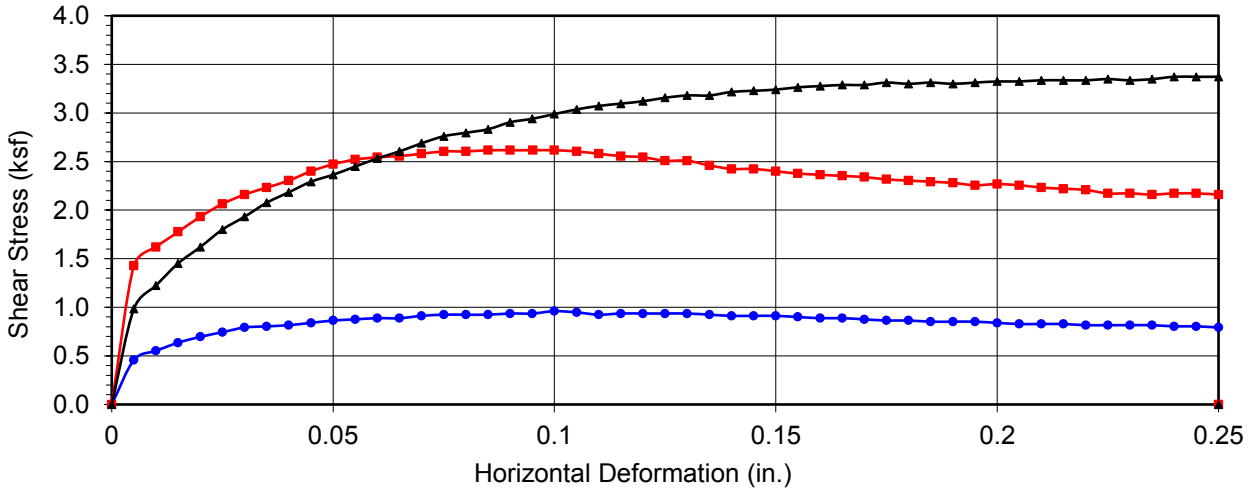
Consolidated Drained ASTM D-3080

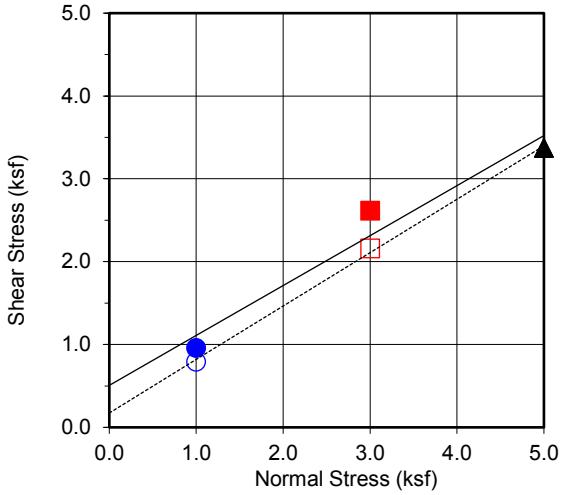
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-9





Boring No.	**B3**
Sample No.	**B3@5**
Depth (ft)	**5**
Sample Type:	Ring

Soil Identification:		
Silty SAND (SM), brown		
Strength Parameters		
	C (psf)	ϕ (°)
Peak	507	31
Ultimate	173	33

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.96	■ 2.62	▲ 3.37
Shear Stress @ End of Test (ksf)	○ 0.79	□ 2.16	△ 3.37
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	10.9	10.3	10.3
Initial Dry Density (pcf)	124.3	122.7	119.4
Initial Degree of Saturation (%)	82.5	74.1	67.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.4	15.9	15.5

GEOCON

DIRECT SHEAR TEST RESULTS

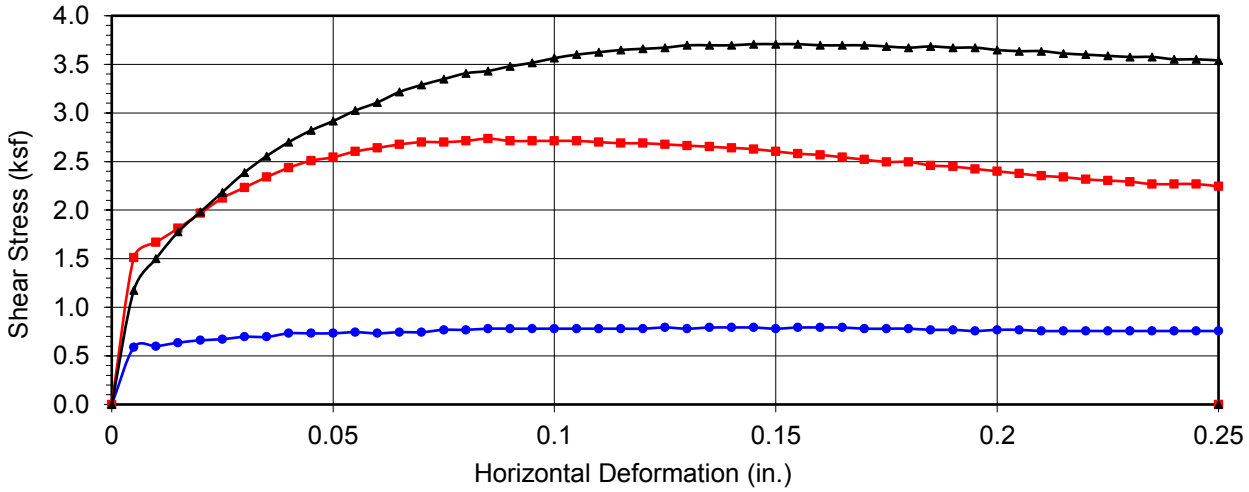
Consolidated Drained ASTM D-3080

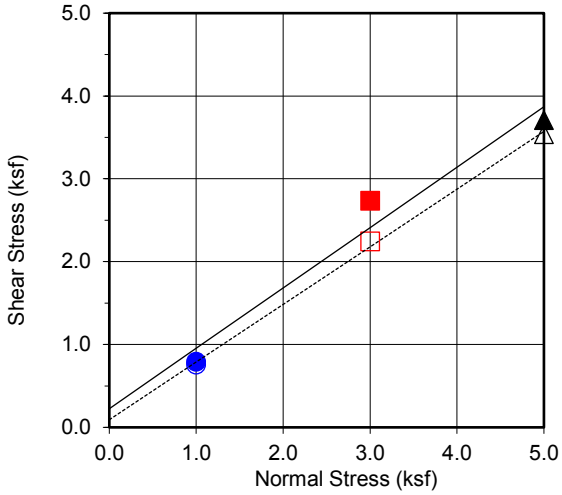
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-10





Boring No.	**B3**
Sample No.	**B3@10**
Depth (ft)	**10**
Sample Type:	ring

Soil Identification:		
Silty SAND (SM), brown		
Strength Parameters		
	C (psf)	ϕ (°)
Peak	225	36
Ultimate	92	35

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.79	■ 2.74	▲ 3.71
Shear Stress @ End of Test (ksf)	○ 0.76	□ 2.24	△ 3.54
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	13.2	11.8	11.0
Initial Dry Density (pcf)	116.7	127.6	115.2
Initial Degree of Saturation (%)	80.2	99.1	64.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	18.6	15.6	16.2

GEOCON

DIRECT SHEAR TEST RESULTS

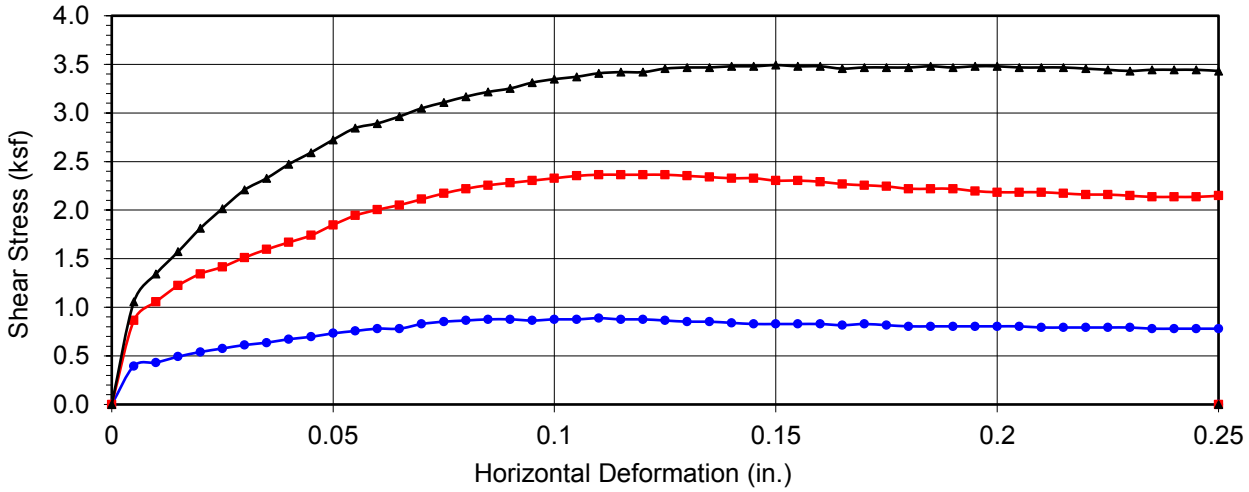
Consolidated Drained ASTM D-3080

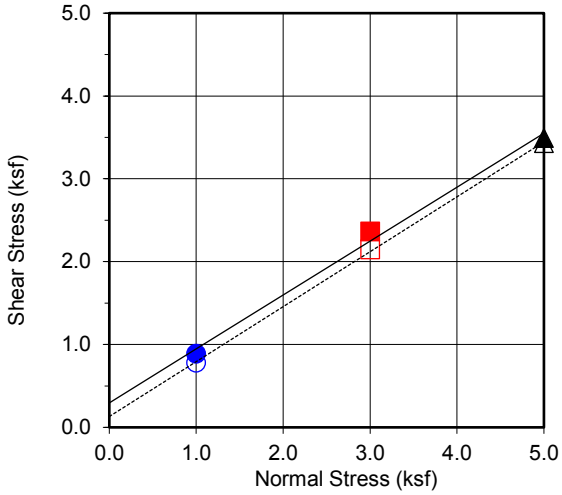
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-11





Boring No.	**B3**
Sample No.	**B3@15**
Depth (ft)	**15**
Sample Type:	Ring

Soil Identification:

Silty SAND (SM), brown

Strength Parameters

	C (psf)	ϕ (°)
Peak	295	33
Ultimate	131	34

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.89	■ 2.36	▲ 3.49
Shear Stress @ End of Test (ksf)	○ 0.78	□ 2.15	△ 3.43
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	10.1	8.7	8.0
Initial Dry Density (pcf)	113.2	113.1	114.2
Initial Degree of Saturation (%)	55.7	48.1	45.5
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.0	15.0	15.0

GEOCON

DIRECT SHEAR TEST RESULTS

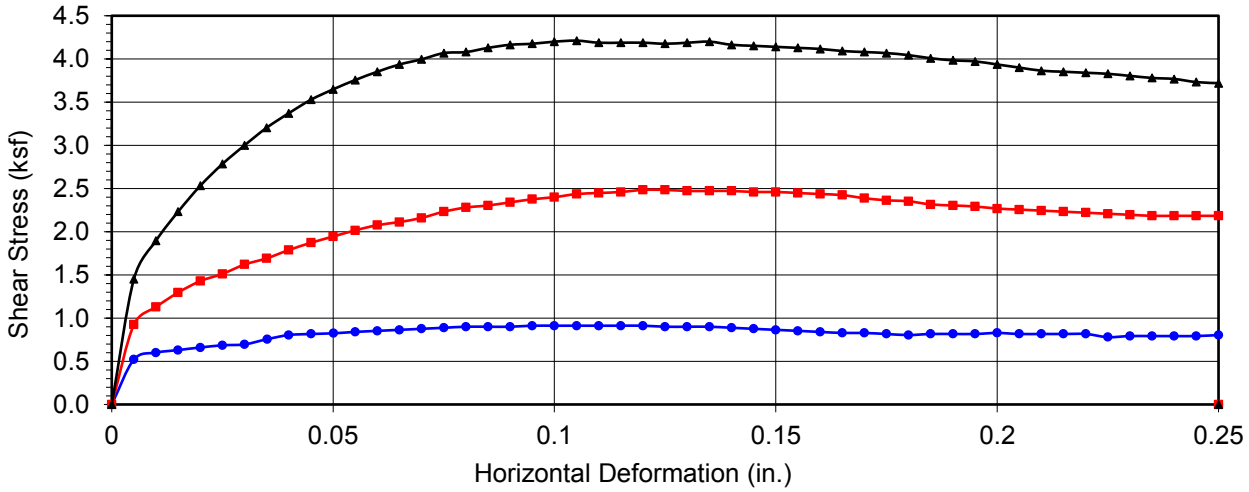
Consolidated Drained ASTM D-3080

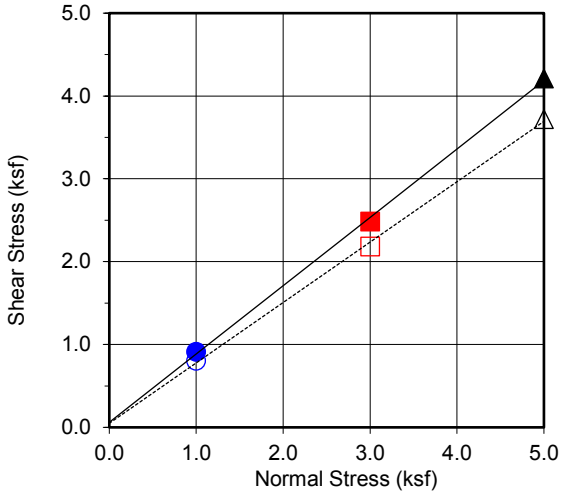
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-12





Boring No.	**B6**
Sample No.	**B6@5**
Depth (ft)	**5**
Sample Type:	Ring

Soil Identification:		
SM		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	61	40
Ultimate	49	36

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.91	■ 2.48	▲ 4.21
Shear Stress @ End of Test (ksf)	○ 0.80	□ 2.18	△ 3.72
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	7.2	7.2	6.6
Initial Dry Density (pcf)	106.7	113.4	124.6
Initial Degree of Saturation (%)	33.5	40.1	50.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.1	15.3	14.0

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-13

APPENDIX C

APPENDIX C

RECOMMENDED GRADING SPECIFICATIONS

FOR

PROPOSED CHERRY OUTPOST
ASSESSOR'S PARCELS
366-290-007 & -008
NWC OF BUNDY CANYON AND
CHERRY STREET
WILDOMAR, CALIFORNIA

PROJECT NO. T3010-22-01

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition

4. CLEARING AND PREPARING AREAS TO BE FILLED

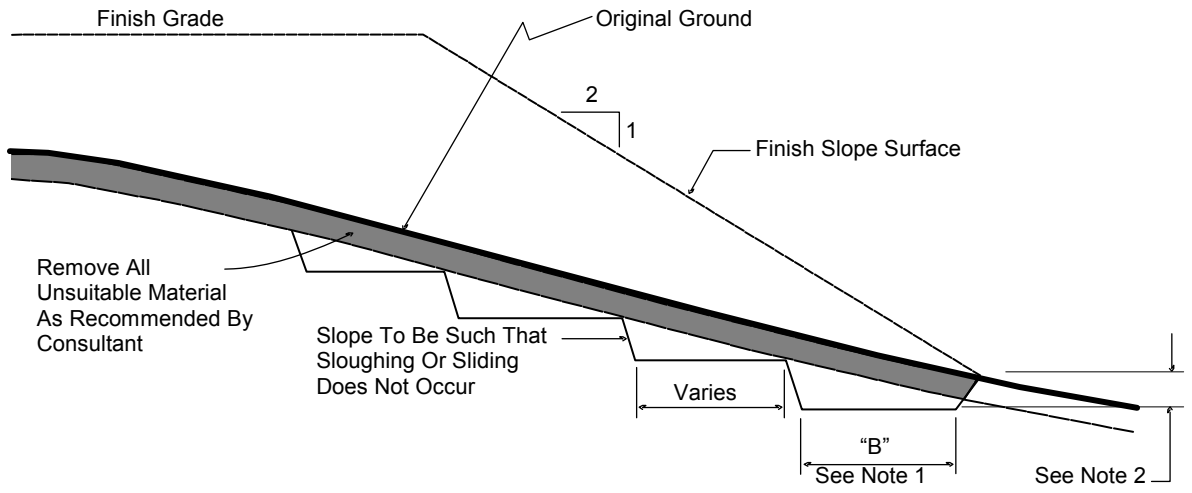
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

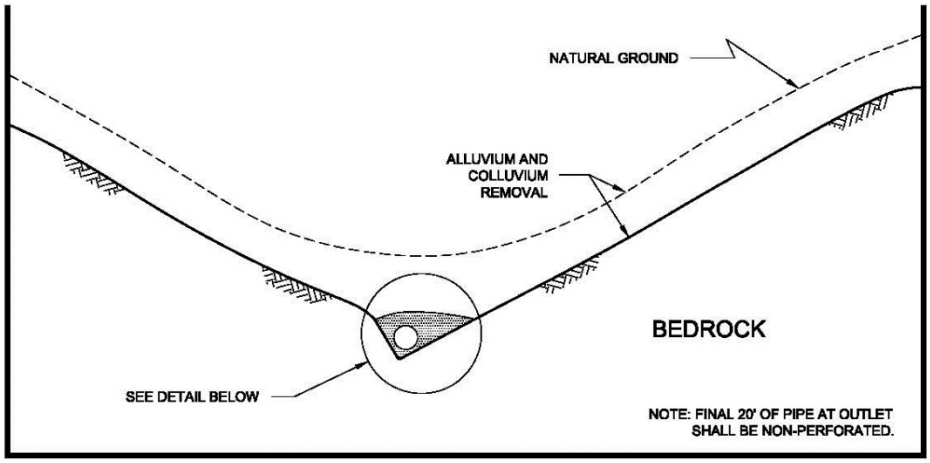
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

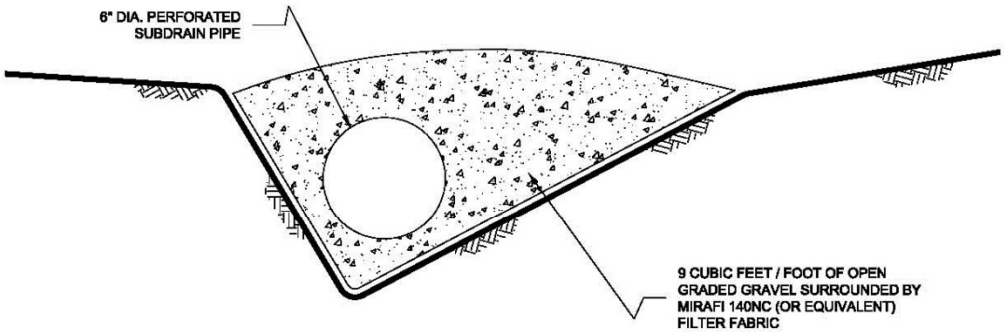
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

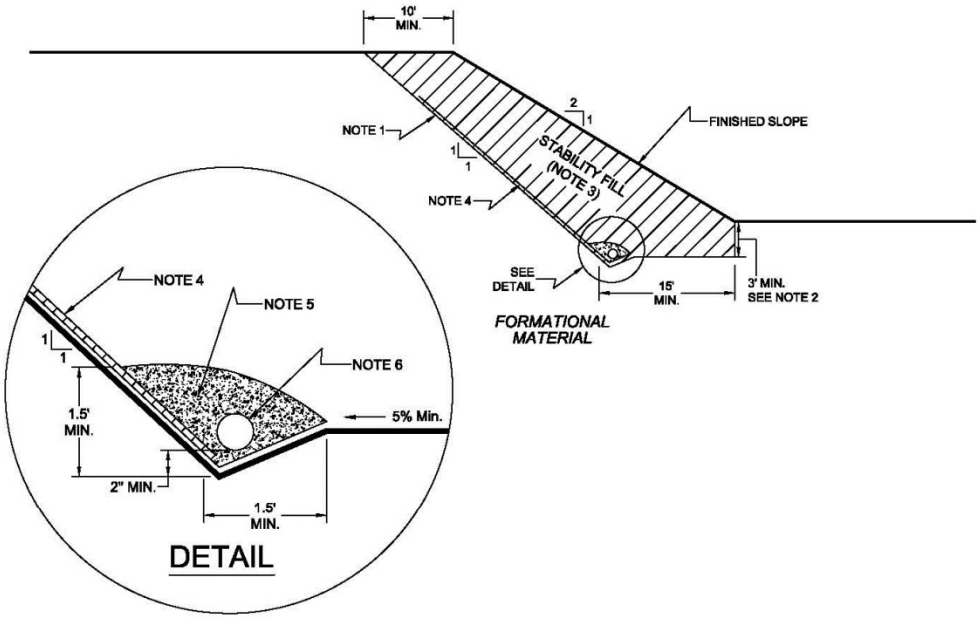
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

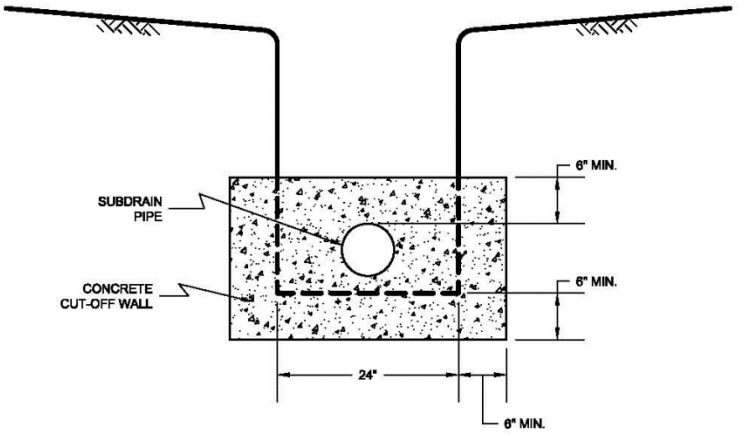
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

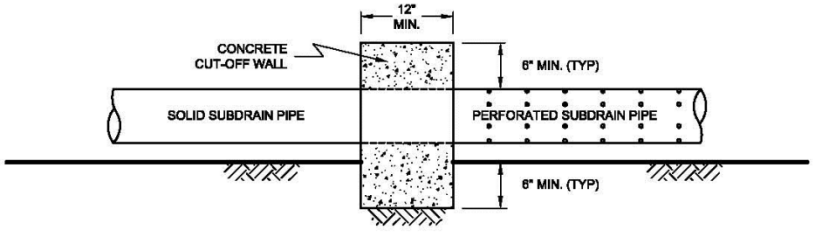
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

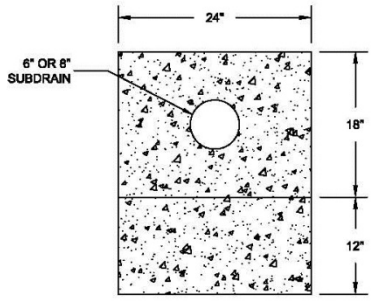


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

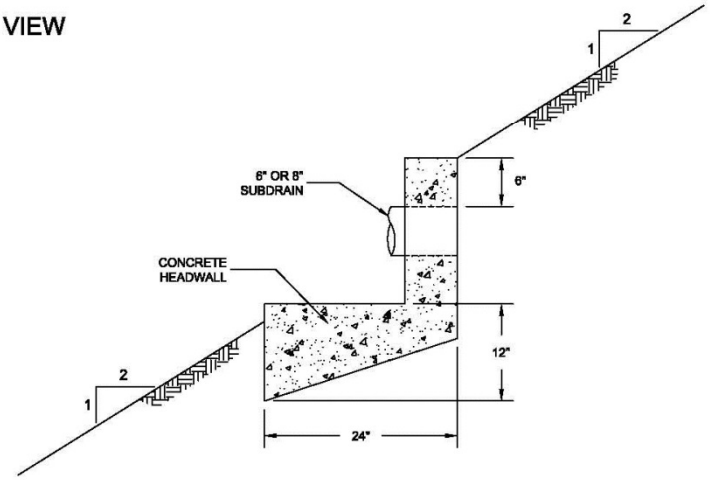
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an "as-built" map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth)*.

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

Appendix 6

Paleontological Resources Report for Chery Outpost Project

Paleontological Resources Report
Cherry Outpost Project

Riverside County, California



Prepared For: HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

Report Date: July 2024

BARGAS
Environmental Consulting

Sacramento ◆ Orange ◆ Pasadena ◆ San Bernardino ◆ Temecula ◆ San Diego
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Project Team

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Principal Investigator:	Courtney Richards, M.S.
GIS:	David Duncan
Recommended Citation:	Corrie, J. and Richards, C. 2024. Paleontological Resource Assessment for Cherry Outpost Project, Riverside County, California. Prepared for HELIX Environmental Planning, Inc. July 2024.

Paleontological Resources Summary Information

USGS 7.5-Minute Quadrangle(s): Lake Elsinore

City and County: Wildomar, Riverside County

Dates of Fieldwork: N/A

Total Acreage of Lands Surveyed: N/A

Total Linear Miles Surveyed: N/A

Geologic Units in Project Site: Late Pleistocene- to Holocene-age alluvial fan deposits (low paleontological potential)

Paleontological Resources Identified in Project Site: 0

Previously Recorded Resources in Project Site: 0

Newly Recorded Resources in Project Site: 0

MANAGEMENT SUMMARY

Bargas Environmental Consulting, LLC (Bargas) completed a paleontological resources assessment at the request of HELIX Environmental Planning, Inc. (HELIX) for the Cherry Outpost Project (Project) in the City of Wildomar, California. The purpose of the assessment was to determine if the Project has the potential to impact paleontological resources within the Project Site. All work was completed in compliance with the California Environmental Quality Act (CEQA) and City of Wildomar requirements.

The Project Site is located immediately east of Interstate 15 at the intersection of Cherry Street and Bundy Canyon Road in the City of Wildomar. The proposed Project consists of construction of a commercial retail center on a 6.64-acre site and includes 16,514 square feet of retail space, a 72-room hotel, on-site improvements, and roadway improvements. Proposed retail uses include restaurants, a convenience store, a car wash, and a gas and diesel station.

Bargas completed a desktop-level paleontological study that included reviews of geologic maps and paleontological literature, a records search at the Western Science Center (WSC), and searches of the online University of California Museum of Paleontology (UCMP) locality database and Paleobiology Database (PBDB).

Geologic mapping indicates that the Project Site is entirely underlain by late Pleistocene- to Holocene-age young alluvial fan deposits (Qyf_1). On March 15, 2023, Bargas requested a records search of the Project Site and a 1-mile radius from the WSC to identify any known paleontological resources within the Project boundaries or from the same geologic unit within the Project vicinity. Based on the results of the literature and database reviews, in addition to the WSC records search, there are no known paleontological resources within the Project Site boundaries. However, fossils have been reported from Pleistocene-age alluvial fan deposits elsewhere in Riverside County from depths as shallow as 5 feet below the surface. The WSC records search also reported that numerous vertebrate fossil specimens, including camel, bison, and Columbian mammoth, were recovered from an area mapped at the surface as late Holocene-age deposits during excavations for the Summerly Project, located approximately 2 miles northwest of the Project Site boundaries. The Holocene-age deposits present at the surface of the Project Site are typically considered to have a low potential (Potential Fossil Yield Classification [PFYC] 2) for significant paleontological resources at and near the surface due to the relatively young age of the deposits; however, planned Project excavations are anticipated to reach depths of approximately 10 to 13 feet and have the potential to result in direct impacts to paleontological resources if the moderate paleontological potential (PFYC 3) late Pleistocene sections of the young alluvial fan deposits (Qyf_1) are encountered in the subsurface.

Paleontological monitoring is recommended during excavations greater than 5 feet deep. In the event of an unanticipated paleontological resource discovery, work within 50 feet of the resource shall stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery is identified as potentially significant, additional work, such as recovery, laboratory preparation, fossil identification, curation, and reporting, may be necessary. Recovered paleontological resources should be deposited in an appropriate fossil repository to be determined by the lead agency in consultation with the qualified paleontologist. With implementation of these paleontological resource monitoring and treatment recommendations, impacts on paleontological resources would be reduced to less than significant levels.

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Appendix A. Western Science Center Records Search Results

1 Introduction

Bargas Environmental Consulting, LLC (Bargas) completed a paleontological resource assessment at the request of HELIX Environmental Planning, Inc. (HELIX) for the Cherry Outpost Project in the City of Wildomar, California. The purpose of the assessment was to determine if the Project has the potential to impact paleontological resources within the Project Site. All work was completed in compliance with the California Environmental Quality Act (CEQA) and City of Wildomar requirements.

1.1 Project Location and Description

The Project Site is located on approximately 6.64 acres immediately east of Interstate 15 at the intersection of Cherry Street and Bundy Canyon Road in the City of Wildomar, Riverside County, California. Specifically, the site is located within Section 23 of Township 6 South, Range 4 West of the U.S. Geological Survey's (USGS) *Lake Elsinore, California* 7.5-minute quadrangle (Figures 1 and 2). The proposed Project consists of the construction of a commercial retail center that includes 16,514 square feet of retail space, a 72-room hotel, on-site improvements, and roadway improvements. Proposed retail uses include restaurants, a convenience store, a car wash, and a gas and diesel station. The Project Site is currently zoned Commercial Retail and is bordered to the north by an area currently zoned as Medium Density Residential. Excavations for the Project's on-site improvements are anticipated to reach depths of approximately 10 feet, with potential for over excavations to depths of 12 to 13 feet. Excavations for off-site roadway improvements are anticipated to be 2-feet deep within the street right-of-way (ROW) and 5-feet deep outside of the street ROW.

2 Methods

Bargas completed a desktop-level paleontological study that included reviews of geologic maps and paleontological literature, searches of the online University of California Museum of Paleontology (UCMP) locality database and Paleobiology Database (PBDB), and a records search at the Western Science Center (WSC) to identify any known paleontological resources within the Project boundaries or from the same geologic unit within a 1-mile buffer. Paleontological potential rankings were assigned using the federal Potential Fossil Yield Classification (PFYC) system (see Section 2.1).

2.1 Paleontological Potential and Impact Methods

In general, paleontological resources are preserved in sedimentary rocks; however, they can occasionally be preserved in low-grade metamorphic rocks and can, on rare occasions, be preserved in volcanic rocks. Beyond acting as a vessel for the preservation of fossil remains, sedimentary strata record telltale information reflecting the environment in which they were deposited (e.g., sedimentary structures, maturity, and lithology). For example, fossil remains found within the fine-grained sediments of a floodplain deposit represent organisms that died and were later buried on an ancient floodplain. Because of the interwoven relationship between fossil remains and their geologic contexts, paleontological sensitivity is generally assigned to geologic units rather than to specific regions, areas, or localities.

For this project, the paleontological potential of the geologic units within the Project Site, both at the surface and at depth, were assigned using the federal PFYC system developed by the Bureau of Land Management (BLM 2016). PFYC rankings are assigned to geologic units based on the relative abundance of significant paleontological resources within a given geologic unit and their sensitivity to impacts. The rankings and typical management recommendations are summarized in Table 1.

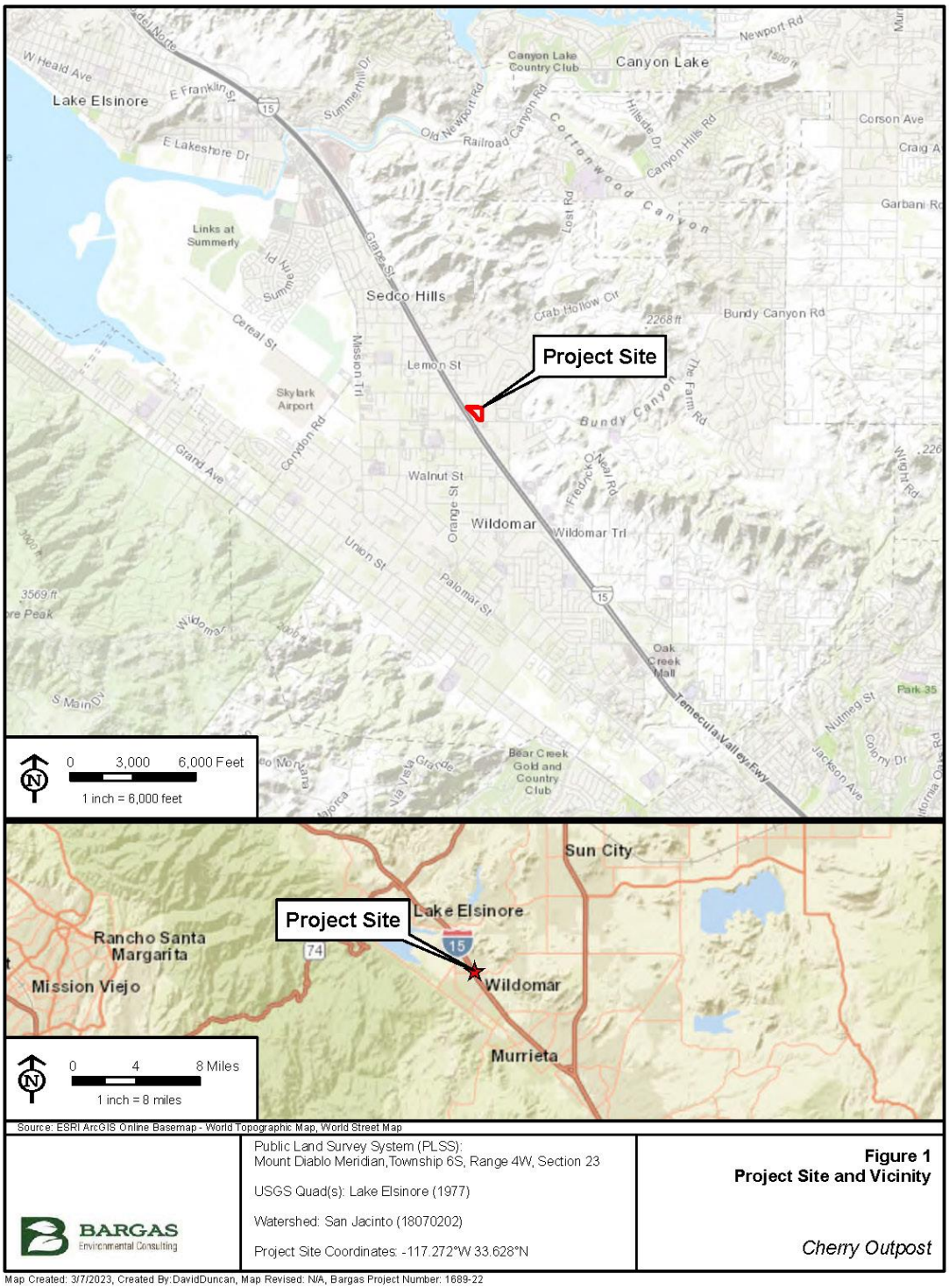

Figure 1. Project Vicinity Map



Figure 2. Project Location Map

Table 1. PFYC Summary

PFYC Ranking	Description	Typical Management Recommendations
Class 1 – Very Low Potential	Geologic Units that are not likely to contain recognizable paleontological resources. Geologic units typically have one or more of the following characteristics: • Geologic units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units • Geologic units are Precambrian in age	Management concerns are usually negligible or not applicable and paleontological mitigation is unlikely to be necessary except in very rare or isolated circumstances.
Class 2 – Low Potential	Geologic units are not likely to contain paleontological resources. Geologic units typically have one or more of the following characteristics: • Field surveys have verified that significant paleontological resources are not present or are very rare • Units are generally younger than 10,000 years before present • Recent aeolian deposits • Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely	Management concerns are generally low except where paleontological resources are known or found to exist, and paleontological mitigation is usually unnecessary except in occasional or isolated circumstance. Localities containing important paleontological resources may exist but are occasional and should be managed on a case-by-case basis.
Class 3 – Moderate Potential	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Geologic units have some of the following characteristics: • Marine in origin with sporadic known occurrences of paleontological resources • Paleontological resources may occur intermittently, but abundance is known to be low • Geologic unit may contain significance paleontological resources, but these occurrences are widely scattered • The potential for an authorized land use to impact a significant paleontological resource is known to be low-to-moderate	Management concerns are moderate because the existence of significant paleontological resources is known to be low. Paleontological mitigation strategies are proposed based on the nature of the proposed activity, and may include record searches, pre-construction surveys, monitoring, mitigation, or avoidance. Areas with common invertebrate or plant fossils may present opportunities for casual collecting by the public.
Class 4 – High Potential	Geologic units that are known to contain a high occurrence of paleontological resources. Geologic units typically have the following characteristics: • Significant paleontological resources have been documented, but may vary in occurrence and predictability • Surface-disturbing activities may adversely affect paleontological resources • Rare or uncommon fossils, including non-vertebrate (such as soft body preservation) or unusual plant fossils, may be present • Illegal collecting activities may impact some areas	Management concerns are moderate to high. Paleontological mitigation strategies are proposed based on the nature of the proposed activity, but often include a field assessment by a qualified paleontologist to assess local conditions, preparation of mitigation plans, and on-site monitoring or spot-checking. In some cases, avoidance of known paleontological resources may be necessary.

PFYC Ranking	Description	Typical Management Recommendations
Class 5 – Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Geologic units have some or all of the following characteristics: • Significant paleontological resources have been documented and occur consistently • Paleontological resources are highly susceptible to adverse impacts from surface-disturbing activities • The geologic unit is frequently the focus of illegal collecting activities	Management concerns are high to very high. Paleontological mitigation often includes pre-construction surveys and on-site monitoring. Avoidance or resource preservation may be necessary.
Class U – Unknown Potential	Geologic units that cannot receive an informed PFYC assignment. Characteristics of these geologic units may include: • Geologic units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is known • Geologic units represented on a map are based on lithologic character or basis or origin, but have not been studied in detail • Scientific literature does not exist or does not reveal the nature of paleontological resources • Reports of paleontological resources are anecdotal or have not been verified • Area or geologic unit is poorly or under-studied • The nature of the geologic unit has not yet been assessed	Management concerns are medium to high until a provisional assignment is made. Since these geologic units are often poorly studied, field surveys, record searches, literature searches, and consultation may be necessary. Once adequate information is available to make an informed PFYC determination, the ranking should be updated.
Class W – Water	Any surface area that is mapped as bodies of water	Bodies of water do not normally contain paleontological resources. However, uncovered or transported fossils may be present along shorelines; fossils may be exposed during low water intervals in reservoirs; and fossils may be present in karst area sinkholes and cenotes where animals may have become trapped and preserved. Project activities in those areas should be carefully considered for impacts to paleontological resources Activities that result in the disturbance of sediments, such as dredging, should also be assessed for the potential to encounter paleontological resources.
Class I – Ice	Any area that is mapped as ice or snow	Receding glaciers and melting snow fields should be considered for the potential to reveal recently exposed paleontological resources.

Source: Modified from BLM 2016

2.2 Paleontological Resources Definition and Significance Criteria

Fossils are generally defined here as the remains or trace remains (both physical and chemical) of prehistoric organisms (i.e., animals, plants, and microorganisms). These resources can be preserved as body fossils, such as bones, teeth, shells, and plant matter, or as trace fossils, such as burrows and footprints. Geologic deposits make up the context in which these fossil remains were originally buried and provide information about the environment in which an organism lived. In the broadest sense, a fossil can be defined as any remains documenting past life. Typically, to be considered within the scope of paleontology, fossils must be at least 10,000 years in age (i.e., dating from before the beginning of the modern Holocene Epoch). However, some Holocene-age remains are also considered of paleontological interest if they contribute to our understanding of the record of past life. Alteration or replacement (e.g., permineralization, petrification, or "fossilization") of the original organic material is not required for determination of whether an object is a fossil or not.

Fossils are important scientific and educational resources because they serve as direct and indirect evidence of prehistoric life and are used to understand the history of life on Earth, the nature of past environments and climates, the membership and structure of ancient ecosystems, and the pattern and process of organic evolution and extinction. Fossils are limited, nonrenewable resources, because they typically represent organisms that are now extinct or life in a context that no longer exists. Therefore, if destroyed, a particular fossil can never be replaced, and the information associated with it is forever lost. However, not all fossils are regarded as significant resources or offered protection under existing laws and regulations. CEQA, the National Environmental Policy Act (NEPA), and many other regulations do not define what constitutes unique or significant paleontological resources, instead leaving it to agencies to determine or adopt appropriate criteria. Many agencies have adopted the Society of Vertebrate Paleontology (SVP) standards, which define significant paleontological resources as:

> "... fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years)." (SVP 2010)

3 Regulatory Framework

3.1 State Regulations

3.1.1 California Environmental Quality Act

The purpose of CEQA is to 1) inform governmental decision makers and the public about the potential, significant environmental effects of proposed projects; 2) identify ways to avoid or reduce environmental damage; 3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when feasible; and 4) disclose to the public the reason why a governmental agency approved the project if significant environmental effects are involved (CEQA Guidelines, Article 1, Section 15002(a)). The CEQA Environmental Checklist Form includes one question regarding proposed project effects on paleontological resources:

> "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (CEQA Guidelines, Appendix G, Section VII, Part F)

The answer to this question must take account of the whole action involved, including on-site, off-site, direct, indirect, construction, operational, project-level, and cumulative impacts. If a project would result in significant adverse effects on paleontological resources, then alternative plans or mitigation measures must be considered. The level of consideration may vary with the importance of the paleontological resource.

3.1.2 California Public Resources Code

The California Public Resources Code (PRC) Section 5097.5 provides protection for paleontological resources located on public lands in California, which are defined as lands owned by, or under the jurisdiction of, the state, or any city, county district, authority, or public corporation, or any agency thereof. Under PRC Section 5097.5, it is a misdemeanor for a person to knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any vertebrate paleontological site, including fossilized footprints, or any other paleontological feature situated on public lands without the express permission of the public agency having jurisdiction of the lands.

3.2 Local Regulations

3.2.1 Riverside County

The Multipurpose Open Space Element of the Riverside County General Plan (2015) includes the following policies to ensure that paleontological resources are appropriately considered:

- **OS 19.6:** Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8 [of the Riverside County General Plan], a paleontological resource impact mitigation program (PRIMP) shall be filed with the Riverside County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.
- **OS 19.7:** Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8 [of the Riverside County General Plan], no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the Riverside County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.
- **OS 19.8:** Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8 [of the Riverside County General Plan], a report shall be filed with the Riverside County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.
- **OS 19.9:** Whenever paleontological resources are found, the Riverside County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet.

3.2.2 City of Wildomar

The City of Wildomar has adopted the Riverside County General Plan and all elements related to policies related to paleontological resources are the same as listed under the Multipurpose Open and Space Element of the Riverside County General Plan (2015) (see Section 3.2.1).

4 Geological and Paleontological Setting

4.1 Regional Overview

The Project Site is located in the Peninsular Ranges Geomorphic Province which extends approximately 1,450 kilometers (km) (900 miles) from the Transverse Ranges in the north to the southern tip of the Baja Peninsula in Mexico and varies in width from 48 to 160 km (30 to 100 miles) (Norris and Webb 1990). The terrestrial (i.e., unsubmerged) portion of the Peninsular Ranges Province is characterized by a series of elongated northwest–southeast-trending mountains (Yerkes et al. 1965). These mountain ranges are composed dominantly of plutonic igneous rocks (often granites and granitoids) of Cretaceous age

(approximately 120 to 90 million years ago [Ma]) and older metamorphic rocks of Jurassic to earliest Cretaceous age (approximately 200 to 140 Ma) (Gastil 1975; Krummenacher et al. 1975; Walawender 2000). In the basins and valleys beneath these mountain ranges, these igneous and metamorphic basement rocks are often overlain by sedimentary deposits of late Mesozoic to Cenozoic age (approximately 90 Ma to 10 thousand years ago [ka]) (Tweet et al. 2014).

4.2 Geologic Map and Paleontological Literature Review

The entirety of the Project Site is mapped as late Pleistocene- to Holocene-age young alluvial fan deposits (Qyf_1) (Morton and Miller 2006) which consist of slightly to moderately consolidated and moderately dissected silt, fine- to coarse-grained sand, and boulders (Figure 3). In the vicinity of the Project Site, the alluvial fan deposits are primarily composed of gravel, sand, and silt (Morton and Weber 2003).

Holocene-age deposits typically do not contain fossils at or near the surface due to their relatively young age. Reworked or transported fossils may be present; however, these types of fossils are out of context and are generally not considered to be significant. Therefore, Holocene-age young alluvial fan deposits are assigned a low paleontological potential (PFYC 2) using BLM guidelines (2016) (Table 1; Figure 3).

Fossils from Pleistocene-age alluvial fan deposits in Riverside County have been reported from depths as shallow as 5 feet below the surface (Springer et al. 2009), and include mammoth (*Mammuthus* sp., *Mammuthus columbi*, *Mammuthus meridionalis*?), mastodon (*Mammut pacificus*), ground sloth (*Paramylodon harlani*), bison (*Bison antiquus*, *Bison* sp.), deer (*Odocoileus* sp.), horse (*Equus* sp., cf. *E. occidentalis*), camel (cf. *Camelops* sp.), saber-tooth cat (*Smilodon* sp.), rabbit, hare, or pika (Lagomorpha), rodents (*Neotoma* sp., *Microtus californicus*, *Microtus* sp., *Dipodomys* sp., *Thomomys bottae*, Microtinae, Cricetidae, Sciuridae), lizards (Sauria), turtles (*Clemmys* sp.), gopher tortoise (*Gopherus* sp.), snakes (Colubridae, *Crotalus* sp.), frogs (Anura), birds (Aves), bony fish (Osteichthyes), invertebrates, and plants (UCMP 2023; PBDB 2023; Jefferson 1991a,b).

Sections of the young alluvial fan deposits (Qyf_1) that are late Pleistocene in age are assigned a moderate paleontological potential (PFYC 3) using BLM guidelines (2016) due to the intermittent occurrence of significant paleontological resources (Table 1; Figure 3).

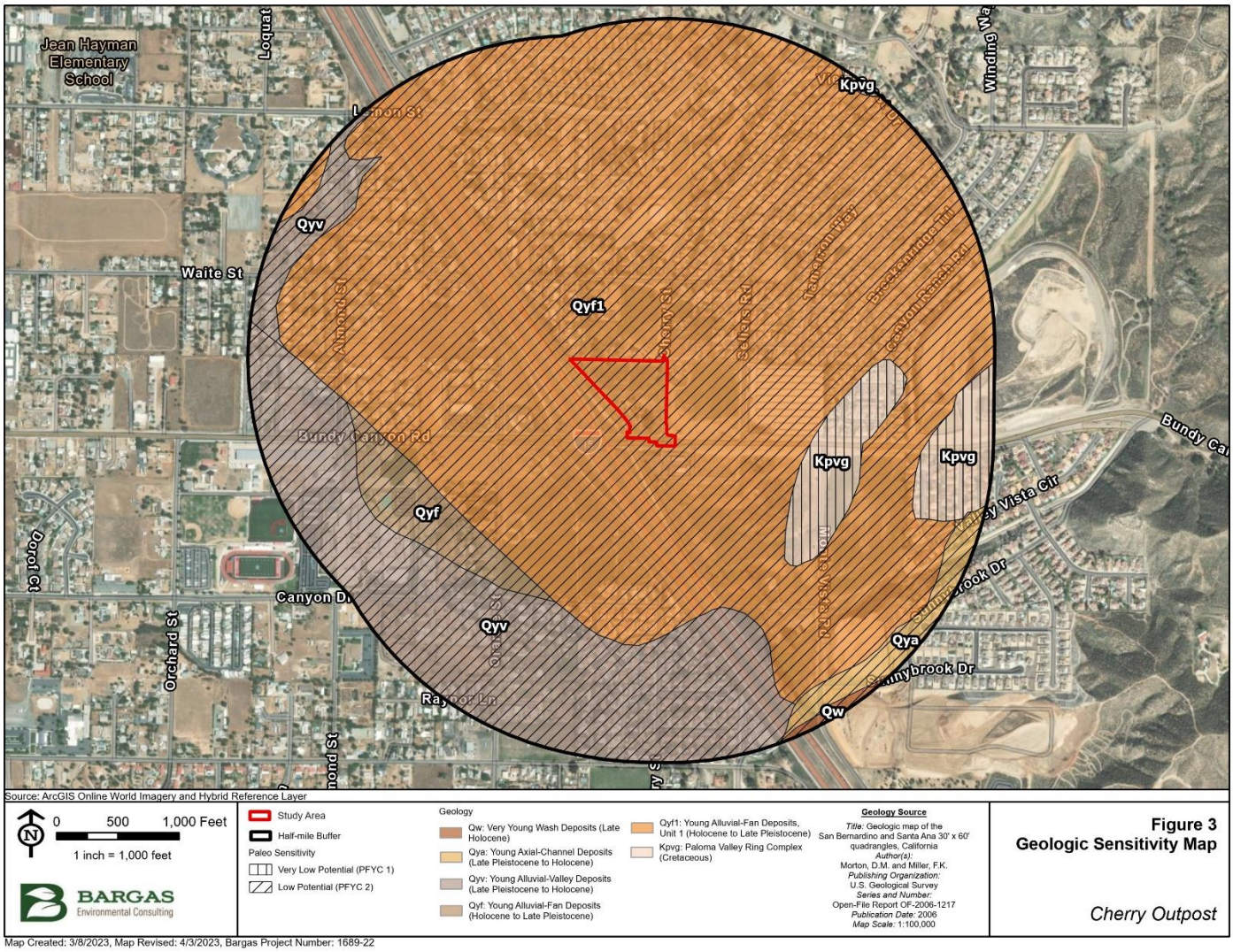

Figure 3. Project Geology and Paleontological Sensitivity Map

5 Records Search Results

On March 15, 2023, Bargas requested a records search of the Project Site and a 1-mile radius from the WSC to identify any known paleontological resources within the Project boundaries or from the same geologic unit within the Project vicinity. The records search was completed on May 2, 2023 (WSC 2023; Appendix A). The records search results indicate that the WSC does not have any record of paleontological localities within the Project Site or a 1-mile buffer. However, numerous fossil localities were noted from similarly mapped units across Southern California, including multiple vertebrate specimens (e.g., camel [*Camelops* sp.], bison [*Bison* sp.], and Columbian mammoth [*Mammuthus columbi*]) that were recovered from an area mapped at the surface as late Holocene-age deposits during excavations for the Summerly Project, located approximately 2 miles northwest of the Project Site boundaries (WSC 2023; Appendix A).

6 Paleontological Impact Analysis

Impacts under CEQA are classified as direct, indirect, or cumulative. Direct impacts are the primary effects of a project. For paleontological resources, direct impacts are typically the result of ground-disturbing construction or maintenance activities that damage or destroy paleontological resources at the surface or in the subsurface. Indirect impacts are the secondary effects of a project, including project-induced changes such as increased public access to paleontologically sensitive areas and increased susceptibility of fossil-bearing geologic units to erosion due to activities like vegetation removal, which may result in adverse impacts to paleontological resources from illegal collection and damage from weathering, respectively. Cumulative impacts are the incremental effects of a project in combination with the effects of past, current, and probable future projects.

No fossils were documented from within the Project Site boundaries, but fossil localities were recovered approximately 2 miles northwest of the Project Site boundaries during excavations for the Summerly Project (WSC 2023; Appendix A). The Holocene-age deposits present at the surface of the Project Site are typically considered to have a low potential (PFYC 2) for significant paleontological resources at and near the surface due to the relatively young age of the deposits; however, planned Project excavations for are anticipated to reach depths of approximately 10 to 13 feet and have the potential to result in direct impacts to paleontological resources if the moderate paleontological potential (PFYC 3) late Pleistocene sections of the young alluvial fan deposits (Qyf_1) are encountered in the subsurface. Implementation of the Project would not increase public access or erosion; therefore, no indirect impacts to significant paleontological resources are anticipated. With implementation of the paleontological resource monitoring and treatment recommendations described in Section 7, direct impacts on paleontological resources would be reduced to less than significant levels, and the Project's potential to contribute to cumulative impacts would be negligible.

7 Summary and Recommendations

Bargas completed a desktop-level paleontological study that included reviews of geologic maps and scientific literature, searches of the online UCMP locality database and PBDB, and a records search at the WSC to identify any known paleontological resources within the Project boundaries or from the same geologic unit within a 1-mile buffer. Paleontological potential rankings were assigned using the federal PFYC system.

Based on the results of the literature and database reviews, in addition to the WSC records search, there are no known paleontological resources within the Project Site boundaries. However, fossils have been reported from Pleistocene-age alluvial fan deposits elsewhere in Riverside County from depths as shallow as 5 feet below the surface, and the WSC reported that numerous vertebrate fossils were recovered from an area mapped at the surface as late Holocene-age deposits during excavations for the Summerly Project, approximately 2 miles northwest of the Project Site boundaries (WSC 2023; Appendix A). The Holocene-age deposits present at the surface of the Project Site are typically considered to have a low potential (PFYC 2) for significant paleontological resources at and near the surface due to the relatively young age of the deposits; however,

planned Project excavations for are anticipated to reach depths of approximately 10 to 13 feet and have the potential to encounter the moderate paleontological potential (PFYC 3) late Pleistocene sections of the young alluvial fan deposits (Qyf_1) in the subsurface.

Paleontological monitoring is recommended for all anticipated excavations that extend beyond depths of 5 feet, namely those anticipated to reach depths of 10 feet, with potential for over excavations to depths of 12 to 13 feet. In the event of an unanticipated paleontological resource discovery, work within 50 feet of the resource shall stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery is identified as potentially significant, additional work, such as recovery, laboratory preparation, fossil identification, curation, and reporting, may be necessary. Recovered paleontological resources should be deposited in an appropriate fossil repository to be determined by the lead agency in consultation with the qualified paleontologist.

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9 Project Personnel

Courtney Richards, Principal Paleontologist
M.S., Biological Sciences (paleontology focus), Marshall University (2011)
B.S., Earth and Space Sciences, University of Washington (2006)
Years of Experience: 18

Dr. Joshua Corrie, Paleontologist
Ph.D., Geology, University of Otago (2019)
M.S., Biological Sciences, Marshall University (2013)
B.S., Earth and Environmental Sciences, University of Illinois Chicago (2010)
Years of Experience: 13

Appendix A. Western Science Center Records Search Results

WESTERN SCIENCE CENTER

May 2nd, 2023

Bargas Environmental Consulting
Joshua Corrie
680 East Colorado Blvd, 2nd Floor & Ste. 180
Pasadena, CA 91101

Dear Mr. Corrie,

This letter presents the results of a record search conducted for the Cherry Outpost Project located in Riverside County, CA. The project area is located north of Bundy Canyon Road and along the eastern edge of Interstate 15 on Township 6 South, Range 4 West, Section 23 on the *Elsinore, CA* USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped as alluvial fan deposits of gravel, sand, and silt dating from the Holocene and late Pleistocene epochs (Morton and Weber 2003). Pleistocene alluvial units are considered to be of high preservation value and are likely to contain fossils. The Western Science Center does not have localities within the project area or within a 1 mile radius, but does have localities from similarly mapped units across Southern California. The Summerly Project lies approximately two miles northwest of the Cherry Outpost Project in what is listed by Morton and Weber as late Holocene deposits; this Project resulted in numerous vertebrate fossils specimens, including *Camelops sp., Bison sp.,* and *Mammuthus columbi*.

Any fossils recovered from the Cherry Outpost Project would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive Pleistocene Pliocene units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information about the Summerly Project, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,



Brittney Elizabeth Stoneburg, MSc
Collections Manager

Appendix 7

Phase I Environmental Site Assessment

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

Vacant Land
22220 Bundy Canyon Road
Wildomar, California

PROJECT #E23-003P

PREPARED FOR:
CHERRY OUTPOST, LP C/O
MR. HAGOP KOFDARALI
J & T MANAGEMENT
139 RADIO ROAD
P.O. BOX 1958
CORONA, CA 92878

FEBRUARY 9, 2023



HERRON ENVIRONMENTAL
1 TECHNOLOGY, #J701
IRVINE, CA 92618
(949) 733-0070

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Vacant Land at
22220 Bundy Canyon Road
Wildomar, California 92595

1.0 EXECUTIVE SUMMARY

A Phase I Environmental Site Assessment (Assessment) was conducted of the property (vacant land) at 22220 Bundy Canyon Road, Wildomar, California 92595 (Subject Property), by Herron Environmental (Herron) at the request of the client, Mr. Hagop Kofdarali, J&T Management, 139 Radio Road, P.O. Box 1958, Corona, California 92878 (Client). This assessment was conducted in general accordance with the scope and limitations of ASTM Standard Practice E-1527-13.

The Subject Property is located at the northwest corner of the intersection of Bundy Canyon Road and Cherry Street in the City of Wildomar, California. Wildomar is a small mostly residential community in southwest Riverside County. Bundy Canyon Road has an east-west orientation and is a surface street with curbs, sidewalks and lighting in a residential and commercial district.

The Subject Property consists of one parcel (APN #3662-900-08) that is currently a vacant lot covered with trees, shrubs, dirt and grass. The size of the lot is approximately 6.04 acres. There was no evidence of hazardous waste dumping at the site. No indications of the on-site use, handling, generation or disposal of hazardous materials was observed at the Subject Property. No evidence of current or former on-site AST/UST, sumps, or other hazardous materials use, handling, storage, generation or disposal was observed at the Subject Property.

The adjoining sites in all directions are occupied by residential and commercial development and undeveloped land. The surrounding sites in all directions are occupied by residential development.

Storm water in the site vicinity is discharged from roof drains to concrete curbs and gutters along surface streets into the city's storm drain system then untreated into the Santa Margarita River.

During the course of this investigation, an attempt has been made to identify Findings, referred to in ASTM E1527-13, Section 12.5 as known or suspect Recognized Environmental Conditions, Historical Recognized Environmental Conditions, Controlled Recognized Environmental Conditions or *de minimis* conditions.

The following Findings were identified:

The Subject Property was not listed in any of the databases searched by Environmental Data Resources (EDR).

Pesticides and herbicides were likely used and stored at the Subject Property when used for agricultural purposes and persistent residues may exist in on-site soil as a result of normal application of such chemicals. The agricultural activity appears to have taken place as early as 1949 through 1988. This would correspond with a period when organo chloride pesticides such as dichlorodiphenyltrichloroethane (DDT), dieldrin, Toxaphene and metal-based pesticides such as arsenic were in wide general use for pest control. These classes of pesticides are known to have the potential to remain in detectable concentrations in the subsurface for extended periods of time. No reports of releases (accidental or intentional) of chemicals were discovered during the course of this Phase I investigation. Due to a lack of any reported releases, the likelihood of discovering actionable levels of pesticides or herbicides is considered to be low; however, in order to verify that there are no pesticides and herbicides remaining at the site, soil sampling and analysis would have to be conducted.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of the property ((vacant land) at 22220 Bundy Canyon Road,

Wildomar, California 92595. Any exceptions to, or deletions from, this practice are described in Section 2.3 of this report. **This assessment has revealed no evidence of Recognized Environmental Conditions in connection with the Subject Property.**

2.0 INTRODUCTION

2.1 PURPOSE

The purpose of conducting this Phase I Environmental Site Assessment is to identify Recognized Environmental Conditions, defined in ASTM Standard Practice E 1527-13 as *"the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment,"* in order to permit the user of this report to satisfy one of the requirements to quality for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations to CERCLA (Superfund Law) liability, that is, the practice that constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined at 42 U.S.C.

2.2 SPECIAL TERMS AND CONDITIONS

The Client requested no special terms or conditions.

2.3 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

This Assessment can reduce, but not wholly eliminate, uncertainty regarding the potential for Recognized Environmental Conditions in connection with the Subject Property. A Phase I Site Assessment can determine that a site is not listed in public records as being contaminated. However, it cannot be determined without direct soil and groundwater sampling that the subsurface of the site has not been contaminated by chemical spills or mismanagement practices on adjoining properties.

This investigation has attempted to identify uses of the Subject Property back to 1940 or the first obvious developed use; whichever was earliest, using the various historical sources described below. In the case of this investigation, this goal to identify historical uses was reached. The oldest available historical sources, historical topographic maps, were viewed as far back as 1901 when the Subject Property was undeveloped land.

2.4 LIMITING CONDITIONS AND METHODOLOGY USED

This Phase I Site Assessment is based on an empirical method used by the authors, experienced in investigating historic land use in accordance with generally accepted practices in geotechnical engineering, environmental and engineering geology and hydrogeology. Information obtained from the public records is assumed to be accurate, but no warranty thereof can be made by Herron; information regarding visits to the Subject Property and the vicinity thereof is correct as of February 6, 2023. The assessment process did not include any testing or sampling of materials (e.g., soil, water, air or building materials). This report is for the express use of the client named above, and the United States Small Business Administration, if applicable, as it applies to this investigation, conducted for that certain commercial property referred to herein as the Subject Property. No other warranty, either expressed or implied, is made.

2.5 DATA GAPS

ASTM E1527-13 defines data gap as "a lack or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information." Where a data gap exists, we will use other information discovered during our investigation and our professional experience to resolve such gaps. The lack of response with information from the agencies listed in Section 4.0, Records

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Review, constitutes a data gap; however, this gap is not significant since other information obtained during the investigation has not affected the ability of the author to identify recognized environmental conditions.

2.6 OUT OF SCOPE ISSUES

There is a high potential that asbestos-containing materials (ACMs) are present in buildings constructed prior to 1980. In 1979 a ban on ACMs in building materials was imposed; however, it is still possible to detect ACMs in buildings built after 1980. Based on the records reviewed, indicating the Subject Property is currently vacant land, ACMs are likely not present at the Subject Property.

Lead-based paint for residential and commercial use was banned by the federal government in 1978, making the presence of lead-based paint in residential buildings constructed before that date possible. Based on the records reviewed, indicating the Subject Property is currently vacant land, lead is likely not present at the Subject Property.

Radon levels for this area were evaluated based on information provided in the EDR database obtained from USEPA records. Federal EPA Radon Zone for Riverside County, CA, is Zone 2. Zone 2 is defined as an area that has a moderate potential for radon gas, with a predicted average indoor radon screening level between 2.0 picoCuries per liter (pCi/L) and 4.0 pCi/L. The EPA recommended Action Level for radon is 4.0 pCi/L.

Radius maps prepared by EDR were reviewed to determine if any wetlands areas were present on the Properties. According to information in the EDR database, there does not appear to be a wetlands area listed on the National Wetland Inventory located within 1-mile of the Subject Property.

3.0 SITE DESCRIPTION

3.1 LOCATION

The Subject Property is located at the northwest corner of the intersection of Bundy Canyon Road and Cherry Street in the City of Wildomar, California. Bundy Canyon Road has an east-west orientation and is a surface street with curbs, sidewalks and lighting in a residential and commercial district.

3.2 SITE VICINITY AND CHARACTERISTICS

3.2.1 Physiography/Geology: EDR reports the Rock Stratigraphic Unit in the Subject Property vicinity to be of the Mesozoic Era, Cretaceous System and Cretaceous Granitic Rocks Series, Code Kg and the Geologic Age Identification Category to be Plutonic and Intrusive Rocks.

The dominant soil component at the Subject Property is described as the RAMONA component. The soil surface texture is Sandy Loam. The Hydrologic Group is Class B – Moderate Infiltration Rates, deep and moderately deep, moderately well and well drained soils with moderately coarse textures. The Soil Drainage Class is Well Drained. The Hydric Status is Not Hydric. The corrosion potential for uncoated steel is Moderate.

3.2.2 Hydrogeology: Although groundwater at a regional level will tend to flow in the direction of the slope of the regional topography, which appears to be in a **southwesterly** direction in the subject Property area, there are many surface and subsurface characteristics that will affect the direction of groundwater flow before it reaches the water table. For example, it should be noted that the depth and gradient of the water table can change seasonally in response to variation in precipitation and recharge; and over time, in response to urban development such as storm water controls, impervious surfaces, pumping wells, clean up activity and seawater intrusion barrier projects near the coast. **The depth to groundwater for the Subject Property is 40-43 feet bgs**.

3.3 DESCRIPTIONS OF ROADS, STRUCTURES, IMPROVEMENTS

3.3.1 Roads: The Subject Property is located at the northwest corner of the intersection of Bundy Canyon Road and Cherry Street in the City of Wildomar, California. Bundy Canyon Road has an east-west orientation and is a surface street with curbs, sidewalks and lighting in a residential and commercial district.

3.3.2 Structures and Improvements: The Subject Property consists of one parcel (APN #3662-900-08) that is currently a vacant lot that is covered with trees, shrubs, dirt and grass. The size of the lot is approximately 6.04 acres.

3.3.3 Potable Water Source and Sewage Disposal: The Subject Property is currently vacant land, but was previously developed with structures (1970s), therefore, water or sewage service was most likely previously established at the Subject Property.

3.3.4 Heating and Air Conditioning: HVAC systems were not observed during the site reconnaissance. Evidence of heating oil tanks was not found in the records sources reviewed, nor observed during the site reconnaissance.

3.4 CLIENT/OWNER/OCCUPANT-FURNISHED INFORMATION

A *Phase I Environmental Site Assessment Client/Owner/Occupant-Furnished Information Checklist*, which is attached as Appendix C, was provided by Herron to Ms. Ofelia Ahumada on February 2, 2023. Mr. Joseph Foley, Owner of the Subject Property completed the checklist on February 6, 2023.

TABLE 1

CLIENT/OWNER/OCCUPANT-FURNISHED INFORMATION			
	Description	Yes	No
1.	Environmental Site Assessment Reports		X
2.	Environmental Audit Reports		X
3.	Environmental Permits (i.e. solid waste permits, hazardous waste disposal permits, wastewater permits, NPDES permits)	X	
4.	Registration for Underground and Aboveground Storage Tanks		X
5.	Material Safety Data Sheets (MSDS)		X
6.	Community Right-To-Know Plan		X
7.	Safety Plans; Preparedness and Prevention Plans; Spill Prevention, Counter Measure, and Control Plans; Etc.		X
8.	Reports Regarding Hydrogeologic Conditions on the Property or Surrounding Areas.		X
9.	Notices or Other Correspondence from Any Government Agency Relating to Past or Existing Environmental Liens Encumbering the Property.		X
10.	Hazardous Waste Generator Notices or Reports.		X
11.	Geotechnical Studies.		X
12.	Information Concerning Any Pending, Threatened, or Past Litigation or Administrative Proceedings Relevant to Hazardous Substances or Petroleum Products.		X
13.	Notices from Governmental Entity Regarding Any Possible Violation of Environmental Laws or Possible Liability Relating to Hazardous Substances or Petroleum Products.		X
14.	Disclosure of Sumps, Pits, Drainage Systems Existence and Location		X
15.	Building Plans (Architectural, Utility, Structural)		X
16.	Description of Current Site Operations, Including Layout Drawings and/or Sketches		X
17.	Title Report/Chain of Title		X
18.	Preliminary Title Report/Appraisal Report		X
19.	Tax Assessor Records (Previous Owner and Occupants)		X
20.	Purchase Price Analysis (If Lower Than Comparables)		X
21.	Current and Historical Photographs of the Site		

3.5 CURRENT USES OF THE PROPERTY

The Subject Property consists of one parcel (APN #3662-900-08) that is currently a vacant lot covered with trees, shrubs, dirt and grass. The size of the lot is approximately 6.04 acres.

3.6 PAST USES OF THE PROPERTY

- The Subject Property has been undeveloped land from 1901 through 1949.
- The Subject Property was agricultural land from 1949 through 1978.
- The Subject Property was developed with two commercial buildings in 1978.
- The Subject Property was developed with structures from 1978 through 2012.
- The Subject Property has been vacant land from 2012 through the present.

3.7 CURRENT AND PAST USES OF ADJOINING AND SURROUNDING PROPERTIES

TABLE 2

CURRENT and PAST USES				
Direction	**Adjoining Properties Current**	**Adjoining Properties Past**	**Surrounding Properties Current**	**Surrounding Properties Past**
North	Cell Tower 33805 Bundy Canyon Road Residential Development	Commercial Development	Residential Development	Agricultural Land
South	Bundy Canyon Road] Shell Gas Station 22181 Bundy Canyon Road Vacant Land I-15 Freeway	Commercial Development	Residential Development	Agricultural Land
East	Roadway (Under Construction) Vacant Land Residential Development	Agricultural Land	Residential Development	Agricultural Land
West	I-15 Freeway Onramp I-15 Freeway	Agricultural Land	Residential Development	Agricultural Land

4.0 RECORDS REVIEW

Certain environmental record sources were reviewed, utilizing the appropriate search distance, to include properties surrounding the Property. The results of this review are shown below.

Herron requested information from the following agencies pertaining to any records of permits, construction date, list of tenants, site layout plan, record of violations or complaints, record of any Activity Use Limitations (AULs), zoning, zoning violations, Above Ground Storage Tanks, Underground Storage Tanks, Reported Incidents of Fires, Hazardous Materials, Spills, Leaks or other similar circumstances that could be helpful in identifying recognized environmental conditions (RECs) at the Subject Property:

- City of Wildomar Building Department
- City of Wildomar Planning Department
- City of Wildomar Fire Department
- County of Riverside Department of Environmental Health

As of the writing of this report, Herron has not received a response from the City of Wildomar Planning and Fire Departments. This is considered a data gap, however, based on the information that was obtained from other sources, the lack of documentation is not deemed significant and did not affect the ability to identify RECs associated with the Subject Property.

4.1 STANDARD ENVIRONMENTAL RECORD SOURCES - FEDERAL AND STATE AGENCIES

The following records were obtained from databases made available by the Federal and State agencies indicated, through EDR on January 31, 2023. See Appendix A for an Overview Map, Map Findings Summary and a detailed report of the records listed below.

Summary: Some of the sites may be listed because they handle, store, transport or deal with various hazardous substances, or have a UST or AST on their property. This does not necessarily constitute an environmental threat to the Subject Property. Following are comments on sites, which because of their proximity, nature of contaminant, hydrogeology or other environmental consideration, merit discussion.

4.1.1 Environmental Database Records Search: Subject Property. Federal and State Agency Records were searched for the Subject Property. Below are the findings of that search.

The Subject Property was not listed in any of the databases searched by Environmental Data Resources (EDR).

4.1.2 Environmental Database Records Search: Federal Agency Records. Federal Agency Records were searched per the search radius criteria per ASTM Practice E1527-13 Guidelines. Below are the findings of that search.

TABLE 3

ENVIRONMENTAL DATABASE RECORDS SEARCH – FEDERAL AGENCIES		
Database	**Search Radius (Miles)**	**Properties in Search Distance**
National Priorities List (NPL)	1.0	0
De-listed NPL	0.5	0
CERCLIS	0.5	0
CERCLIS-NFRAP	0.5	0
RCRA-CORRACTS (Corrective Action)	1.0	0
RCRA-TSDF (Treatment/Storage/Disposal Facility)	0.5	0
RCRA-Generator	Subject Property and Adjacent Properties	2
ERNS	Subject Property	0
Federal IC/EC Registries	Subject Property	0
Other Federal List	Subject Property	0

Below are explanations of each listing and why the information was researched. If a listing is found, we provide a brief summary of the research and the potential impact to the Subject Property.

RCRA GENERATOR: Resource Conservation and Recovery Act (RCRA) Generators: The list includes small- and large-quantity operators and handler violations. Conditionally exempt small quantity generators (CESQGs) generate less than 100kg of hazardous waste or less than kg of acutely hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kg of hazardous waste or over 1 kg of acutely hazardous waste per month. Transporters are individual or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat or dispose of the waste. TSDFs treat, store or dispose of the waste.

RCRA-NonGen: Resource Conservation and Recovery Act Non-Generators: This database includes historic generators of hazardous waste that do not presently generate hazardous wastes.

- An adjacent site (as Speedway #4511) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the RCRA NonGen/NLR database with no violations found. Not a generator – Verified.

- An adjacent site (as Tesoro 68936) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the RCRA NonGen/NLR database with no violations found. Not a generator – Verified.

The site listed above does not pose an environmental risk to the subject Property based on one or more of the following: 1) horizontal distance from the subject Property; 2) down/cross-gradient location with respect to the assumed shallow groundwater flow direction; 3) the nature of the reported release (e.g., contamination confined only within soil media, absence of groundwater impact, lack of transporting media such as groundwater); and/or 4) regulatory status (e.g., case closed, remediation action underway).

4.1.3 Environmental Database Records Search: State Agency Records. State Agency Records were searched per the search radius criteria per ASTM Practice E1527-13 Guidelines. Below are the findings of that search.

TABLE 4

ENVIRONMENTAL DATABASE RECORDS SEARCH – STATE AGENCIES		
Database	**Search Radius (Miles)**	**Properties in Search Distance**
State/Tribal Equivalent NPL	1.0	0
State/Tribal Equivalent CERCLIS	0.5	1
State/Tribal SWLF	0.5	0
State/Tribal UST	0.25	1
State/Tribal LUST	0.5	1
State/Tribal IC/EC Registries	Subject Property Only	0
State/Tribal Voluntary Cleanup Sites	0.5	0
State/Tribal Brownfield Sites	0.5.	0
Other State List	Subject Property	0
CERS HAZ WASTE	Adjacent Properties	1
CERS TANKS	Adjacent Properties	1
CERS		1
HAZNET	Adjacent Properties	1
HWTS	Adjacent Properties	1

Below are explanations of each listing and why the information was researched. If a listing is found, we provide a brief summary of the research and the potential impact to the Subject Property.

State/Tribal Equivalent to CERCLIS:

ENVIROSTOR: The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types:

- Federal Superfund Site (National Priorities List (NPL)
- State Response (RESPONSE) – including Military Facilities and State Superfund
- Voluntary Cleanup
- School Sites

ENVIROSTOR provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

- A nearby site (as Elsinore High School Expansion) at Bundy Canyon Road, located approximately 0.56 mile west of the Subject Property is listed on the database. The site is listed as a school investigation site. Prior use of the site was agricultural row crops with COCs listed as arsenic. A Phase I ESA was completed on 08/12/2000. Status: No Further Action – 06/04/2001.

UST: Underground Storage Tank: Database contains registered UST that are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) with the data being provided from the State Water Resources Control Board's Hazardous Substance Storage Container Database. USTs have not necessarily released hazardous substances into the environment, nor do they necessarily pose environmental threat to surrounding properties.

- An adjacent site (as Tesoro (Shell/Circle K)) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the database. Permitting Agency: Riverside County Department of Environmental Health.

LUST: Leaking Underground Storage Tanks: Leaking Underground Storage Tanks are considered to have significant potential of environmental impact for the purposes of this Phase I Environmental Site Assessment. These records contain an inventory of reported leaking underground storage tanks incidents. A site may be placed on a LUST list by reporting that the tank system(s) failed tank testing, that routine monitoring of tank's system(s) showed evidence of leakage, or that verification sampling during tank removal showed subsurface contamination.

- A nearby site (as BP West Coast Products) at 33986 Orange Street, located approximately 643 feet west-southwest of the Subject Property is listed on the database. During June of 2000, soil samples collected during piping upgrades indicated the presence of petroleum hydrocarbons. Maximum concentrations detected were: TPHG (160 ppm and 5500 ppm), Benzene (Not Detected), Toluene (9.1 ppm), Ethyl Benzene (48 ppm), Xylenes (390 ppm) and MTBE Concentration (140 ppb and 300 ppb). During February of 2003, a soil vapor extraction well was installed at the site. Soil samples collected during the installation of the vapor well were non detect for TPHG, BTEX and oxygenates. During May and June of 2021, three soil borings were performed and one monitoring well was installed. TPHG, BTEX, DIPE, TAME and TBA were not detected.

- A nearby site (as Arco 5644) at 33986 Orange Street, located approximately 643 feet west-southwest of the Subject Property is listed on the database as a duplicate of the previous LUST case.

CERS HAZ WASTE: California Environmental Reporting System Hazardous Waste: Unified Program Information required to be submitted and reported electronically to CERS include, but is not limited to facility data regarding hazardous material regulatory activities (such as, hazardous materials business plans, site maps, and chemical inventories), underground and aboveground storage tanks.

- An adjacent site (as Speedway No. 4511) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the database as a hazardous waste generator.

CERS TANKS: California Environmental Reporting System Tanks: Unified Program Information required to be submitted and reported electronically to CERS include, but is not limited to facility data regarding hazardous material regulatory activities (such as, hazardous materials business plans, site maps, and chemical inventories), underground and aboveground storage tanks.

- An adjacent site (as Speedway No. 4511) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the database for underground storage tanks.

CERS: California Environmental Reporting System: Unified Program Information required to be submitted and reported electronically to CERS include, but is not limited to facility data regarding hazardous material regulatory activities (such as, hazardous materials business plans, site maps, and chemical inventories), underground and aboveground storage tanks.

- An adjacent site (as Speedway No. 4511) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the database for the following violations: failure of operations/maintenance general on 06/26/14 (returned to compliance on 06/26/14), failure to operate the UST System to prevent spills on 02/03/15 (returned to compliance on 11/17/15) and failure to comply with UST regulations on 01/05/17 (returned to compliance on 01/05/17).

HAZNET: Hazardous Waste Information System: Facility and Manifest Data: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700k to one million annually, representing approximately 350k to 500k shipments.

Data are from the manifest submitted without correction, and therefore may contain some invalid values for data elements such as generator ID, TSD ID, waste category and disposal method.

- An adjacent site (as Speedway No. 4511) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the database in 2015 for 0.12 tons of organic solids which were sent to a landfill and 0.21 tons of aqueous solutions with organic residue which was sent for recovery.

HWTS: Hazardous Waste Tracking System: Is the Department of Toxic Substances Control's data repository for hazardous waste Identification (ID) numbers and manifest information. HWTS generates reports on hazardous waste shipments for generators, transporters and TSDFs.

- An adjacent site (as Speedway No. 4511) at 22181 Bundy Canyon Road, located approximately 462 feet southeast of the Subject Property is listed on the database with a create date of 09/15/15 and an inactive date of 06/14/21. Facility Status: Inactive.

The sites listed above do not pose an environmental risk to the subject Property based on one or more of the following: 1) horizontal distance from the subject Property; 2) down/cross-gradient location with respect to the assumed shallow groundwater flow direction; and/or 3) regulatory status (e.g., case closed, remediation action underway).

4.2 PHYSICAL SETTING SOURCES

4.2.1 USGS Topographical Maps: On the USGS Lake Elsinore, CA Quadrangle 7.5 Minute Topographic Map, the Subject Property is shown at an elevation of approximately 1,410 feet above mean sea level with a general topographic slope towards the southwest. The Subject Property is not located within a 100-year flood zone area. The Property is not located within a 500-year flood zone area. A topographic map of the immediate area of the Subject Property is included as Exhibit C.

4.3 HISTORICAL USE INFORMATION

Various historical sources were consulted in order to develop a history of the previous uses or occupancies of the Property and surrounding area in order to identify those uses or occupancies that are likely to have led to Recognized Environmental Conditions in connection with the Subject Property.

4.3.1 Historical Aerial Photographs: Historical aerial photographs were reviewed for the Subject Property and adjoining properties. Below are the findings of that review.

TABLE 5

HISTORICAL AERIAL PHOTOGRAPH REVIEW	
Date	**Observations**
1938	The Subject Property appears to be undeveloped land. The surrounding properties to the north and east appear to be agricultural land and the surrounding properties to the south and west appear to be undeveloped land.
1949	The Subject Property appears to be agricultural land. The surrounding properties to the north, east and west appear to be agricultural land and the surrounding property to the south appears to be undeveloped land.
1953 1961 1967	Conditions on the Subject Property appear to be similar to those depicted in the 1949 photograph in addition to a structure on the Subject Property. Conditions on the surrounding properties to the north, east and west appear to be similar to those depicted in the 1949 photograph and the surrounding property to the west appears to be a roadway followed by an structure.
1974	The Subject Property appears to be developed with a structure. The surrounding property to the north appears to be agricultural land with a structure, the surrounding property to the east appears to be agricultural land, the surrounding property to the south appears to be a roadway followed by commercial development and the surrounding property to the west appears to be a roadway followed by commercial development and agricultural land.
1978 1985	The Subject Property appears to be developed with commercial buildings. The surrounding property to the north appears to be developed with commercial buildings, conditions on the surrounding properties to the east and south appear to be similar to those depicted in the 1974 photograph and the surrounding property to the west appears to be a roadway followed by commercial development.
1989	Conditions on the Subject Property appears to be similar to those depicted in the 1985 photograph.

1990 **1994**	Conditions on the surrounding property to the north appear to be similar to those depicted in the 1985 photograph, the surrounding property to the east appears to be a roadway followed by agricultural land, the surrounding property to the south appears to be a roadway followed by vacant land and conditions on the surrounding property to the west appear to be similar to those depicted in the 1985 photograph.
2002 **2005** **2009**	The Subject Property appears to be developed with a structure. Conditions on the surrounding property to the north appear to be similar to those depicted in the 1994 photograph, the surrounding properties to the east, south and west appear to be roadways followed by commercial development.
2012	The Subject Property appears to be vacant land. Conditions on the surrounding properties to the north and west appear to be similar to those depicted in the 2009 photograph, and the surrounding properties to the east and south appear to be a roadways followed by vacant land.
2016 **2020**	Conditions on the Subject Property appear to be similar to those depicted in the 2012 photograph. Conditions on the surrounding properties to the north, south and west appear to be similar to those depicted in the 2002 photograph and the surrounding property to the east appears to be commercial development.

4.3.2 Historical Topographic Maps: Historical topographic maps were reviewed for the Subject Property and adjoining properties. Below are the findings of that review.

TABLE 6

HISTORICAL TOPOGRAPHIC MAP REVIEW	
Date	**Observations**
1901 **1953**	The Subject Property appears to be undeveloped land. The surrounding properties to the north, west and south appear to be undeveloped land with roads in each direction and the surrounding property to the east is undeveloped land.
1973	The Subject Property appears to be developed with two structures. The surrounding property to the north appears to be undeveloped land, the surrounding properties to the east and south appear to be roadways followed by structures and the surrounding property to the west appears to be a roadway followed by undeveloped land.
1978 **1982**	The Subject Property appears to be agricultural land. The surrounding property to the north appears to be agricultural land, the surrounding properties to the east and south appear to be roadways followed by agricultural land and the surrounding property to the south appears to be a roadway followed by undeveloped land.
1988 **1997**	Conditions on the Subject Property appear to be similar to those depicted on the 1982 map. The surrounding property to the north appears to be developed with a structure. The surrounding properties to the east and west appear to be roadways followed by structures and the surrounding property to the south appears to be roadway followed by vacant land.
2012 **2015** **2018**	The map is shaded gray to indicate urban development.

4.3.3 Historical City Directories: Historical city directories were reviewed for the Subject Property and surrounding properties. Below are the notable findings of that review.

TABLE 7

HISTORICAL CITY DIRECTORIES RECORDS REVIEW – 22220 Bundy Canyon Road	
Date	**Listings**
1976	No Listing
1980	Reina Rudolph
1985	No Listing
1990	Reina Cynthia
2000	Tina Markan
2005	Pepper Tree Garden Center
2010	Growers Choice, Pepper Tree Garden Center
2014	Occupant Unknown
2017	No Address Listed

4.3.4 Sanborn Fire Insurance Maps: Sanborn Fire Insurance Maps were requested from EDR. The Subject Property is in an unmapped area, and no records were found for the Subject Property.

4.3.5 State Water Resources Control Board: Herron reviewed the Agency's online database (GeoTracker) by checking for a listing for the subject Property. No records were found for the Subject Property.

4.3.6 State of California Environmental Protection Agency, Department of Toxic Substances Control: Herron reviewed the Agency's online database (Envirostor) by checking for a listing for the Subject Property. No records were found for the Subject Property.

4.3.7 Air Quality Management District: Herron reviewed the Agency's FINDS online database to review any records for the Subject Property. No records were found for the Subject Property.

4.3.8 City of Wildomar Building & Safety Department: Herron contacted the Agency to review available records for the Subject Property.

- A written response from the Agency was not received at the time this report was completed. Any significant information received from the Agency will be provided by Herron in an amendment letter or email to this report.
- Herron contacted the Agency via telephone on February 6, 2023. Herron spoke with Ms. Arlene Diaz, Development Services Technician. Ms. Diaz stated that the only records available for the Subject Property was a Demolition Permit issued in 2014. She stated that no other documents were available for the Subject Property.

4.3.9 City of Wildomar Planning Department: Herron contacted the Agency to review available records for the Subject Property. A response from the Agency was not received at the time this report was completed. Any significant information received from the Agency will be provided by Herron in an amendment letter or email to this report.

4.3.10 City of Wildomar Fire Department: Herron contacted the Agency to review available records for the Subject Property. A response from the Agency was not received at the time this report was completed. Any significant information received from the Agency will be provided by Herron in an amendment letter or email to this report.

4.3.11 County of Riverside Department of Environmental Health: Herron contacted the Agency to review available records for the subject Property. A response from the Agency was received on February 8, 2023 and stated, "Our office has completed the research regarding your Hazardous Materials Management records request. NO RECORDS WERE FOUND FOR THE FOLLOWING SITE ADDRESS: 22220 Bundy Canyon Road, Wildomar."

4.4 ADDITIONAL ENVIRONMENTAL RECORDS SOURCES

The following environmental record sources were consulted to enhance and supplement the Federal and State sources identified in 4.1 above:

4.4.1 State of California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR): Herron reviewed the Agency's online database to review historical oil and gas well locations in the site vicinity. There are no oil/gas wells located with 1-mile of the Subject Property.

4.4.2 Environmental Documents from the Property Owner: Mr. Joseph Foley, Owner of the Subject Property provided copies of the following documents to Herron:

- Asbestos Building Material Survey prepared by Ambient Environmental, Inc. dated December 2013
- Asbestos Containing Ceiling Material Removal Certificate of Completion prepared by WDR Contracting date February 1, 2014
- Environmental User Questionnaire dated February 6, 2023

4.4.3 Previous Phase I ESA Reports: A previous Phase I ESA was not provided to Herron.

5.0 SITE RECONNAISSANCE

Ron Russell conducted a site reconnaissance of the Subject Property on February 6, 2023. The Subject Property is currently vacant land. Accessible portions of the perimeter of the site were walked. The periphery of the Subject Property was visually and physically observed, as well as the periphery of all structures on adjoining properties. The Subject Property was observed from all adjoining public thoroughfares.

The Subject Property is located at the northwest corner of the intersection of Bundy Canyon Road and Cherry Street in the City of Wildomar, California. Wildomar is a small mostly residential community in southwest Riverside County. Bundy Canyon Road has an east-west orientation and is a surface street with curbs, sidewalks and lighting in a residential and commercial district.

The Subject Property consists of one parcel that is currently a vacant lot covered with trees, shrubs, dirt and grass.

The size of the lot is approximately 6.04 acres. Evidence of a previous building/structure was observed at the Subject Property. Herron observed demolition debris on the grounds of the Subject Property. Herron observed evidence of a leach field in the southwestern section of the Subject Property. A pole-mounted transformer was observed in the northern section of the Subject Property.

There were no signs of illegal or hazardous waste dumping at the Subject Property. No hazardous materials were observed being used or stored on the Subject Property. The Subject Property was observed to be in relatively good condition with no significant stains, containers or other evidence of spills of hazardous substances or petroleum product. No indications of the on-site use, handling, generation or disposal of hazardous materials was observed at the Subject Property. No evidence of current on-site AST/UST, sumps, hydraulic lifts or other hazardous materials use, handling, storage, generation or disposal was observed at the Subject Property.

The adjoining sites in all directions are occupied by residential and commercial development and undeveloped land. The surrounding sites in all directions are occupied by residential development.

Storm water in the site vicinity is discharged from roof drains to concrete curbs and gutters along surface streets into the city's storm drain system then untreated into the Santa Margarita River.

TABLE 8

SITE RECONNAISSANCE		
Condition	Observed	
	Yes	No
Hazardous materials or petroleum products on property		X
Storage Tanks		X
Unusual Odors		X
Wastewater or any discharge into a drain, ditch, culvert, or gully		X
Chemical storage containers (drums, pails, bags, boxes, or barrels)		X
Unidentified substance containers		X
Pole-or pad-mounted electrical transformers on or Adjoining to the Property	X	
Floor drains		X
Stained soil or pavement		X
Flowing, standing, or ponded liquids other than water		X
Stressed or dead vegetation (other than from lack of water)		X
Hills, mounds, fill piles, or unnatural depressions		X
Active, inactive, or abandoned water wells		X

Pollution control equipment		X
Indication of on-site septic systems or cesspools		X
Roads, tracks, railroad tracks, or spurs (on or Adjoining to the Property)		X
Water storage or disposal areas		X
Staining or spillage from standard cleaning chemicals (scrubbing powder, floor polish, window cleaner, furniture polish, etc.)		X
Hydraulic Lifts		X
Other areas of concern		X

The items checked in the table above have been addressed throughout this report.

6.0 INTERVIEWS

Interviews were conducted with the individuals referenced below. Unless otherwise stated, each interviewee was questioned as to his or her knowledge of the Property concerning the past and present use of the Property and adjoining properties for industrial or commercial use, or use as a gasoline station, commercial printing facility, dry cleaners, photo laboratory, junkyard, landfill, motor vehicle repair usage, and/or a waste treatment, storage, disposal, processing, or recycling facility. Interviewees were asked if they had knowledge of the dumping or storage, above or below ground, of fill dirt of unknown origin, batteries, pesticides, paints, 55-gallon drums, or storage tanks. Interviewees were also questioned concerning information regarding stained floor drains, odors, pits, ponds or lagoons in conjunction with wastewater, private wells (non-public drinking water supplies), transformers, capacitors or hydraulic equipment (PCBs), septic tanks and leach fields. The results of these interviews are shown below.

6.1 Owners

An Environmental User Questionnaire was provided to Ms. Ofelia Ahumada on February 2, 2023. The questionnaire was completed by Mr. Joseph Foley, Owner of the Subject Property on February 6, 2023. Mr. Foley stated in the questionnaire that he has owned the Subject Property for 11 years. Mr. Foley stated that the Subject Property was previously used for a commercial nursery and believes that it was a residence prior to the nursery. Mr. Foley stated that the Subject Property building(s) was demolished in 2014. Mr. Foley stated that the Subject Property was previously a residence, agricultural land and vacant land. Mr. Foley stated that there is believed to be a septic tank and leach field at the Subject Property, but they are no longer in use. Mr. Foley stated that he was previously advised by county personnel and an engineer that all of the environmental studies had been concluded and there were no particular problems. Mr. Foley answered “no” to all questions pertaining to environmental issues at the Subject Property.

6.2 Previous Owners

N/A

6.3 Site Manager

N/A

6.4 Occupants

N/A

6.5 Local Government Officials

See Sections 4.3.8, 4.3.9, 4.3.10 and 4.3.11

6.6 Others

N/A

7.0 Findings and Opinions

During the course of this investigation, an attempt has been made to identify Findings, referred to in ASTM E1527-13, Section 12.5 as known or suspect Recognized Environmental Conditions, Historical Recognized Environmental Conditions, Controlled Recognized Environmental Conditions or *de minimis* conditions.

The following Findings were identified:

The Subject Property was not listed in any of the databases searched by Environmental Data Resources (EDR).

Pesticides and herbicides were likely used and stored at the Subject Property when used for agricultural purposes and persistent residues may exist in on-site soil as a result of normal application of such chemicals. The agricultural activity appears to have taken place as early as 1949 through 1988. This would correspond with a period when organo chloride pesticides such as dichlorodiphenyltrichloroethane (DDT), dieldrin, Toxaphene and metal-based pesticides such as arsenic were in wide general use for pest control. These classes of pesticides are known to have the potential to remain in detectable concentrations in the subsurface for extended periods of time. No reports of releases (accidental or intentional) of chemicals were discovered during the course of this Phase I investigation. Due to a lack of any reported releases, the likelihood of discovering actionable levels of pesticides or herbicides is considered to be low; however, in order to verify that there are no pesticides and herbicides remaining at the site, soil sampling and analysis would have to be conducted.

There are no Recognized Environmental Conditions at the Subject Property, therefore, the risk of environmental impact at the Subject Property is low.

There are no recommendations for any further investigations.

9.0 Conclusions

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of the property (vacant land) at 22220 Bundy Canyon Road, Wildomar, California 92595. Any exceptions to, or deletions from, this practice are described in Section 2.3 of this report. **This assessment has revealed no evidence of Recognized Environmental Conditions in connection with the Subject Property.**

10.0 References

10.1 REFERENCES:

Environmental Data Resources, Inc. (EDR).

Envirostor, DTSC Cleanup Sites- *http://www.envirostor.dtsc.ca.gov/*.

GeoTracker, Leaking Underground Fuel Tank Reports/Maps-*http://geotracker.swrcb.ca.gov/*.

State of California, Department of Conservation, Division of Oil, Gas and Geothermal Resources - *http://maps.conservation.ca.gov*.

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10.2 ORGANIZATIONS AND PUBLIC AGENCIES

Air Quality Management District

State Water Resources Control Board

State of California, Department of Toxic Substances Control

State of California Division of Oil, Gas and Geothermal Resources

City of Wildomar Building Department

City of Wildomar Planning Department

City of Wildomar Fire Department

County of Riverside Department of Environmental Health

10.3 PERSONS CONSULTED

Mr. Joseph Foley, Owner

10.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

The individuals whose signatures are shown below are responsible for this Environmental Site Assessment and for the preparation of this Report. A Statement of Qualifications for said individuals has been provided herein.

February 9, 2023

Mary F. Osborne
Reviewer, Environmental Professional

Ron M. Russell
Environmental Professional

We hereby certify that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312; and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

11.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

RON M. RUSSELL

Mr. Ron Russell holds a Bachelor of Science Degree in Chemical Engineering from New York University, New York. Mr. Russell has conducted environmental site assessments and site remediation for over 25 years. Mr. Russell is a certified Environmental Manager with FEMA.

MARY F. OSBORNE

Ms. Mary Osborne holds a Bachelor of Science degree in Biological Oceanography from Florida Institute of Technology, Melbourne, Florida. Ms. Osborne has conducted environmental site assessments and provided RCRA, CERCLA, and EPCRA regulatory compliance assistance for over 30 years. Ms. Osborne is a Nevada Certified Environmental Manager and has previous work experience with the California Department of Toxic Substances Control.

13.0 APPENDICES AND EXHIBITS

Please refer to the following Appendices:

Appendix A:	Site Inspection Photos
Appendix B:	Environmental Record Source Materials
Appendix C:	Client/Owner/Occupant-Furnished Information Checklist

Please refer to the following Exhibits:

Exhibit A:	Site Map
Exhibit B:	County Assessor's Parcel Map
Exhibit C:	U.S.G.S. 7.5 Minute Topographical Map
Exhibit D:	Historical Fire Insurance Maps
Exhibit E:	Historical Aerial Photographs
Exhibit F:	Historical Topographic Maps
Exhibit G:	Historical City Directories

Please refer to the following Tables:

Table 1:	Client/Owner/Occupant-Furnished Information
Table 2:	Current and Past Uses
Table 3:	Environmental Database Records Search – Federal Agencies
Table 4:	Environmental Database Records Search – State Agencies
Table 5:	Historical Aerial Photograph Review
Table 6:	Historical Topographic Map Review
Table 7:	Historical City Directories Records Review
Table 8:	Site Reconnaissance

APPENDIX A

Site Inspection Photos



Photo 1: View of Subject Property facing North



Photo 2: View of Subject Property facing North



Photo 3: View of Subject Property facing West



Photo 4: View of Subject Property facing West



Photo 5: View of Subject Property facing West



Photo 6: View of demolition debris



Photo 7: View of electrical panel



Photo 8: View of concrete pad in the western section



Photo 9: View of leach field in the western section



Photo 10: View of row crops



Photo 11: View of pole-mounted transformer on the adjoining property to the North



Photo 12: View of site access road



Photo 13: View of perimeter road



Photo 14: View of adjoining property North



Photo 15: View of adjoining property South



Photo 16: View of adjoining property East

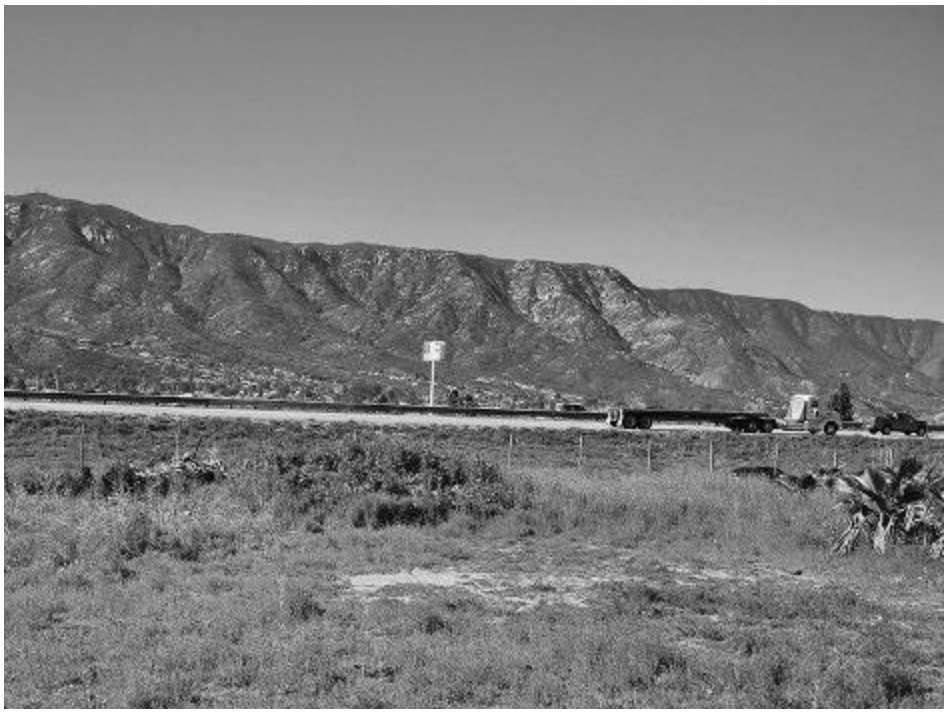

Photo 17: View of adjoining property West – I-15 Freeway



Photo 18: View of Bundy Canyon Road facing West

APPENDIX B

Environmental Record Source Materials

E23-001P
22220 Bundy Canyon Road
Wildomar, CA 92595

Inquiry Number: 7240065.2s
January 31, 2023

The EDR Radius Map™ Report with GeoCheck®

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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

22220 BUNDY CANYON ROAD
WILDOMAR, CA 92595

COORDINATES

Latitude (North):	33.6280290 - 33ˆ 37' 40.90''
Longitude (West):	117.2718780 - 117ˆ 16' 18.76''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	474783.2
UTM Y (Meters):	3720753.8
Elevation:	1410 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12015893 LAKE ELSINORE, CA
Version Date:	2018
Southwest Map:	12015931 WILDOMAR, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140527, 20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
22220 BUNDY CANYON ROAD
WILDOMAR, CA 92595

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	SPEEDWAY #4511	22181 BUNDY CANYON R	RCRA NonGen / NLR	Lower	462, 0.087, SE
A2	TESORO 68936	22181 BUNDY CANYON R	RCRA NonGen / NLR	Lower	462, 0.087, SE
A3	SPEEDWAY NO. 4511 (S	22181 BUNDY CANYON R	CERS HAZ WASTE, CERS TANKS, HAZNET, CERS, HWTS	Lower	462, 0.087, SE
A4	SPEEDWAY NO. 4511 (S	22181 BUNDY CANYON R	UST	Lower	462, 0.087, SE
B5	ARCO AM/PM #5644	33986 ORANGE ST	UST	Lower	643, 0.122, WSW
B6	NAZM GROUP INC	33986 ORANGE ST	RCRA NonGen / NLR	Lower	643, 0.122, WSW
B7	NAZM GROUP INC. DBA	33986 ORANGE ST	UST	Lower	643, 0.122, WSW
B8	NAZM GROUP INC. DBA	33986 ORANGE ST	CERS HAZ WASTE, CERS TANKS, HAZNET, CERS, HWTS	Lower	643, 0.122, WSW
B9	ARCO AM/PM	33986 ORANGE ST	UST	Lower	643, 0.122, WSW
B10	BP WEST COAST PRODUC	33986 ORANGE ST	LUST, RCRA NonGen / NLR, FINDS, ECHO, Cortese,...	Lower	643, 0.122, WSW
B11	ARCO #5644	33986 ORANGE ST	LUST	Lower	643, 0.122, WSW
B12	ARCO #5644	33986 ORANGE ST	SWEEPS UST, CA FID UST	Lower	801, 0.152, WSW
13	ELSINORE HIGH SCHOOL	BUNDY CANYON ROAD/OR	ENVIROSTOR, SCH	Lower	2945, 0.558, West

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS Engineering Controls Sites List
US INST CONTROLS Institutional Controls Sites List

Federal ERNS list

ERNS Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF Solid Waste Information System

Lists of state and tribal leaking storage tanks

INDIAN LUST Leaking Underground Storage Tanks on Indian Land
CPS-SLIC Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST Underground Storage Tank Listing
AST Aboveground Petroleum Storage Tank Facilities
INDIAN UST Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP Voluntary Cleanup Program Properties
INDIAN VCP Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT Waste Management Unit Database
SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
ODI Open Dump Inventory
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register

HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
CDL ---- Clandestine Drug Labs
Toxic Pits ---- Toxic Pits Cleanup Act Sites
US CDL ---- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

HIST UST ---- Hazardous Substance Storage Container Database

Local Land Records

LIENS ---- Environmental Liens Listing
LIENS 2 ---- CERCLA Lien Information
DEED ---- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
CHMIRS ---- California Hazardous Material Incident Report System
LDS ---- Land Disposal Sites Listing
MCS ---- Military Cleanup Sites Listing
SPILLS 90 ---- SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS ---- Formerly Used Defense Sites
DOD ---- Department of Defense Sites
SCRD DRYCLEANERS ---- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---- Financial Assurance Information
EPA WATCH LIST ---- EPA WATCH LIST
2020 COR ACTION ---- 2020 Corrective Action Program List
TSCA ---- Toxic Substances Control Act
TRIS ---- Toxic Chemical Release Inventory System
SSTS ---- Section 7 Tracking Systems
ROD ---- Records Of Decision
RMP ---- Risk Management Plans
RAATS ---- RCRA Administrative Action Tracking System
PRP ---- Potentially Responsible Parties
PADS ---- PCB Activity Database System
ICIS ---- Integrated Compliance Information System
FTTS ---- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---- Material Licensing Tracking System
COAL ASH DOE ---- Steam-Electric Plant Operation Data
COAL ASH EPA ---- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---- PCB Transformer Registration Database
RADINFO ---- Radiation Information Database
HIST FTTS ---- FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ---- Incident and Accident Data
CONSENT ---- Superfund (CERCLA) Consent Decrees
INDIAN RESERV ---- Indian Reservations
FUSRAP ---- Formerly Utilized Sites Remedial Action Program
UMTRA ---- Uranium Mill Tailings Sites
LEAD SMELTERS ---- Lead Smelter Sites

US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAINING	Facilities in Industries that May Be Handling PFAS Listing
PFAS PART 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
PFAS	PFAS Contamination Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
HAZNET	Facility and Manifest Data
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)
HWTS	Hazardous Waste Tracking System
MINES MRDS	Mineral Resources Data System

EXECUTIVE SUMMARY

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP---------- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 10/24/2022 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ELSINORE HIGH SCHOOL Facility Id: 33010015	***BUNDY CANYON ROAD/OR***	***W 1/2 - 1 (0.558 mi.)***	***13***	***77***

Status: No Further Action

Lists of state and tribal leaking storage tanks

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 2 LUST sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BP WEST COAST PRODUC	***33986 ORANGE ST***	***WSW 0 - 1/8 (0.122 mi.)***	***B10***	***69***
Database: RIVERSIDE CO. LUST, Date of Government Version: 09/22/2022 Database: LUST, Date of Government Version: 08/31/2022 Status: Completed - Case Closed Facility Id: 200016624 Global Id: T0606599151 Facility Status: 9				
ARCO #5644	33986 ORANGE ST	WSW 0 - 1/8 (0.122 mi.)	B11	74
Database: LUST REG 8, Date of Government Version: 02/14/2005 Global ID: T0606599151 Facility Status: Case Closed				

Lists of state and tribal registered storage tanks

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there are 4 UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SPEEDWAY NO. 4511 (S	22181 BUNDY CANYON R	SE 0 - 1/8 (0.087 mi.)	A4	34
Database: UST, Date of Government Version: 08/31/2022 Database: RIVERSIDE CO. UST, Date of Government Version: 09/22/2022 Facility Id: FA0032678 Facility Id: FA0045725				
ARCO AM/PM #5644	33986 ORANGE ST	WSW 0 - 1/8 (0.122 mi.)	B5	37
Database: UST, Date of Government Version: 08/31/2022 Facility Id: 85				
NAZM GROUP INC. DBA	33986 ORANGE ST	WSW 0 - 1/8 (0.122 mi.)	B7	40
Database: UST, Date of Government Version: 08/31/2022 Facility Id: FA0027739				
ARCO AM/PM	33986 ORANGE ST	WSW 0 - 1/8 (0.122 mi.)	B9	69
Database: RIVERSIDE CO. UST, Date of Government Version: 09/22/2022				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 01/05/2023 has revealed that there are 2 CERS HAZ WASTE sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SPEEDWAY NO. 4511 (S	*22181 BUNDY CANYON R*	*SE 0 - 1/8 (0.087 mi.)*	*A3*	*14*
NAZM GROUP INC. DBA	*33986 ORANGE ST*	*WSW 0 - 1/8 (0.122 mi.)*	*B8*	*44*

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARCO #5644 Status: A Tank Status: A Comp Number: 1841	*33986 ORANGE ST*	*WSW 1/8 - 1/4 (0.152 mi.)*	*B12*	*76*

CERS TANKS: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

A review of the CERS TANKS list, as provided by EDR, and dated 01/06/2023 has revealed that there are 2 CERS TANKS sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SPEEDWAY NO. 4511 (S	*22181 BUNDY CANYON R*	*SE 0 - 1/8 (0.087 mi.)*	*A3*	*14*
NAZM GROUP INC. DBA	*33986 ORANGE ST*	*WSW 0 - 1/8 (0.122 mi.)*	*B8*	*44*

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARCO #5644	*33986 ORANGE ST*	*WSW 1/8 - 1/4 (0.152 mi.)*	*B12*	*76*

Facility Id: 33001845
Status: A

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 11/21/2022 has revealed that there are 4 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
SPEEDWAY #4511 EPA ID:: CAL000463001	22181 BUNDY CANYON R	SE 0 - 1/8 (0.087 mi.)	A1	9
TESORO 68936 EPA ID:: CAL000410267	22181 BUNDY CANYON R	SE 0 - 1/8 (0.087 mi.)	A2	11
NAZM GROUP INC EPA ID:: CAL000332348	33986 ORANGE ST	WSW 0 - 1/8 (0.122 mi.)	B6	38
BP WEST COAST PRODUC EPA ID:: CAR000102061	***33986 ORANGE ST***	***WSW 0 - 1/8 (0.122 mi.)***	***B10***	***69***

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 09/19/2022 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BP WEST COAST PRODUC Cleanup Status: COMPLETED - CASE CLOSED	***33986 ORANGE ST***	***WSW 0 - 1/8 (0.122 mi.)***	***B10***	***69***

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7240065.2S



0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: E23-001P	CLIENT: Herron Environmental
ADDRESS: 22220 Bundy Canyon Road Wildomar CA 92595	CONTACT: Ron Russell
LAT/LONG: 33.628029 / 117.271878	INQUIRY #: 7240065.2s DATE: January 31, 2023 5:32 pm

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DETAIL MAP - 7240065.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: E23-001P	CLIENT: Herron Environmental
ADDRESS: 22220 Bundy Canyon Road Wildomar CA 92595	CONTACT: Ron Russell
T/LONG: 33.628029 / 117.271878	INQUIRY #: 7240065.2s
	DATE: January 31, 2023 5:36 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	1	NR	1
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		2	0	0	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		4	0	NR	NR	NR	4
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		2	0	NR	NR	NR	2
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	1	NR	NR	NR	1
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		2	0	NR	NR	NR	2
CA FID UST	0.250		0	1	NR	NR	NR	1
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		4	0	NR	NR	NR	4
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0
PFAS TSCA	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAINING	0.250		0	0	NR	NR	NR	0
PFAS PART 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		1	0	0	NR	NR	1
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	15	2	0	1	0	18

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
SE
< 1/8
0.087 mi.
462 ft.

SPEEDWAY #4511
22181 BUNDY CANYON RD
WILDOMAR, CA 92394

RCRA NonGen / NLR

1026828012
CAL000463001

Site 1 of 4 in cluster A

Relative:
Lower

Actual:
1408 ft.

RCRA Listings:

Date Form Received by Agency:		20210602
Handler Name:	SPEEDWAY #4511	
Handler Address:		22181 BUNDY CANYON RD
Handler City,State,Zip:		WILDOMAR, CA 92394
EPA ID:		CAL000463001
Contact Name:		TERESA MILES
Contact Address:		500 SPEEDWAY DR
Contact City,State,Zip:		ENON, OH 92595
Contact Telephone:		562-305-8226
Contact Fax:		Not reported
Contact Email:		Not reported
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		500 SPEEDWAY DR
Mailing City,State,Zip:		ENON, OH 92595
Owner Name:	2GO TESORO LLC	
Owner Type:		Other
Operator Name:	TERESA MILES	
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported

SPEEDWAY #4511 (Continued) **1026828012**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20210604
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: 2GO TESORO LLC	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	500 SPEEDWAY DR
Owner/Operator City,State,Zip:	ENON, OH 92595
Owner/Operator Telephone:	562-305-8226
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name: TERESA MILES	
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	500 SPEEDWAY DR
Owner/Operator City,State,Zip:	ENON, OH 92595
Owner/Operator Telephone:	562-305-8226
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

SPEEDWAY #4511 (Continued) **1026828012**

Historic Generators:
Receive Date: 20210602
Handler Name: SPEEDWAY #4511
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 447190
NAICS Description: OTHER GASOLINE STATIONS

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

A2 **TESORO 68936** **RCRA NonGen / NLR** **1024851652**
SE **22181 BUNDY CANYON RD** **CAL000410267**
< 1/8 **WILDOMAR, CA 92595**
0.087 mi.
462 ft. **Site 2 of 4 in cluster A**

Relative:
Lower

Actual:
1408 ft.

RCRA Listings:
Date Form Received by Agency: 20210614
Handler Name: TESORO 68936
Handler Address: 22181 BUNDY CANYON RD
Handler City,State,Zip: WILDOMAR, CA 92595
EPA ID: CAL000410267
Contact Name: BRENDA RAMIREZ
Contact Address: 19100 RIDGEWOOD PKWY
Contact City,State,Zip: SAN ANTONIO, TX 78259
Contact Telephone: 210-626-5153
Contact Fax: Not reported
Contact Email: Not reported
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 19100 RIDGEWOOD PKWY
Mailing City,State,Zip: SAN ANTONIO, TX 78259
Owner Name: Not reported

TESORO 68936 (Continued) **1024851652**

Owner Type:	Not reported
Operator Name:	TESORO REFINING & MARKETING COMPANY
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	20210615
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No

TESORO 68936 (Continued) **1024851652**

Sub-Part P Indicator: No

Handler - Owner Operator:
Owner/Operator Indicator: Owner
Owner/Operator Name: TESORO REFINING & MARKETING COMPANY
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 19100 RIDGEWOOD PKWY
Owner/Operator City,State,Zip: SAN ANTONIO, TX 78259-0000
Owner/Operator Telephone: 210-626-6153
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: BRENDA RAMIREZ
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 19100 RIDGEWOOD PKWY
Owner/Operator City,State,Zip: SAN ANTONIO, TX 78259
Owner/Operator Telephone: 210-626-5153
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: TESORO REFINING & MARKETING COMPANY
Legal Status: Other
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 19100 RIDGEWOOD PKWY
Owner/Operator City,State,Zip: SAN ANTONIO, TX 78259-0000
Owner/Operator Telephone: 210-626-6153
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20210614
Handler Name: TESORO 68936
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

Receive Date: 20150915
Handler Name: TESORO SHELL #68936

TESORO 68936 (Continued) **1024851652**

Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	No
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	44719
NAICS Description:	OTHER GASOLINE STATIONS

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

A3 **SPEEDWAY NO. 4511 (SHELL/CIRCLE K)** **CERS HAZ WASTE** **S123630861**
SE **22181 BUNDY CANYON RD** **CERS TANKS** **N/A**
< 1/8 **WILDOMAR, CA 92595** **HAZNET**
0.087 mi. **CERS**
462 ft. **Site 3 of 4 in cluster A** **HWTS**

Relative:
Lower

Actual:
1408 ft.

CERS HAZ WASTE:

Name:	SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Site ID:	14003
CERS ID:	10471852
CERS Description:	Hazardous Waste Generator

CERS TANKS:

Name:	SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Site ID:	14003
CERS ID:	10471852
CERS Description:	Underground Storage Tank

HAZNET:

Name:	TESORO 68936
Address:	22181 BUNDY CANYON RD
Address 2:	Not reported
City,State,Zip:	WILDOMAR, CA 92595
Contact:	BRENDA RAMIREZ
Telephone:	2103474625
Mailing Name:	Not reported
Mailing Address:	500 SPEEDWAY DR
Year:	2021

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Gepaid:	CAL000410267
TSD EPA ID:	NVT330010000
CA Waste Code:	352 - Other organic solids
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.035
Year:	2020
Gepaid:	CAL000410267
TSD EPA ID:	CAT080013352
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.189
Year:	2020
Gepaid:	CAL000410267
TSD EPA ID:	NVT330010000
CA Waste Code:	352 - Other organic solids
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.08
Year:	2015
Gepaid:	CAL000391729
TSD EPA ID:	NVT330010000
CA Waste Code:	352 - Other organic solids
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.115
Year:	2015
Gepaid:	CAL000391729
TSD EPA ID:	CAT080013352
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.21

Detail Two:

Year:	2020
EM Manifest ID:	2ccf5300-22d2-412a-afb0-97229061ef6d
Shipment Date:	7/24/2018
Receipt Date:	7/25/2018
Manifest Number:	012178604FLE
Generator EPA ID:	CAL000410267
Name:	TESORO SHELL #68936
Address:	22181 BUNDY CANYON RD
Address 2:	Not reported
City:	WILDOMAR
Zip:	92595
Telephone:	800-424-9300
Contact:	Not reported
Contact Telephone:	800-424-9300

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Transporter 1 EPA ID:	CAR000183913
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAT080016116
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	NVT330010000
TSDF Name:	US ECOLOGY NEVADA, INC
TSDF Address 1:	HWY 95 11 MI S OF BEATTY
TSDF Address 2:	Not reported
TSDF City:	BEATTY
TSDF Zip:	89003
TSDF Telephone:	800-839-3975

Federal:

Year:	2020
EM Manifest ID:	2ccf5300-22d2-412a-afb0-97229061ef6d
Generator EPA ID:	CAL000410267
Shipment Date:	2018-07-24
Manifest Number:	012178604FLE
Line Number:	1
Method Code:	H132
Quantity Tons:	0.06250
Quantity Waste:	125.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Metal drums, barrels, kegs
Quantity Type:	Pounds
Federal Code:	D018

State:

Year:	2020
EM Manifest ID:	2ccf5300-22d2-412a-afb0-97229061ef6d
Generator EPA ID:	CAL000410267
Shipment Date:	2018-07-24
Manifest Number:	012178604FLE
Line Number:	1
Method Code:	H132
Quantity Tons:	0.06250
Quantity Waste:	125.000000
Quantity Unit:	P
Number of Containers:	1
Type of Container:	Metal drums, barrels, kegs
Quantity Type:	Pounds
State Code:	352

Additional Info:

Year:	2015
Gen EPA ID:	CAL000391729
Shipment Date:	20151110
Creation Date:	1/21/2016 22:16:05
Receipt Date:	20151112
Manifest ID:	008724424FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

TSDF EPA ID:	CAT080013352
Trans Name:	DEMENNO KERDOON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons:	0.168
Waste Quantity:	40
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20151001
Creation Date:	3/25/2016 22:15:42
Receipt Date:	20151007
Manifest ID:	008700898FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY NEVADA OPERATIONS
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D018
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.04
Waste Quantity:	80
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20151001
Creation Date:	12/22/2015 22:15:31
Receipt Date:	20151008
Manifest ID:	008700899FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	CAT080016116
Trans 2 Name:	NIETO AND SONS TRUCKING INC
TSDF EPA ID:	CAT080013352
Trans Name:	DEMENNO KERDOON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

	Regeneration, Organics Recovery Ect
Quantity Tons:	0.042
Waste Quantity:	10
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20150131
Creation Date:	11/9/2015 22:15:17
Receipt Date:	20150204
Manifest ID:	007643664FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY NEVADA OPERATIONS
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D018
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.075
Waste Quantity:	150
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

CERS:

Name:	SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Site ID:	14003
CERS ID:	10471852
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	12-04-2018
Citation:	23 CCR 16 2641(j) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2641(j)
Violation Description:	Failure of the leak detection equipment to be installed, calibrated, operated, and/or maintained properly.
Violation Notes:	Returned to compliance on 12/04/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	06-26-2014
Citation:	23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Description:	Failure to submit, obtain approval, or maintain a complete/accurate response plan.
Violation Notes:	Returned to compliance on 06/27/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	02-03-2015
Citation:	HSC 6.7 25292.1(a) - California Health and Safety Code, Chapter 6.7, Section(s) 25292.1(a)
Violation Description:	Failure to operate the UST system to prevent spills and/or overfills.
Violation Notes:	Returned to compliance on 11/17/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	01-14-2016
Citation:	23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Description:	Failure of the double wall pressurized piping in the turbine sump to be continuously monitored with a system that activates an audible and visual alarm or restricts or stops flow at dispenser when a leak is detected.
Violation Notes:	Returned to compliance on 01/14/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	12-04-2018
Citation:	23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Description:	Failure of the double-walled pressurized piping to be continuously monitored with a system that activates an audible and visual alarm or stops flow at the dispenser when a leak is detected.
Violation Notes:	Returned to compliance on 12/04/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	06-26-2014
Citation:	HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description:	UST Program - Operations/Maintenance - General
Violation Notes:	Returned to compliance on 06/26/2014.
Violation Division:	Riverside County Department of Env Health

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	02-03-2015
Citation:	23 CCR 16 2711(a)(8) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2711(a)(8)
Violation Description:	Failure to submit, obtain approval, or maintain a complete/accurate plot plan.
Violation Notes:	Returned to compliance on 11/17/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	12-08-2022
Citation:	HSC 6.7 25284.2 - California Health and Safety Code, Chapter 6.7, Section(s) 25284.2
Violation Description:	"Failure to meet one or more of the following requirements: Install or maintain a liquid-tight spill container. Have a minimum capacity of five gallons. Have a functional drain valve or other method for the removal of liquid from the spill container. Be resistant to galvanic corrosion. Perform a tightness test at installation, every 12 months thereafter, or within 30 days after a repair to the spill container. Tested using applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Tested by a certified UST service technician. Maintain records of spill containment testing for 36 months. "
Violation Notes:	Returned to compliance on 12/21/2022. OBSERVATION: Observed the Diesel spill bucket drain valve to be leaking and would not hold liquid. CORRECTIVE ACTION: Owner/operator shall repair/replace the leaking Diesel spill bucket drain valve so that bucket is able to hold liquid and contain release until detected. Technician ordered a drain valve during testing, submit passing spill bucket results to the Department.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	02-17-2016
Citation:	HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description:	Business Plan Program - Operations/Maintenance - General
Violation Notes:	Returned to compliance on 05/20/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	06-26-2014
Citation:	HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description:	UST Program - Administration/Documentation - General

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Violation Notes:	Returned to compliance on 06/26/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	06-26-2014
Citation:	HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description:	Business Plan Program - Training - General
Violation Notes:	Returned to compliance on 06/26/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	02-03-2015
Citation:	23 CCR 16 2666(c) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2666(c)
Violation Description:	Failure of line leak detector to detect a leak and/or failure of audible and visual alarm.
Violation Notes:	Returned to compliance on 02/24/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	12-03-2019
Citation:	HSC 6.7 25284.2 - California Health and Safety Code, Chapter 6.7, Section(s) 25284.2
Violation Description:	"Failure to meet one or more of the following requirements: Install or maintain a liquid-tight spill container. Have a minimum capacity of five gallons. Have a functional drain valve or other method for the removal of liquid from the spill container. Be resistant to galvanic corrosion. Perform a tightness test at installation, every 12 months thereafter, or within 30 days after a repair to the spill container. Tested using applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. Tested by a certified UST service technician. Maintain records of spill containment testing for 36 months. "
Violation Notes:	Returned to compliance on 12/03/2019. OBSERVATION: Observed 91-spill bucket drain valve to be leaking and would not hold liquid. Bucket was replaced during inspection. CORRECTIVE ACTION: Owner/operator shall repair/replace the leaking 91 spill bucket drain valve so that bucket is able to hold liquid and contain release until detected.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	02-03-2015
Citation:	HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Violation Description:	Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.
Violation Notes:	Returned to compliance on 11/17/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	01-05-2017
Citation:	23 CCR 16 2665 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2665
Violation Description:	Failure to comply with one or more of the following: Failure to install or maintain a liquid-tight spill bucket. Have a minimum capacity of five gallons. Have a functional drain valve or other method for the removal of liquid from the spill bucket/spill container. Be resistant to galvanic corrosion.
Violation Notes:	Returned to compliance on 01/05/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	01-14-2016
Citation:	HSC 6.7 25291 - California Health and Safety Code, Chapter 6.7, Section(s) 25291
Violation Description:	Failure to maintain under-dispenser containment, sumps, and/or other secondary containment in good condition and/or free of debris/liquid.
Violation Notes:	Returned to compliance on 01/14/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	06-26-2014
Citation:	19 CCR 4 2729.2(a)(3) - California Code of Regulations, Title 19, Chapter 4, Section(s) 2729.2(a)(3)
Violation Description:	Failure to complete and/or submit an annotated site map if required by CUPA.
Violation Notes:	Returned to compliance on 11/17/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	14003
Site Name:	SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date:	01-14-2016
Citation:	23 CCR 16 2666(c) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2666(c)
Violation Description:	Failure of pump shut down when a leak is detected or when line leak detector is disconnected.
Violation Notes:	Returned to compliance on 01/14/2016.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date: 02-03-2015
Citation: 23 CCR 16 2632, 2634, 2636, 2666 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632, 2634, 2636, 2666
Violation Description: Failure of the leak detection equipment to be properly programmed or properly operated.
Violation Notes: Returned to compliance on 02/03/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS,

Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date: 12-04-2018
Citation: 23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Description: Failure of the leak detection equipment to have an audible and visual alarm as required.
Violation Notes: Returned to compliance on 12/04/2018.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS,

Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Violation Date: 06-26-2014
Citation: HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description: Business Plan Program - Administration/Documentation - General
Violation Notes: Returned to compliance on 06/26/2014.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-05-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-05-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-03-2015
Violations Found: No

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Eval Type: Routine done by local agency
Eval Notes: HMBEP
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 02-26-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Review & Signature on Supplemental Report
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-03-2019
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-08-2022
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Facility is a gas station and convenience store with three (3) VPH Double-Walled Underground Storage Tanks. Tanks included; 20K gallon Regular Unleaded and a split tank with 12K gallon Premium Unleaded and 8K gallon Diesel. ICC Certified Miguel Bautista with Fastech onsite performing testing.
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-09-2021
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-20-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-05-2017

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-14-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-03-2015
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Haz. Waste Gen. Insp.
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-17-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 06-26-2014
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Re-Inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-04-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-21-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-21-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-29-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-17-2016
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 02-26-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Review & Signature for Haz. Waste Insp. Report
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 02-26-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Review & Signature of HMBEP Insp. Report
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-03-2013
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: HMBEP Insp.
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-03-2013
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: UST Insp.
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-09-2021
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-21-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Inspector was not present during monitoring cert on 12/14/2020.
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 01-29-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-03-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: UST Insp. (VPH)
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 06-26-2014
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: RE-INSPECTION
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 06-26-2014
Violations Found: Yes

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Eval Type: Other, not routine, done by local agency
Eval Notes: Re-Inspection
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-03-2013
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Haz. Waste Insp.
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 12-09-2021
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Enforcement Action:
Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Site Address: 22181 BUNDY CANYON RD
Site City: WILDOMAR
Site Zip: 92595
Enf Action Date: 01-14-2016
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS,

Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Site Address: 22181 BUNDY CANYON RD
Site City: WILDOMAR
Site Zip: 92595
Enf Action Date: 02-03-2015
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS,

Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Site Address: 22181 BUNDY CANYON RD
Site City: WILDOMAR
Site Zip: 92595
Enf Action Date: 02-17-2016

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Site Address: 22181 BUNDY CANYON RD
Site City: WILDOMAR
Site Zip: 92595
Enf Action Date: 06-26-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Site ID: 14003
Site Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Site Address: 22181 BUNDY CANYON RD
Site City: WILDOMAR
Site Zip: 92595
Enf Action Date: 06-26-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS,

Coordinates:
Site ID: 14003
Facility Name: SPEEDWAY No. 4511 (SHELL/CIRCLE K)
Env Int Type Code: HWG
Program ID: 10471852
Coord Name: Not reported
Ref Point Type Desc: Center of a facility or station.,
Latitude: 33.626240
Longitude: -117.269890

Affiliation:
Affiliation Type Desc: UST Tank Owner
Entity Name: 2GO Tesoro, LLC.
Entity Title: Not reported
Affiliation Address: P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Affiliation City: DALLAS
Affiliation State: TX
Affiliation Country: United States
Affiliation Zip: 75221
Affiliation Phone: (800) 828-0711,

Affiliation Type Desc: CUPA District
Entity Name: Riverside Cnty Env Health

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055,
Affiliation Type Desc:	Document Preparer
Entity Name:	BELSHIRE ENVIRONMENTAL
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Affiliation City:	DALLAS
Affiliation State:	TX
Affiliation Country:	Not reported
Affiliation Zip:	75221
Affiliation Phone:	,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Speedway
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	UST Tank Operator
Entity Name:	2GO Tesoro, LLC.
Entity Title:	Not reported
Affiliation Address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Affiliation City:	DALLAS
Affiliation State:	TX
Affiliation Country:	United States
Affiliation Zip:	75221
Affiliation Phone:	(800) 828-0711,
Affiliation Type Desc:	Environmental Contact
Entity Name:	SEAN AUGUSTINE
Entity Title:	Not reported
Affiliation Address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Affiliation City:	DALLAS
Affiliation State:	TX
Affiliation Country:	Not reported
Affiliation Zip:	75221
Affiliation Phone:	,

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Affiliation Type Desc:	Legal Owner
Entity Name:	2GO Tesoro, LLC.
Entity Title:	Not reported
Affiliation Address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Affiliation City:	DALLAS
Affiliation State:	TX
Affiliation Country:	United States
Affiliation Zip:	75221
Affiliation Phone:	(800) 828-0711,

Affiliation Type Desc:	Property Owner
Entity Name:	2GO Tesoro, LLC.
Entity Title:	Not reported
Affiliation Address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Affiliation City:	DALLAS
Affiliation State:	TX
Affiliation Country:	United States
Affiliation Zip:	75221
Affiliation Phone:	(800) 828-0711,

Affiliation Type Desc:	UST Permit Applicant
Entity Name:	TERESA A. MILES
Entity Title:	ENVIRONMENTAL COMPLIANCE SUPERVISOR
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(562) 495-6850,

Affiliation Type Desc:	Identification Signer
Entity Name:	TERESA MILES
Entity Title:	SENIOR MANAGER, ENVIRONMENTAL COMPLIANCE WEST
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,

Affiliation Type Desc:	Operator
Entity Name:	2GO Tesoro, LLC.
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(800) 828-0711,

Affiliation Type Desc:	UST Property Owner Name
Entity Name:	2GO Tesoro, LLC.
Entity Title:	Not reported
Affiliation Address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Affiliation City:	DALLAS
Affiliation State:	TX
Affiliation Country:	United States

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

Affiliation Zip: 75221
Affiliation Phone: (800) 828-0711,

HWTS:
Name: TESORO 68936
Address: 22181 BUNDY CANYON RD
Address 2: Not reported
City,State,Zip: WILDOMAR, CA 92595
EPA ID: CAL000410267
Inactive Date: 06/14/2021
Create Date: 09/15/2015
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: 500 SPEEDWAY DR
Mailing Address 2: Not reported
Mailing City,State,Zip: ENON, OH 453230000
Owner Name: TESORO WEST COAST CO LLC
Owner Address: 500 SPEEDWAY DR
Owner Address 2: Not reported
Owner City,State,Zip: ENON, OH 453230000
Contact Name: BRENDA RAMIREZ
Contact Address: 500 SPEEDWAY DRIVE
Contact Address 2: Not reported
City,State,Zip: ENON, OH 45323
Facility Status: Inactive
Facility Type: PERMANENT
Category: STATE
Latitude: 33.626259
Longitude: -117.270486

Name: BUNDY SERVICE STATION LP
Address: 22181 BUNDY CANYON RD
Address 2: Not reported
City,State,Zip: WILDOMAR, CA 92595
EPA ID: CAL000391729
Inactive Date: 12/15/2015
Create Date: 12/04/2013
Last Act Date: Not reported
Mailing Name: Not reported
Mailing Address: PO BOX 1958
Mailing Address 2: Not reported
Mailing City,State,Zip: CORONA, CA 92878
Owner Name: HAGOP KOFDARALI
Owner Address: 139 RADIO RD.
Owner Address 2: Not reported
Owner City,State,Zip: CORONA, CA 92879
Contact Name: DONNA MARNOFF
Contact Address: 139 RADIO RD.
Contact Address 2: Not reported
City,State,Zip: CORONA, CA 92879
Facility Status: Inactive
Facility Type: PERMANENT
Category: STATE
Latitude: 33.626259
Longitude: -117.270486

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **S123630861**

NAICS:

EPA ID:	CAL000391729
Create Date:	2013-12-04 13:49:42.683
NAICS Code:	44719
NAICS Description:	Other Gasoline Stations
Issued EPA ID Date:	2013-12-04 13:49:42.67700
Inactive Date:	2015-12-15 00:00:00
Facility Name:	BUNDY SERVICE STATION LP
Facility Address:	22181 BUNDY CANYON RD
Facility Address 2:	Not reported
Facility City:	WILDOMAR
Facility County:	Not reported
Facility State:	CA
Facility Zip:	92595

Name:	SPEEDWAY #4511
Address:	22181 BUNDY CANYON RD
Address 2:	Not reported
City,State,Zip:	WILDOMAR, CA 92595
EPA ID:	CAL000463001
Inactive Date:	Not reported
Create Date:	06/02/2021
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	500 SPEEDWAY DR
Mailing Address 2:	Not reported
Mailing City,State,Zip:	ENON, OH 92595
Owner Name:	2GO TESORO LLC
Owner Address:	500 SPEEDWAY DR
Owner Address 2:	Not reported
Owner City,State,Zip:	ENON, OH 92595
Contact Name:	TERESA MILES
Contact Address:	500 SPEEDWAY DR
Contact Address 2:	Not reported
City,State,Zip:	ENON, OH 92595
Facility Status:	Active
Facility Type:	PERMANENT
Category:	STATE
Latitude:	33.62625898
Longitude:	-117.270485

NAICS:

EPA ID:	CAL000463001
Create Date:	2021-06-02 16:46:20.737
NAICS Code:	447190
NAICS Description:	Other Gasoline Stations
Issued EPA ID Date:	2021-06-02 16:46:20.73700
Inactive Date:	Not reported
Facility Name:	SPEEDWAY #4511
Facility Address:	22181 BUNDY CANYON RD
Facility Address 2:	Not reported
Facility City:	WILDOMAR
Facility County:	Not reported
Facility State:	CA
Facility Zip:	92595

A4
SE
< 1/8
0.087 mi.
462 ft.

SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
22181 BUNDY CANYON RD
WILDOMAR, CA 92595

Site 4 of 4 in cluster A

UST **U004217085**
N/A

Relative:
Lower

Actual:
1408 ft.

RIVERSIDE CO. UST:

Name:	SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Region:	RIVERSIDE
Total Tanks:	3

UST:

Name:	SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	FA0045725
Permitting Agency:	Riverside County Department of Environmental Health
CERSID:	10471852
Latitude:	33.6262400
Longitude:	-117.2698900
Owner type:	Non-Government
Facility type:	Motor Vehicle Fueling
Num of inuse ust:	Not reported
Num of closed ust:	0
Num of oos ust:	0
Epa region:	9
Tribal lands:	No
Tank owner name:	2GO Tesoro, LLC.
Tank owner mailing address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Tank owner mailing city:	DALLAS
Tank owner mailing zip:	75221
Tank owner mailing state:	TX
Tank operator name:	2GO Tesoro, LLC.
Tank operator mailing address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Tank operator mailing city:	DALLAS
Tank operator mailing zip:	75221
Tank operator mailing state:	TX
Tankidnumber:	3
Tank status:	Confirmed/Updated Information
Tank configuration:	One in a Compartmented Unit
Tank closure date:	Not reported
Tank installation date:	10/1/2012 12:00:00 AM
Tank num of compartments:	2
Tank contents:	Diesel
Tank capacity gallons:	8000
Tank type:	Double Wall
Tank pc construction:	Fiberglass
Tank pwpiping construction:	Fiberglass
Tank piping type:	Pressure
Tank piping construction:	Double Walled
Tank sacrificial anode:	No
Tank cp impressed current:	No
Tank cp shutoff:	Yes
Tank alarms:	No
Tank ball float:	No
Tank spill bucket:	Yes

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **U004217085**

Name:	SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	FA0045725
Permitting Agency:	Riverside County Department of Environmental Health
CERSID:	10471852
Latitude:	33.6262400
Longitude:	-117.2698900
Owner type:	Non-Government
Facility type:	Motor Vehicle Fueling
Num of inuse ust:	Not reported
Num of closed ust:	0
Num of oos ust:	0
Epa region:	9
Tribal lands:	No
Tank owner name:	2GO Tesoro, LLC.
Tank owner mailing address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Tank owner mailing city:	DALLAS
Tank owner mailing zip:	75221
Tank owner mailing state:	TX
Tank operator name:	2GO Tesoro, LLC.
Tank operator mailing address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Tank operator mailing city:	DALLAS
Tank operator mailing zip:	75221
Tank operator mailing state:	TX
Tankidnumber:	2
Tank status:	Confirmed/Updated Information
Tank configuration:	One in a Compartmented Unit
Tank closure date:	Not reported
Tank installation date:	10/1/2012 12:00:00 AM
Tank num of compartments:	2
Tank contents:	Premium Unleaded
Tank capacity gallons:	12000
Tank type:	Double Wall
Tank pc construction:	Fiberglass
Tank pwpiping construction:	Fiberglass
Tank piping type:	Pressure
Tank piping construction:	Double Walled
Tank sacrificial anode:	No
Tank cp impressed current:	No
Tank cp shutoff:	Yes
Tank alarms:	No
Tank ball float:	No
Tank spill bucket:	Yes

Name:	SPEEDWAY NO. 4511 (SHELL/CIRCLE K)
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	FA0045725
Permitting Agency:	Riverside County Department of Environmental Health
CERSID:	10471852
Latitude:	33.6262400
Longitude:	-117.2698900
Owner type:	Non-Government
Facility type:	Motor Vehicle Fueling
Num of inuse ust:	Not reported
Num of closed ust:	0

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **U004217085**

Num of oos ust:	0
Epa region:	9
Tribal lands:	No
Tank owner name:	2GO Tesoro, LLC.
Tank owner mailing address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Tank owner mailing city:	DALLAS
Tank owner mailing zip:	75221
Tank owner mailing state:	TX
Tank operator name:	2GO Tesoro, LLC.
Tank operator mailing address:	P.O. BOX 711 ATTN: GASOLINE COMPLIANCE, LOC 148
Tank operator mailing city:	DALLAS
Tank operator mailing zip:	75221
Tank operator mailing state:	TX
Tankidnumber:	1
Tank status:	Confirmed/Updated Information
Tank configuration:	Stand Alone Tank
Tank closure date:	Not reported
Tank installation date:	10/1/2012 12:00:00 AM
Tank num of compartments:	1
Tank contents:	Regular Unleaded
Tank capacity gallons:	20000
Tank type:	Double Wall
Tank pc construction:	Fiberglass
Tank pwpiping construction:	Fiberglass
Tank piping type:	Pressure
Tank piping construction:	Double Walled
Tank sacrificial anode:	No
Tank cp impressed current:	No
Tank cp shutoff:	Yes
Tank alarms:	No
Tank ball float:	No
Tank spill bucket:	Yes

Name:	TESORO(SHELL/CIRCLE K) 68936
Address:	22181 BUNDY CANYON RD
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	FA0032678
Permitting Agency:	Riverside County Department of Environme
CERSID:	Not reported
Latitude:	33.62624
Longitude:	-117.26989
Owner type:	Not reported
Facility type:	Not reported
Num of inuse ust:	Not reported
Num of closed ust:	Not reported
Num of oos ust:	Not reported
Epa region:	Not reported
Tribal lands:	Not reported
Tank owner name:	Not reported
Tank owner mailing address:	Not reported
Tank owner mailing city:	Not reported
Tank owner mailing zip:	Not reported
Tank owner mailing state:	Not reported
Tank operator name:	Not reported
Tank operator mailing address:	Not reported
Tank operator mailing city:	Not reported
Tank operator mailing zip:	Not reported

SPEEDWAY NO. 4511 (SHELL/CIRCLE K) (Continued) **U004217085**

Tank operator mailing state:	Not reported
Tankidnumber:	Not reported
Tank status:	Not reported
Tank configuration:	Not reported
Tank closure date:	Not reported
Tank installation date:	Not reported
Tank num of compartments:	Not reported
Tank contents:	Not reported
Tank capacity gallons:	Not reported
Tank type:	Not reported
Tank pc construction:	Not reported
Tank pwpiping construction:	Not reported
Tank piping type:	Not reported
Tank piping construction:	Not reported
Tank sacrificial anode:	Not reported
Tank cp impressed current:	Not reported
Tank cp shutoff:	Not reported
Tank alarms:	Not reported
Tank ball float:	Not reported
Tank spill bucket:	Not reported

B5 **ARCO AM/PM #5644** **UST** **U004350297**
WSW **33986 ORANGE ST** **N/A**
< 1/8 **WILDOMAR, CA 92595**
0.122 mi.
643 ft. **Site 1 of 8 in cluster B**

Relative: **Lower**

Actual: **1377 ft.**

UST:

Name:	ARCO AM/PM #5644
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	85
Permitting Agency:	RIVERSIDE COUNTY
CERSID:	Not reported
Latitude:	33.628649
Longitude:	-117.273482
Owner type:	Not reported
Facility type:	Not reported
Num of inuse ust:	Not reported
Num of closed ust:	Not reported
Num of oos ust:	Not reported
Epa region:	Not reported
Tribal lands:	Not reported
Tank owner name:	Not reported
Tank owner mailing address:	Not reported
Tank owner mailing city:	Not reported
Tank owner mailing zip:	Not reported
Tank owner mailing state:	Not reported
Tank operator name:	Not reported
Tank operator mailing address:	Not reported
Tank operator mailing city:	Not reported
Tank operator mailing zip:	Not reported
Tank operator mailing state:	Not reported
Tankidnumber:	Not reported
Tank status:	Not reported
Tank configuration:	Not reported
Tank closure date:	Not reported
Tank installation date:	Not reported

ARCO AM/PM #5644 (Continued) **U004350297**

Tank num of compartments:	Not reported
Tank contents:	Not reported
Tank capacity gallons:	Not reported
Tank type:	Not reported
Tank pc construction:	Not reported
Tank pwpiping construction:	Not reported
Tank piping type:	Not reported
Tank piping construction:	Not reported
Tank sacrificial anode:	Not reported
Tank cp impressed current:	Not reported
Tank cp shutoff:	Not reported
Tank alarms:	Not reported
Tank ball float:	Not reported
Tank spill bucket:	Not reported

B6 **NAZM GROUP INC** **RCRA NonGen / NLR** **1026054404**
WSW **33986 ORANGE ST** **CAL000332348**
< 1/8 **WILDOMAR, CA 92595**
0.122 mi.
643 ft. **Site 2 of 8 in cluster B**

Relative: **Lower**
Actual: **1377 ft.**

RCRA Listings:

Date Form Received by Agency:		20200318
Handler Name:	NAZM GROUP INC	
Handler Address:		33986 ORANGE ST
Handler City,State,Zip:		WILDOMAR, CA 92595
EPA ID:		CAL000332348
Contact Name:		SAM YASSIN
Contact Address:		ORANGE ST
Contact City,State,Zip:		WILDOMAR, CA 92595
Contact Telephone:		626-485-9769
Contact Fax:		Not reported
Contact Email:		TMANSOURENV@GMAIL.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Private
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		ORANGE ST
Mailing City,State,Zip:		WILDOMAR, CA 92595
Owner Name:	NAZM GROUP INC	
Owner Type:		Private
Operator Name:	NAZM GROUP INC	
Operator Type:		Private
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No

NAZM GROUP INC (Continued) **1026054404**

Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20200319
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name: NAZM GROUP INC	
Legal Status:	Private
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	33986 ORANGE ST
Owner/Operator City,State,Zip:	WILDOMAR, CA 92595
Owner/Operator Telephone:	626-485-9769

NAZM GROUP INC (Continued) **1026054404**

Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Operator
Owner/Operator Name: NAZM GROUP INC
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: 33986 ORANGE ST
Owner/Operator City,State,Zip: WILDOMAR, CA 92595
Owner/Operator Telephone: 626-485-9769
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20200318
Handler Name: NAZM GROUP INC
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: No
Electronic Manifest Broker: No

List of NAICS Codes and Descriptions:
NAICS Code: 44719
NAICS Description: OTHER GASOLINE STATIONS

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

B7 **NAZM GROUP INC. DBA ARCO AMPM** **UST** **U004354266**
WSW **33986 ORANGE ST** **N/A**
< 1/8 **WILDOMAR, CA 92595**
0.122 mi.
643 ft. **Site 3 of 8 in cluster B**

Relative: UST:
Lower
Name: NAZM GROUP INC. DBA ARCO AMPM
Actual: Address: 33986 ORANGE ST
1377 ft. City,State,Zip: WILDOMAR, CA 92595
Facility ID: FA0027739
Permitting Agency: Riverside County Department of Environmental Health
CERSID: 10325605
Latitude: 33.6273000
Longitude: -117.2748300

NAZM GROUP INC. DBA ARCO AMPM (Continued) **U004354266**

Owner type:	Non-Government
Facility type:	Motor Vehicle Fueling
Num of inuse ust:	Not reported
Num of closed ust:	0
Num of oos ust:	0
Epa region:	9
Tribal lands:	No
Tank owner name:	NAZM GROUP INC.
Tank owner mailing address:	33986 Orange St
Tank owner mailing city:	Wildomar
Tank owner mailing zip:	92595
Tank owner mailing state:	CA
Tank operator name:	NAZM GROUP INC.
Tank operator mailing address:	33986 Orange St
Tank operator mailing city:	Wildomar
Tank operator mailing zip:	92595
Tank operator mailing state:	CA
Tankidnumber:	T2
Tank status:	Renewal Permit
Tank configuration:	Stand Alone Tank
Tank closure date:	Not reported
Tank installation date:	1/1/1998 12:00:00 AM
Tank num of compartments:	1
Tank contents:	Regular Unleaded
Tank capacity gallons:	10000
Tank type:	Double Wall
Tank pc construction:	Fiberglass
Tank pwpiping construction:	Fiberglass
Tank piping type:	Pressure
Tank piping construction:	Double Walled
Tank sacrificial anode:	No
Tank cp impressed current:	No
Tank cp shutoff:	No
Tank alarms:	Yes
Tank ball float:	No
Tank spill bucket:	Yes

Name:	NAZM GROUP INC. DBA ARCO AMPM
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	FA0027739
Permitting Agency:	Riverside County Department of Environmental Health
CERSID:	10325605
Latitude:	33.6273000
Longitude:	-117.2748300
Owner type:	Non-Government
Facility type:	Motor Vehicle Fueling
Num of inuse ust:	Not reported
Num of closed ust:	0
Num of oos ust:	0
Epa region:	9
Tribal lands:	No
Tank owner name:	NAZM GROUP INC.
Tank owner mailing address:	33986 Orange St
Tank owner mailing city:	Wildomar
Tank owner mailing zip:	92595
Tank owner mailing state:	CA

NAZM GROUP INC. DBA ARCO AMPM (Continued) **U004354266**

Tank operator name:	NAZM GROUP INC.
Tank operator mailing address:	33986 Orange St
Tank operator mailing city:	Wildomar
Tank operator mailing zip:	92595
Tank operator mailing state:	CA
Tankidnumber:	T3
Tank status:	Renewal Permit
Tank configuration:	Stand Alone Tank
Tank closure date:	Not reported
Tank installation date:	1/1/1998 12:00:00 AM
Tank num of compartments:	1
Tank contents:	Premium Unleaded
Tank capacity gallons:	10000
Tank type:	Double Wall
Tank pc construction:	Fiberglass
Tank pwpiping construction:	Fiberglass
Tank piping type:	Pressure
Tank piping construction:	Double Walled
Tank sacrificial anode:	No
Tank cp impressed current:	No
Tank cp shutoff:	No
Tank alarms:	Yes
Tank ball float:	No
Tank spill bucket:	Yes

Name:	NAZM GROUP INC. DBA ARCO AMPM
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	FA0027739
Permitting Agency:	Riverside County Department of Environmental Health
CERSID:	10325605
Latitude:	33.6273000
Longitude:	-117.2748300
Owner type:	Non-Government
Facility type:	Motor Vehicle Fueling
Num of inuse ust:	Not reported
Num of closed ust:	0
Num of oos ust:	0
Epa region:	9
Tribal lands:	No
Tank owner name:	NAZM GROUP INC.
Tank owner mailing address:	33986 Orange St
Tank owner mailing city:	Wildomar
Tank owner mailing zip:	92595
Tank owner mailing state:	CA
Tank operator name:	NAZM GROUP INC.
Tank operator mailing address:	33986 Orange St
Tank operator mailing city:	Wildomar
Tank operator mailing zip:	92595
Tank operator mailing state:	CA
Tankidnumber:	T1
Tank status:	Confirmed/Updated Information
Tank configuration:	Stand Alone Tank
Tank closure date:	Not reported
Tank installation date:	1/1/1998 12:00:00 AM
Tank num of compartments:	1
Tank contents:	Regular Unleaded

NAZM GROUP INC. DBA ARCO AMPM (Continued) **U004354266**

Tank capacity gallons:	10000
Tank type:	Double Wall
Tank pc construction:	Fiberglass
Tank pwpiping construction:	Fiberglass
Tank piping type:	Pressure
Tank piping construction:	Double Walled
Tank sacrificial anode:	No
Tank cp impressed current:	No
Tank cp shutoff:	No
Tank alarms:	Yes
Tank ball float:	No
Tank spill bucket:	Yes

Name:	NAZM GROUP INC. DBA ARCO AMPM
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92595
Facility ID:	FA0027739
Permitting Agency:	Riverside County Department of Environmental Health
CERSID:	10325605
Latitude:	33.6273000
Longitude:	-117.2748300
Owner type:	Non-Government
Facility type:	Motor Vehicle Fueling
Num of inuse ust:	Not reported
Num of closed ust:	0
Num of oos ust:	0
Epa region:	9
Tribal lands:	No
Tank owner name:	NAZM GROUP INC.
Tank owner mailing address:	33986 Orange St
Tank owner mailing city:	Wildomar
Tank owner mailing zip:	92595
Tank owner mailing state:	CA
Tank operator name:	NAZM GROUP INC.
Tank operator mailing address:	33986 Orange St
Tank operator mailing city:	Wildomar
Tank operator mailing zip:	92595
Tank operator mailing state:	CA
Tankidnumber:	T4
Tank status:	Renewal Permit
Tank configuration:	Stand Alone Tank
Tank closure date:	Not reported
Tank installation date:	1/1/1998 12:00:00 AM
Tank num of compartments:	1
Tank contents:	Diesel
Tank capacity gallons:	10000
Tank type:	Double Wall
Tank pc construction:	Fiberglass
Tank pwpiping construction:	Fiberglass
Tank piping type:	Pressure
Tank piping construction:	Double Walled
Tank sacrificial anode:	No
Tank cp impressed current:	No
Tank cp shutoff:	No
Tank alarms:	Yes
Tank ball float:	No
Tank spill bucket:	Yes

B8
WSW
< 1/8
0.122 mi.
643 ft.

NAZM GROUP INC. DBA ARCO AMPM
33986 ORANGE ST
WILDOMAR, CA 92595

Site 4 of 8 in cluster B

CERS HAZ WASTE **S113152550**
CERS TANKS **N/A**
HAZNET
CERS
HWTS

Relative:
Lower

Actual:
1377 ft.

CERS HAZ WASTE:
Name: NAZM GROUP INC. DBA ARCO AMPM
Address: 33986 ORANGE ST
City,State,Zip: WILDOMAR, CA 92595
Site ID: 137507
CERS ID: 10325605
CERS Description: Hazardous Waste Generator

CERS TANKS:
Name: NAZM GROUP INC. DBA ARCO AMPM
Address: 33986 ORANGE ST
City,State,Zip: WILDOMAR, CA 92595
Site ID: 137507
CERS ID: 10325605
CERS Description: Underground Storage Tank

HAZNET:
Name: NAZM GROUP INC
Address: 33986 ORANGE ST
Address 2: Not reported
City,State,Zip: WILDOMAR, CA 925958448
Contact: SAM YASSIN
Telephone: 6264859769
Mailing Name: Not reported
Mailing Address: 33986 ORANGE ST

Year: 2020
Gepaid: CAL000332348
TSD EPA ID: CAD008252405
CA Waste Code: 352 - Other organic solids
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.075

Year: 2020
Gepaid: CAL000332348
TSD EPA ID: AZR000520478
CA Waste Code: 135 - Unspecified aqueous solution
Disposal Method: H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.231

Year: 2017
Gepaid: CAL000332348
TSD EPA ID: CAT080013352
CA Waste Code: 134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method: H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 0.063

Year: 2017

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Gepaid:	CAL000332348
TSD EPA ID:	NVT330010000
CA Waste Code:	352 - Other organic solids
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.175
Year:	2016
Gepaid:	CAL000332348
TSD EPA ID:	NVT330010000
CA Waste Code:	352 - Other organic solids
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.1
Year:	2016
Gepaid:	CAL000332348
TSD EPA ID:	CAT080013352
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.126
Year:	2014
Gepaid:	CAL000332348
TSD EPA ID:	CAT080013352
CA Waste Code:	134 - Aqueous solution with total organic residues less than 10 percent
Disposal Method:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.147
Year:	2014
Gepaid:	CAL000332348
TSD EPA ID:	NVT330010000
CA Waste Code:	352 - Other organic solids
Disposal Method:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Tons:	0.4375
Year:	2013
Gepaid:	CAL000332348
TSD EPA ID:	CAT080013352
CA Waste Code:	241 - Tank bottom waste
Disposal Method:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	1.0425
Year:	2011
Gepaid:	CAL000332348
TSD EPA ID:	CAD028409019
CA Waste Code:	223 - Unspecified oil-containing waste
Disposal Method:	H135 - Discharge To Sewer/Potw Or Npdes(With Prior Storage--With Or Without Treatment)
Tons:	1.668

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Click this hyperlink while viewing on your computer to access
2 additional CA HAZNET: record(s) in the EDR Site Report.

Detail Two:

Year:	2020
EM Manifest ID:	64d1d0e5-d06e-4bb5-9908-927764fa8f40
Shipment Date:	3/30/2020
Receipt Date:	4/20/2020
Manifest Number:	021750069JJK
Generator EPA ID:	CAL000332348
Name:	NAZM GROUP INC
Address:	ORANGE ST
Address 2:	Not reported
City:	WILDOMAR
Zip:	92595
Telephone:	800-349-1360
Contact:	SAM YASSIN
Contact Telephone:	951-421-5373
Transporter 1 EPA ID:	CAR000277699
Transporter 1 Emergency Number:	Not reported
Transporter 2 EPA ID:	CAR000183574
Transporter 2 Emergency Number:	Not reported
TSDF EPA ID:	AZR000520478
TSDF Name:	ENVIRONMENTAL WASTE SOLUTIONS, INC.
TSDF Address 1:	31915 INDUSTRIAL LANE
TSDF Address 2:	Not reported
TSDF City:	PAKER
TSDF Zip:	85344
TSDF Telephone:	Not reported

State:

Year:	2020
EM Manifest ID:	64d1d0e5-d06e-4bb5-9908-927764fa8f40
Generator EPA ID:	CAL000332348
Shipment Date:	2020-03-30
Manifest Number:	021750069JJK
Line Number:	1
Method Code:	H141
Quantity Tons:	0.23100
Quantity Waste:	55.000000
Quantity Unit:	G
Number of Containers:	1
Type of Container:	Metal drums, barrels, kegs
Quantity Type:	Gallons
State Code:	135

Additional Info:

Year:	2017
Gen EPA ID:	CAL000332348
Shipment Date:	20171128
Creation Date:	7/5/2018 18:32:15
Receipt Date:	20171129
Manifest ID:	004662847FLE
Trans EPA ID:	CAR000183913

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY NEVADA OPERATIONS
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D018
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.085
Waste Quantity:	170
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20170207
Creation Date:	5/9/2018 18:32:07
Receipt Date:	20170215
Manifest ID:	009686463FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY NEVADA OPERATIONS
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D018
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.09
Waste Quantity:	180
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20170207
Creation Date:	5/18/2017 18:32:03
Receipt Date:	20170209
Manifest ID:	009686464FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	CAT080016116
Trans 2 Name:	NIETO AND SONS TRUCKING, INC.
TSDF EPA ID:	CAT080013352
Trans Name:	DEMENNO/KERDOON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons:	0.063
Waste Quantity:	15
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2014
Gen EPA ID:	CAL000332348
Shipment Date:	20140527
Creation Date:	11/3/2014 22:14:40
Receipt Date:	20140604
Manifest ID:	007614868FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY NEVADA OPERATIONS
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D018
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.2125
Waste Quantity:	425
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20140331
Creation Date:	6/6/2014 22:15:14
Receipt Date:	20140403
Manifest ID:	007612714FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080013352
Trans Name:	DEMENNO KERDOON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	134 - Aqueous solution with <10% total organic residues
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

	Regeneration, Organics Recovery Ect
Quantity Tons:	0.147
Waste Quantity:	35
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20140331
Creation Date:	9/9/2014 22:15:18
Receipt Date:	20140409
Manifest ID:	007612713FLE
Trans EPA ID:	CAR000183913
Trans Name:	BELSHIRE
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	NVT330010000
Trans Name:	US ECOLOGY NEVADA OPERATIONS
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	D018
Meth Code:	H132 - Landfill Or Surface Impoundment That Will Be Closed As Landfill(To Include On-Site Treatment And/Or Stabilization)
Quantity Tons:	0.225
Waste Quantity:	450
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2013
Gen EPA ID:	CAL000332348
Shipment Date:	20130107
Creation Date:	3/15/2013 22:15:20
Receipt Date:	20130107
Manifest ID:	005778860FLE
Trans EPA ID:	CAT080016116
Trans Name:	NIETO AND SONS TRUCKING INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080013352
Trans Name:	DEMENNO KERDOON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	241 - Tank bottom waste 251 Still bottoms with halogenated organics
RCRA Code:	Not reported
Meth Code:	H039 - Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Quantity Tons:	1.0425
Waste Quantity:	250

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2011
Gen EPA ID:	CAL000332348
Shipment Date:	20110928
Creation Date:	12/20/2011 18:30:31
Receipt Date:	20111006
Manifest ID:	005698412JJK
Trans EPA ID:	NYD006801245
Trans Name:	TYREE ENVIRONMENTAL CORP
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD028409019
Trans Name:	CROSBY & OVERTON
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	H135 - Discharge To Sewer/Potw Or Npdes(With Prior Storage--With Or Without Treatment)
Quantity Tons:	1.668
Waste Quantity:	400
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2010
Gen EPA ID:	CAL000332348
Shipment Date:	20100319
Creation Date:	6/29/2010 18:30:08
Receipt Date:	20100319
Manifest ID:	007044695JJK
Trans EPA ID:	CAR000172460
Trans Name:	ENVIRONMENTAL LOGISTICS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	FILTER RECYCLING SERVICES INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Quantity Tons:	0.05
Waste Quantity:	100
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	20100319
Creation Date:	6/29/2010 18:30:08
Receipt Date:	20100319
Manifest ID:	007044695JJK
Trans EPA ID:	CAR000172460
Trans Name:	ENVIRONMENTAL LOGISTICS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD982444481
Trans Name:	FILTER RECYCLING SERVICES INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	222 - Oil/water separation sludge
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.10425
Waste Quantity:	25
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

CERS:

Name:	NAZM GROUP INC. DBA ARCO AMPM
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92595
Site ID:	137507
CERS ID:	10325605
CERS Description:	Chemical Storage Facilities

Violations:

Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-19-2015
Citation:	HSC 6.7 25284.2 - California Health and Safety Code, Chapter 6.7, Section(s) 25284.2
Violation Description:	Failure to test the spill bucket annually.
Violation Notes:	Returned to compliance on 07/07/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	12-20-2022

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Citation:	23 CCR 16 2637(f) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2637(f)
Violation Description:	Failure to submit a copy of the secondary containment test results on the Secondary Containment Testing report Form to the UPA within 30 days after the test.
Violation Notes:	Returned to compliance on 12/23/2022. OBSERVATION: Secondary containment testing was conducted on 11-17-2022. Observed that owner/operator failed to submit test results to the CUPA within 30 days of testing. CORRECTIVE ACTION: Owner/operator shall submit test results for secondary containment testing conducted on 11-17-2022 to the CUPA within 30 days. Documents must be provided on state-approved forms.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	02-02-2017
Citation:	HSC 6.7 25291(a)(1) - California Health and Safety Code, Chapter 6.7, Section(s) 25291(a)(1)
Violation Description:	Failure to construct, operate, and maintain primary containment as product-tight.
Violation Notes:	Returned to compliance on 02/02/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description:	Business Plan Program - Administration/Documentation - General
Violation Notes:	Returned to compliance on 07/07/2014. [LOCAL ORDINANCE VIOLATION 104B] Emergency phone numbers have been posted appropriately.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	02-01-2018
Citation:	23 CCR 16 2644.1(a)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2644.1(a)(2)
Violation Description:	Failure to demonstrate to the UPA that the equipment and methods used to monitor the UST system are certified by an independent third-party as complying with the standards set forth in 23 CCR 2643(f).
Violation Notes:	Returned to compliance on 02/01/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	02-01-2018
Citation:	23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23,

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

	Chapter 16, Section(s) 2636(f)(1)
Violation Description:	Failure of the double-walled pressurized piping to be continuously monitored with a system that activates an audible and visual alarm or stops flow at the dispenser when a leak is detected.
Violation Notes:	Returned to compliance on 02/01/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	07-05-2017
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.
Violation Notes:	Returned to compliance on 07/10/2017.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	22 CCR 15 66265.31 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.31
Violation Description:	Failure to maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water which could threaten human health or the environment.
Violation Notes:	Returned to compliance on 07/10/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-19-2015
Citation:	23 CCR 16 2715(f) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(f)
Violation Description:	Failure to comply with one or more of the following: provide training to facility employee(s) responsible for proper operation and maintenance every 12 months and/or train new employee(s) who are responsible for proper operation and maintenance within 30-days of hire and/or to have at least one employee present during operating hours that has been trained in the proper operation and maintenance of the UST system.
Violation Notes:	Returned to compliance on 07/07/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-19-2015

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Citation:	22 CCR 12 66262.12 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.12
Violation Description:	Failure to obtain and/or maintain an Active EPA ID.
Violation Notes:	Returned to compliance on 05/19/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-19-2015
Citation:	22 CCR 12 66262.40(a) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.40(a)
Violation Description:	Failure to maintain uniform hazardous waste manifest, consolidated manifest, or bills of lading copies for three years.
Violation Notes:	Returned to compliance on 07/07/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description:	Business Plan Program - Operations/Maintenance - General
Violation Notes:	Returned to compliance on 07/07/2014. [LOCAL ORDINANCE VIOLATION 105A] Hazardous materials are stored in a manner to minimize the possibility of a fire, explosion, or release.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	HSC 6.67 Multiple - California Health and Safety Code, Chapter 6.67, Section(s) Multiple
Violation Description:	Haz Waste Generator Program - Operations/Maintenance - General
Violation Notes:	Returned to compliance on 07/10/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-19-2015
Citation:	HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description:	Failure to complete and electronically submit a site map with all required content.
Violation Notes:	Returned to compliance on 07/07/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	137507

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	22 CCR 15 66265.16 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.16
Violation Description:	Failure to provide employees within the first six months after the date of their employment, or assignment to the facility, or to work unsupervised, or to a new position at a facility with hazardous waste training to ensure employees are competent in the following areas: hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed, emergency response and emergency equipment, and procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment. In addition, the owner/operator shall ensure facility personnel take part in an annual review of the initial training and training records training records on current personnel shall be kept until closure of the facility. Training records on former employees shall be kept for at least three years from the date the employee last worked at the facility. The records shall include the following: the job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job; a written job description for each position, duties of facility personnel assigned to each position, and a written description of the type and amount of both introductory and continuing training that will be given to each person filling a position.
Violation Notes:	Returned to compliance on 07/10/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	22 CCR 15 66265.32 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.32
Violation Description:	Failure of the facility to maintain the following emergency equipment or equivalents: 1) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel; 2) A device, such as a telephone (immediately available at the scene of Operations/ Maintenance) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams; 3) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and 4) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.
Violation Notes:	Returned to compliance on 07/10/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-28-2015
Citation:	23 CCR 16 2666(c) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2666(c)

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Violation Description:	Failure to install an automatic line leak detector capable of shutting off the pump when a release occurs, fails, or is disconnected.
Violation Notes:	Returned to compliance on 07/24/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	23 CCR 16 2715(c)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)(2)
Violation Description:	Failure to comply with one or more of the following: maintain the spill bucket in good condition, containment free of debris/liquid, and/or to remove the contents of the spill bucket when a release/leak/spill was observed.
Violation Notes:	Returned to compliance on 05/08/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	02-01-2018
Citation:	23 CCR 16 2641(j) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2641(j)
Violation Description:	Failure of the leak detection equipment to be installed, calibrated, operated, and/or maintained properly.
Violation Notes:	Returned to compliance on 02/01/2018.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	HSC 6.5 25189.5(a) - California Health and Safety Code, Chapter 6.5, Section(s) 25189.5(a)
Violation Description:	Failure to properly dispose of hazardous waste at an authorized location.
Violation Notes:	Returned to compliance on 07/10/2014.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	02-24-2020
Citation:	22 CCR 12 66262.34(f) - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.34(f)
Violation Description:	Failure to properly label hazardous waste accumulation containers and portable tanks with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.
Violation Notes:	Returned to compliance on 06/02/2020. OBSERVATION: Observed faded labels on all hazardous waste drums CORRECTIVE ACTION: Owner/operator

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

shall re-label hazardous waste containers with all the required information. Label shall include at least: the words "hazardous waste", generator name and address, accumulation start date, composition and physical state of waste, and hazardous property statement. Submit photos to this department, if applicable.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: 22 CCR 15 66265.173 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.173
Violation Description: Failure to properly close hazardous waste containers when not in active use.
Violation Notes: Returned to compliance on 07/10/2014.
Violation Division: Riverside County Department of Env Health
Violation Program: HW
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: HSC 6.95 25507 - California Health and Safety Code, Chapter 6.95, Section(s) 25507
Violation Description: Failure of business to report a release or threatened release of a hazardous material to the administering agency and CalEMA.
Violation Notes: Returned to compliance on 07/07/2014.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description: Business Plan Program - Administration/Documentation - General
Violation Notes: Returned to compliance on 07/07/2014.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: HSC 6.7 25291 - California Health and Safety Code, Chapter 6.7, Section(s) 25291
Violation Description: Failure to maintain under-dispenser containment, sumps, and/or other secondary containment in good condition and/or free of debris/liquid.
Violation Notes: Returned to compliance on 05/08/2014.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS,

Site ID: 137507

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description:	Business Plan Program - Administration/Documentation - General
Violation Notes:	Returned to compliance on 07/07/2014. [LOCAL ORDINANCE VIOLATION 104A] NFPA 704 sign(s) have been posted appropriately.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HMRRP
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-08-2014
Citation:	HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description:	UST Program - Administration/Documentation - General
Violation Notes:	Returned to compliance on 07/07/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	05-19-2015
Citation:	23 CCR 16 2638 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2638
Violation Description:	Failure to test leak detection equipment as required every 12 months (VPH, sensor, LLD, ATG, etc.) and/or submit monitoring system certification to the CUPA within 30 days of completion of the test
Violation Notes:	Returned to compliance on 07/07/2015.
Violation Division:	Riverside County Department of Env Health
Violation Program:	UST
Violation Source:	CERS,
Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Violation Date:	02-24-2020
Citation:	HSC 6.5 25123.3(h)(1) - California Health and Safety Code, Chapter 6.5, Section(s) 25123.3(h)(1)
Violation Description:	Failure to send hazardous waste offsite for treatment, storage, or disposal within 180 days (or 270 days if waste is transported over 200 miles) for a generator who generates less than 1000 kilogram per month if all of the following conditions are met: (1) The quantity of hazardous waste accumulated onsite never exceeds 6,000 kilograms. (2) The generator complies with the requirements of 40 Code of Federal Regulations section 262.34(d), (e) and (f). (3) The generator does not hold acutely hazardous waste or extremely hazardous waste in an amount greater than one kilogram for more than 90 days.
Violation Notes:	Returned to compliance on 06/02/2020. OBSERVATION: Observed all hazardous waste drums on site with no accumulation start dates . CORRECTIVE ACTION: Owner/operator shall ensure all hazardous wastes are transported off site within 180 days of the accumulation start date. Owner/operator shall have all hazardous waste properly hauled off site by a registered hazardous waste transporter.
Violation Division:	Riverside County Department of Env Health
Violation Program:	HW

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: HSC 6.95 Multiple - California Health and Safety Code, Chapter 6.95, Section(s) Multiple
Violation Description: Business Plan Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 07/07/2014. [LOCAL ORDINANCE VIOLATION 105D] Hazardous materials containers have been labeled properly.
Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description: UST Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 07/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: HSC 6.7 Multiple Sections - California Health and Safety Code, Chapter 6.7, Section(s) Multiple Sections
Violation Description: UST Program - Operations/Maintenance - General
Violation Notes: Returned to compliance on 05/08/2014.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 04-12-2016
Citation: 23 CCR 16 2636(f) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)
Violation Description: Failure to continuously monitor the interstitial space of the tank, piping and/or sumps sump such that the leak detection activates an audible/visual alarm when a leak is detected.
Violation Notes: Returned to compliance on 04/12/2016.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-08-2014
Citation: 19 CCR 4 2729.2(a)(3) - California Code of Regulations, Title 19, Chapter 4, Section(s) 2729.2(a)(3)
Violation Description: Failure to complete and/or submit an annotated site map if required by CUPA.
Violation Notes: Returned to compliance on 07/07/2014.

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Violation Division: Riverside County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Violation Date: 05-19-2015
Citation: 23 CCR 16 2712(b) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)
Violation Description: Failure to maintain leak detection alarm logs and/or maintain records of appropriate follow-up actions
Violation Notes: Returned to compliance on 07/07/2015.
Violation Division: Riverside County Department of Env Health
Violation Program: UST
Violation Source: CERS,

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-02-2017
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-02-2022
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-17-2021
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-21-2019
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-24-2020
Violations Found: No
Eval Type: Routine done by local agency

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-02-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-24-2020
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 04-12-2016
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 06-02-2020
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 07-07-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 07-07-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 07-24-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-19-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 05-28-2015
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: KK conducted an administrative 02 on 5/19/15. F/U for certification. Violation added for failed 87 LLD
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 07-05-2017
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-02-2017
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-08-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-08-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 07-07-2015
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 12-20-2022
Violations Found: Yes
Eval Type: Other, not routine, done by local agency
Eval Notes: Note: This report serves as a violation notice regarding the test results for the secondary containment testing conducted on 11-17-2022 not being submitted within 30 days.
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-01-2018
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 02-24-2020
Violations Found: No
Eval Type: Routine done by local agency
Eval Notes: Monitoring cert was not witnessed. However, inspector came back to review paperwork
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-08-2014
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-19-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS,

Eval General Type: Compliance Evaluation Inspection
Eval Date: 05-19-2015
Violations Found: Yes
Eval Type: Routine done by local agency
Eval Notes: Not reported
Eval Division: Riverside County Department of Env Health
Eval Program: UST
Eval Source: CERS,

Eval General Type: Other/Unknown
Eval Date: 05-20-2014
Violations Found: No
Eval Type: Other, not routine, done by local agency
Eval Notes: Complete writeup, file research
Eval Division: Riverside County Department of Env Health
Eval Program: HW
Eval Source: CERS,

Enforcement Action:
Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Site Address: 33986 ORANGE ST
Site City: WILDOMAR
Site Zip: 92595
Enf Action Date: 05-08-2014
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: UST
Enf Action Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Site Address: 33986 ORANGE ST
Site City: WILDOMAR
Site Zip: 92595
Enf Action Date: 05-19-2015
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes: Not reported
Enf Action Division: Riverside County Department of Env Health
Enf Action Program: HMRRP
Enf Action Source: CERS,

Site ID: 137507
Site Name: NAZM GROUP INC. DBA ARCO AMPM
Site Address: 33986 ORANGE ST

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Site City:	WILDOMAR
Site Zip:	92595
Enf Action Date:	05-19-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	HW
Enf Action Source:	CERS,

Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Site Address:	33986 ORANGE ST
Site City:	WILDOMAR
Site Zip:	92595
Enf Action Date:	05-19-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST
Enf Action Source:	CERS,

Site ID:	137507
Site Name:	NAZM GROUP INC. DBA ARCO AMPM
Site Address:	33986 ORANGE ST
Site City:	WILDOMAR
Site Zip:	92595
Enf Action Date:	05-28-2015
Enf Action Type:	Notice of Violation (Unified Program)
Enf Action Description:	Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:	Not reported
Enf Action Division:	Riverside County Department of Env Health
Enf Action Program:	UST
Enf Action Source:	CERS,

Coordinates:

Site ID:	137507
Facility Name:	NAZM GROUP INC. DBA ARCO AMPM
Env Int Type Code:	HWG
Program ID:	10325605
Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.,
Latitude:	33.627300
Longitude:	-117.274830

Affiliation:

Affiliation Type Desc:	Legal Owner
Entity Name:	NAZM GROUP INC.
Entity Title:	Not reported
Affiliation Address:	33986 Orange St
Affiliation City:	Wildomar
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92595
Affiliation Phone:	(909) 293-7588,

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Affiliation Type Desc:	Property Owner
Entity Name:	NAZM GROUP INC.
Entity Title:	Not reported
Affiliation Address:	33986 Orange St
Affiliation City:	Wildomar
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92595
Affiliation Phone:	(909) 293-7588,

Affiliation Type Desc:	CUPA District
Entity Name:	Riverside Cnty Env Health
Entity Title:	Not reported
Affiliation Address:	4065 County Circle Drive, Room 104
Affiliation City:	Riverside
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92503
Affiliation Phone:	(951) 358-5055,

Affiliation Type Desc:	Environmental Contact
Entity Name:	TONY MANSOUR, TM ENV SVC
Entity Title:	Not reported
Affiliation Address:	33986 Orange St
Affiliation City:	Wildomar
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92595
Affiliation Phone:	,

Affiliation Type Desc:	UST Permit Applicant
Entity Name:	SAM YASSINE
Entity Title:	OPERATIONS MANGER
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(626) 485-9769,

Affiliation Type Desc:	UST Tank Owner
Entity Name:	NAZM GROUP INC.
Entity Title:	Not reported
Affiliation Address:	33986 Orange St
Affiliation City:	Wildomar
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92595
Affiliation Phone:	(951) 245-1590,

Affiliation Type Desc:	Document Preparer
Entity Name:	TONY MANSOUR
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	33986 Orange St
Affiliation City:	Wildomar
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92595
Affiliation Phone:	,
Affiliation Type Desc:	Parent Corporation
Entity Name:	Arco Am/Pm
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Identification Signer
Entity Name:	Mike Sater
Entity Title:	Owner/Operator
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	,
Affiliation Type Desc:	Operator
Entity Name:	MIKE SATER
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(909) 293-7588,
Affiliation Type Desc:	UST Property Owner Name
Entity Name:	NAZM GROUP INC.
Entity Title:	Not reported
Affiliation Address:	33986 Orange St
Affiliation City:	Wildomar
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92595
Affiliation Phone:	(951) 245-1590,
Affiliation Type Desc:	UST Tank Operator
Entity Name:	NAZM GROUP INC.
Entity Title:	Not reported
Affiliation Address:	33986 Orange St

NAZM GROUP INC. DBA ARCO AMPM (Continued) **S113152550**

Affiliation City:	Wildomar
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	92595
Affiliation Phone:	(951) 245-1590,

HWTS:

Name:	NAZM GROUP INC
Address:	33986 ORANGE ST
Address 2:	Not reported
City,State,Zip:	WILDOMAR, CA 92595
EPA ID:	CAL000332348
Inactive Date:	06/30/2020
Create Date:	05/05/2008
Last Act Date:	Not reported
Mailing Name:	Not reported
Mailing Address:	33986 ORANGE ST
Mailing Address 2:	Not reported
Mailing City,State,Zip:	WILDOMAR, CA 925958448
Owner Name:	NAZM GROUP INC
Owner Address:	33986 ORANGE ST
Owner Address 2:	Not reported
Owner City,State,Zip:	WILDOMAR, CA 925958448
Contact Name:	SAM YASSIN
Contact Address:	33986 ORANGE ST
Contact Address 2:	Not reported
City,State,Zip:	WILDOMAR, CA 925958448
Facility Status:	Inactive
Facility Type:	PERMANENT
Category:	STATE
Latitude:	33.627509
Longitude:	-117.27535

NAICS:

EPA ID:	CAL000332348
Create Date:	2008-05-05 15:04:23.827
NAICS Code:	44719
NAICS Description:	Other Gasoline Stations
Issued EPA ID Date:	2008-05-05 15:04:23.79700
Inactive Date:	2020-06-30 00:00:00
Facility Name:	NAZM GROUP INC
Facility Address:	33986 ORANGE ST
Facility Address 2:	Not reported
Facility City:	WILDOMAR
Facility County:	Not reported
Facility State:	CA
Facility Zip:	925958448

B9 **ARCO AM/PM** **UST** **U003839061**
WSW **33986 ORANGE ST** **N/A**
< 1/8 **WILDOMAR, CA 92595**
0.122 mi.
643 ft. **Site 5 of 8 in cluster B**

Relative:
Lower

Actual:
1377 ft.

RIVERSIDE CO. UST:
Name: ARCO AM/PM
Address: 33986 ORANGE ST
City,State,Zip: WILDOMAR, CA 92595
Region: RIVERSIDE
Total Tanks: 4

B10 **BP WEST COAST PRODUCTS LLC 05644** **LUST** **1004677836**
WSW **33986 ORANGE ST** **RCRA NonGen / NLR** **CAR000102061**
< 1/8 **WILDOMAR, CA 92595** **FINDS**
0.122 mi. **ECHO**
643 ft. **Site 6 of 8 in cluster B** **Cortese**
CERS

Relative:
Lower

Actual:
1377 ft.

LUST:
Name: ARCO #5644
Address: 33986 ORANGE ST
City,State,Zip: WILDOMAR, CA 92530
Lead Agency: RIVERSIDE COUNTY LOP
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0606599151
Global Id: T0606599151
Latitude: 33.627307
Longitude: -117.2748
Status: Completed - Case Closed
Status Date: 04/27/2004
Case Worker: RIV
RB Case Number: 083303766T
Local Agency: RIVERSIDE COUNTY LOP
File Location: Not reported
Local Case Number: 200016624
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

LUST:
Global Id: T0606599151
Action Type: Other
Date: 08/16/2000
Action: Leak Discovery

Global Id: T0606599151
Action Type: Other
Date: 08/16/2000
Action: Leak Reported

Global Id: T0606599151
Action Type: ENFORCEMENT
Date: 04/26/2014
Action: File review - #RCDEH site file

LUST:
Global Id: T0606599151
Status: Open - Case Begin Date

BP WEST COAST PRODUCTS LLC 05644 (Continued) **1004677836**

Status Date: 08/16/2000

Global Id: T0606599151
Status: Open - Site Assessment
Status Date: 08/16/2000

Global Id: T0606599151
Status: Completed - Case Closed
Status Date: 04/27/2004

RIVERSIDE CO. LUST:
Name: ARCO #5644
Address: 33986 ORANGE ST
City,State,Zip: WILDOMAR, CA
Region: RIVERSIDE
Facility ID: 200016624
Employee: Winters
Site Closed: Yes
Case Type: Undefined
Facility Status: closed/action completed
Casetype Decode: Undefined
Fstatus Decode: Closed/Action completed

RCRA Listings:
Date Form Received by Agency: 20080515
Handler Name: BP WEST COAST PRODUCTS LLC 05644
Handler Address: 33986 ORANGE ST
Handler City,State,Zip: WILDOMAR, CA 92595
EPA ID: CAR000102061
Contact Name: JACKIE DOUGHERTY
Contact Address: PO BOX 80249
Contact City,State,Zip: RANCHO SANTA MARGARITA, CA 92688
Contact Telephone: 949-460-5200
Contact Fax: Not reported
Contact Email: Not reported
Contact Title: Not reported
EPA Region: 09
Land Type: Private
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: PO BOX 80249
Mailing City,State,Zip: RANCHO SANTA MARGARITA, CA 92688
Owner Name: B P W COAST PRODUCTS LLC
Owner Type: Private
Operator Name: BP WEST COAST PRODUCTS LLC
Operator Type: Private
Short-Term Generator Activity: No
Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No

BP WEST COAST PRODUCTS LLC 05644 (Continued) **1004677836**

Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	NN
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required: Not reported	
Handler Date of Last Change:	20080602
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	Not reported
Manifest Broker:	Not reported
Sub-Part P Indicator:	No

Hazardous Waste Summary:

Waste Code:	D000
Waste Description:	Not Defined

BP WEST COAST PRODUCTS LLC 05644 (Continued) **1004677836**

Waste Code: D001
Waste Description: IGNITABLE WASTE

Waste Code: D018
Waste Description: BENZENE

Handler - Owner Operator:
Owner/Operator Indicator: Operator
Owner/Operator Name: BP WEST COAST PRODUCTS LLC
Legal Status: Private
Date Became Current: 20080506
Date Ended Current: Not reported
Owner/Operator Address: Not reported
Owner/Operator City,State,Zip: Not reported
Owner/Operator Telephone: Not reported
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: B P W COAST PRODUCTS LLC
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: P O BOX 6038
Owner/Operator City,State,Zip: ARTESIA, CA 90702-6038
Owner/Operator Telephone: 714-690-2425
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Owner/Operator Indicator: Owner
Owner/Operator Name: B P W COAST PRODUCTS LLC
Legal Status: Private
Date Became Current: Not reported
Date Ended Current: Not reported
Owner/Operator Address: P O BOX 6038
Owner/Operator City,State,Zip: ARTESIA, CA 90702-6038
Owner/Operator Telephone: 714-690-2425
Owner/Operator Telephone Ext: Not reported
Owner/Operator Fax: Not reported
Owner/Operator Email: Not reported

Historic Generators:
Receive Date: 20020710
Handler Name: ARCO FACILITY NO 05644
Federal Waste Generator Description: Small Quantity Generator
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: No
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

BP WEST COAST PRODUCTS LLC 05644 (Continued) **1004677836**

Receive Date: 20080515
Handler Name: BP WEST COAST PRODUCTS LLC 05644
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Codes: No NAICS Codes Found

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

FINDS:
Registry ID: 110012189880

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
Registry ID: 110059741258

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1004677836

BP WEST COAST PRODUCTS LLC 05644 (Continued) **1004677836**

Registry ID:	110012189880
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110012189880
Name:	ARCO FACILITY NO 05644
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92595

CORTESE:

Name:	ARCO #5644
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92530
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	T0606599151
Site/Facility Type:	LUST CLEANUP SITE
Cleanup Status:	COMPLETED - CASE CLOSED
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	active
Order No:	Not reported
Waste Discharge System No:	Not reported
Effective Date:	Not reported
Region 2:	Not reported
WID Id:	Not reported
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Active Open

CERS:

Name:	ARCO #5644
Address:	33986 ORANGE ST
City,State,Zip:	WILDOMAR, CA 92530
Site ID:	251432
CERS ID:	T0606599151
CERS Description:	Leaking Underground Storage Tank Cleanup Site

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B11 **ARCO #5644** **LUST** **S104791941**
WSW **33986 ORANGE ST** **N/A**
< 1/8 **WILDOMAR, CA 92530**
0.122 mi.
643 ft. **Site 7 of 8 in cluster B**

Relative:
Lower

Actual:
1377 ft.

LUST REG 8:

Name:	ARCO #5644
Address:	33986 ORANGE ST
City:	WILDOMAR
Region:	8
County:	Riverside
Regional Board:	Santa Ana Region
Facility Status:	Case Closed
Case Number:	083303766T
Local Case Num:	200016624
Case Type:	Soil only

ARCO #5644 (Continued) **S104791941**

Substance:	Gasoline
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	BUNDY CANYON
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	OM
How Stopped:	Not reported
Leak Cause:	UNK
Leak Source:	UNK
Global ID:	T0606599151
How Stopped Date:	Not reported
Enter Date:	8/23/2000
Date Confirmation of Leak Began:	8/16/2000
Date Preliminary Assessment Began:	Not reported
Discover Date:	8/16/2000
Enforcement Date:	Not reported
Close Date:	4/27/2004
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	8/23/2000
GW Qualifies:	ND
Soil Qualifies:	ND
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.62387
Longitude:	-117.275134
MTBE Date:	8/26/2003
Max MTBE GW:	0
MTBE Concentration:	0
Max MTBE Soil:	0
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	VJJ
Staff Initials:	SAN
Lead Agency:	Local Agency
Local Agency:	33000L
Hydr Basin #:	ELSINORE (8-4)
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	No

Summary: CONTAMINATION FOUND BY SOIL TESTING 08/16/00

B12
WSW
1/8-1/4
0.152 mi.
801 ft.

ARCO #5644
33986 ORANGE ST
LAKE ELSINORE, CA 92330

Site 8 of 8 in cluster B

SWEEPS UST **S101589964**
CA FID UST **N/A**

Relative:
Lower

Actual:
1369 ft.

SWEEPS UST:

Name:	ARCO #5644
Address:	33986 ORANGE ST
City:	LAKE ELSINORE
Status:	Active
Comp Number:	1841
Number:	1
Board Of Equalization:	Not reported
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	08-26-91
Owner Tank Id:	EC-1
SWRCB Tank Id:	33-000-001841-000001
Tank Status:	A
Capacity:	10000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	4

Name:	ARCO #5644
Address:	33986 ORANGE ST
City:	LAKE ELSINORE
Status:	Active
Comp Number:	1841
Number:	1
Board Of Equalization:	Not reported
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	08-26-91
Owner Tank Id:	EC-2S
SWRCB Tank Id:	33-000-001841-000002
Tank Status:	A
Capacity:	10000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

Name:	ARCO #5644
Address:	33986 ORANGE ST
City:	LAKE ELSINORE
Status:	Active
Comp Number:	1841
Number:	1
Board Of Equalization:	Not reported
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	08-26-91
Owner Tank Id:	ACU3
SWRCB Tank Id:	33-000-001841-000003

ARCO #5644 (Continued) **S101589964**

Tank Status:	A
Capacity:	10000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

Name:	ARCO #5644
Address:	33986 ORANGE ST
City:	LAKE ELSINORE
Status:	Active
Comp Number:	1841
Number:	1
Board Of Equalization:	Not reported
Referral Date:	10-19-92
Action Date:	10-19-92
Created Date:	08-26-91
Owner Tank Id:	ACU4
SWRCB Tank Id:	33-000-001841-000004
Tank Status:	A
Capacity:	10000
Active Date:	10-19-92
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

CA FID UST:

Facility ID:	33001845
Regulated By:	UTNKA
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	7142451590
Mail To:	Not reported
Mailing Address:	17315 STUDEBAKER RD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	LAKE ELSINORE 92330
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

13
West
1/2-1
0.558 mi.
2945 ft.

ELSINORE HIGH SCHOOL EXPANSION **ENVIROSTOR** **S107736291**
BUNDY CANYON ROAD/ORCHARD STREET **SCH** **N/A**
WILDOMAR, CA 92595

Relative:
Lower

Actual:
1325 ft.

ENVIROSTOR:

Name:	ELSINORE HIGH SCHOOL EXPANSION
Address:	BUNDY CANYON ROAD/ORCHARD STREET
City,State,Zip:	WILDOMAR, CA 92595

ELSINORE HIGH SCHOOL EXPANSION (Continued) **S107736291**

Facility ID:	33010015
Status:	No Further Action
Status Date:	06/04/2001
Site Code:	404116
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	16.2
NPL:	NO
Regulatory Agencies:	DTSC
Lead Agency:	DTSC
Program Manager:	Not reported
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	28
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.62655
Longitude:	-117.2826
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic DDE
Confirmed COC:	Arsenic DDE
Potential Description:	SOIL
Alias Name:	ELSINORE HIGH SCH. EXPANSION (PROPOSED)
Alias Type:	Alternate Name
Alias Name:	ELSINORE HIGH SCHOOL EXPANSION
Alias Type:	Alternate Name
Alias Name:	ELSINORE HIGH SCHOOL EXPANSION (PROP)
Alias Type:	Alternate Name
Alias Name:	LAKE ELSINORE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	LAKE ELSINORE USD-ELSINORE HS EXP/VCA
Alias Type:	Alternate Name
Alias Name:	404116
Alias Type:	Project Code (Site Code)
Alias Name:	33010015
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	10/10/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	08/15/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Workplan
Completed Date:	11/15/2000

ELSINORE HIGH SCHOOL EXPANSION (Continued) **S107736291**

Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 12/22/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 07/26/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 11/15/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/22/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/04/2001
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Name: ELSINORE HIGH SCHOOL EXPANSION
Address: BUNDY CANYON ROAD/ORCHARD STREET
City,State,Zip: WILDOMAR, CA 92595
Facility ID: 33010015
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 16.2
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Not reported

ELSINORE HIGH SCHOOL EXPANSION (Continued) **S107736291**

Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404116
Assembly:	67
Senate:	28
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	06/04/2001
Restricted Use:	NO
Funding:	School District
Latitude:	33.62655
Longitude:	-117.2826
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	Arsenic, DDE
Confirmed COC:	Arsenic, DDE
Potential Description:	SOIL
Alias Name:	ELSINORE HIGH SCH. EXPANSION (PROPOSED)
Alias Type:	Alternate Name
Alias Name:	ELSINORE HIGH SCHOOL EXPANSION
Alias Type:	Alternate Name
Alias Name:	ELSINORE HIGH SCHOOL EXPANSION (PROP)
Alias Type:	Alternate Name
Alias Name:	LAKE ELSINORE UNIFIED SCHOOL DISTRICT
Alias Type:	Alternate Name
Alias Name:	LAKE ELSINORE USD-ELSINORE HS EXP/VCA
Alias Type:	Alternate Name
Alias Name:	404116
Alias Type:	Project Code (Site Code)
Alias Name:	33010015
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report
Completed Date:	10/10/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	08/15/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Workplan
Completed Date:	11/15/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	12/22/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE

ELSINORE HIGH SCHOOL EXPANSION (Continued) **S107736291**

Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 07/26/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 11/15/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/22/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 06/04/2001
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 09/06/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 90

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/02/2022
Date Data Arrived at EDR: 11/08/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/15/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 68

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/15/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 68

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2022
Date Data Arrived at EDR: 12/14/2022
Date Made Active in Reports: 12/19/2022
Number of Days to Update: 5

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/03/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 83

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/28/2022
Number of Days to Update: 89

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 08/24/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/21/2022
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 12/07/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/07/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 08/12/2022
Date Data Arrived at EDR: 08/16/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 07/29/2022
Date Data Arrived at EDR: 08/18/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/24/2022
Date Data Arrived at EDR: 10/24/2022
Date Made Active in Reports: 01/12/2023
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/11/2023
Number of Days to Update: 5

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 07/29/2022
Date Data Arrived at EDR: 08/18/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 67

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/24/2023
Number of Days to Update: 78

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/06/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/11/2023
Number of Days to Update: 5

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 08/24/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 11

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 08/02/2022
Date Data Arrived at EDR: 10/17/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 79

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 11/21/2022
Date Data Arrived at EDR: 11/21/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/20/2022
Date Made Active in Reports: 12/22/2022
Number of Days to Update: 93

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 01/30/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/12/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 10/17/2022
Date Data Arrived at EDR: 10/18/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 84

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/18/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 02/16/2023
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/04/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/26/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 13
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 11/23/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 12/20/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2022
Date Data Arrived at EDR: 10/21/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 81

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/30/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/09/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 11/29/2022
Date Data Arrived at EDR: 11/30/2022
Date Made Active in Reports: 12/22/2022
Number of Days to Update: 22

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/17/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/21/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing
Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/21/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/13/2022
Date Data Arrived at EDR: 09/14/2022
Date Made Active in Reports: 12/05/2022
Number of Days to Update: 82

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 10/24/2022
Number of Days to Update: 60

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 11/09/2021
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/09/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/25/2022
Date Data Arrived at EDR: 09/30/2022
Date Made Active in Reports: 12/22/2022
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/04/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 123
Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 01/10/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222
Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222
Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222
Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601
Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 01/23/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 01/03/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS ECHO FIRE TRAINING: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS PART 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 10/26/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/31/2022
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 222

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 10/31/2022
Number of Days to Update: 61

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 09/06/2022
Date Data Arrived at EDR: 09/06/2022
Date Made Active in Reports: 10/26/2022
Number of Days to Update: 50

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 10/09/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 12/07/2022
Number of Days to Update: 79

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 08/18/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 77

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 01/24/2023
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Annually

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/14/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/15/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 10/17/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/18/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 10/12/2022
Date Data Arrived at EDR: 10/12/2022
Date Made Active in Reports: 12/29/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/09/2022
Date Data Arrived at EDR: 08/10/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 20

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Varies

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 78

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/10/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/03/2022
Date Made Active in Reports: 12/15/2022
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/04/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Quarterly

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Annually

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/03/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/07/2022
Date Data Arrived at EDR: 09/08/2022
Date Made Active in Reports: 11/29/2022
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/18/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 08/16/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/05/2023
Date Data Arrived at EDR: 01/06/2023
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 4

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 08/31/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/17/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 01/03/2023
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 09/28/2022
Date Data Arrived at EDR: 09/29/2022
Date Made Active in Reports: 12/14/2022
Number of Days to Update: 76

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/13/2022
Date Data Arrived at EDR: 12/15/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 6

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 10/20/2022
Date Data Arrived at EDR: 10/21/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 81

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 12/29/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/12/2022
Date Made Active in Reports: 12/29/2022
Number of Days to Update: 78

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/05/2022
Date Made Active in Reports: 12/16/2022
Number of Days to Update: 72

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/05/2022
Date Made Active in Reports: 12/16/2022
Number of Days to Update: 72

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 11/04/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 79

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/09/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/03/2022
Date Data Arrived at EDR: 10/04/2022
Date Made Active in Reports: 12/15/2022
Number of Days to Update: 72

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/10/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 08/30/2022
Date Data Arrived at EDR: 09/20/2022
Date Made Active in Reports: 12/07/2022
Number of Days to Update: 78

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 08/30/2022
Date Data Arrived at EDR: 09/20/2022
Date Made Active in Reports: 12/08/2022
Number of Days to Update: 79

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/14/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/18/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 01/05/2023
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 10/27/2022
Date Made Active in Reports: 01/18/2023
Number of Days to Update: 83

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/24/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/24/2022
Date Data Arrived at EDR: 08/01/2022
Date Made Active in Reports: 10/20/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2022
Next Scheduled EDR Contact: 02/13/2023
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 08/26/2022
Date Data Arrived at EDR: 08/29/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 78

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 09/22/2022
Date Data Arrived at EDR: 09/26/2022
Date Made Active in Reports: 12/09/2022
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 09/22/2022
Date Data Arrived at EDR: 09/26/2022
Date Made Active in Reports: 12/09/2022
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/21/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 07/05/2022
Number of Days to Update: 5

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/09/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 10/27/2022
Date Data Arrived at EDR: 10/28/2022
Date Made Active in Reports: 01/18/2023
Number of Days to Update: 82

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/22/2022
Date Data Arrived at EDR: 08/23/2022
Date Made Active in Reports: 11/11/2022
Number of Days to Update: 80

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 01/30/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/25/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/15/2022
Number of Days to Update: 82

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 11/29/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/25/2023
Number of Days to Update: 79

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/03/2022
Date Data Arrived at EDR: 11/07/2022
Date Made Active in Reports: 01/24/2023
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/14/2022
Date Made Active in Reports: 01/04/2023
Number of Days to Update: 82

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/06/2022
Next Scheduled EDR Contact: 03/27/2023
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 08/10/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 10/28/2022
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/09/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 11/30/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 10/28/2022
Date Data Arrived at EDR: 11/01/2022
Date Made Active in Reports: 01/20/2023
Number of Days to Update: 80
Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 10/28/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22
Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/15/2022
Next Scheduled EDR Contact: 03/06/2023
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/08/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/22/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/13/2022
Next Scheduled EDR Contact: 04/03/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/09/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/25/2022
Date Made Active in Reports: 11/14/2022
Number of Days to Update: 81

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 11/23/2022
Next Scheduled EDR Contact: 03/13/2023
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 10/11/2022
Number of Days to Update: 76

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/11/2022
Date Data Arrived at EDR: 10/12/2022
Date Made Active in Reports: 12/29/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/15/2023
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/13/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2022
Date Data Arrived at EDR: 10/19/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 83

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/01/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2022
Date Data Arrived at EDR: 10/20/2022
Date Made Active in Reports: 01/10/2023
Number of Days to Update: 82

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/17/2023
Next Scheduled EDR Contact: 05/01/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/29/2022
Date Data Arrived at EDR: 08/31/2022
Date Made Active in Reports: 11/21/2022
Number of Days to Update: 82

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/02/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 09/21/2022
Date Data Arrived at EDR: 09/30/2022
Date Made Active in Reports: 12/14/2022
Number of Days to Update: 75

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/19/2022
Next Scheduled EDR Contact: 04/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 10/25/2022
Date Data Arrived at EDR: 10/26/2022
Date Made Active in Reports: 10/31/2022
Number of Days to Update: 5

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/20/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/08/2022
Date Made Active in Reports: 10/21/2022
Number of Days to Update: 74

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/16/2022
Next Scheduled EDR Contact: 02/20/2023
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 12/28/2022
Next Scheduled EDR Contact: 04/17/2023
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/27/2023
Next Scheduled EDR Contact: 05/08/2023
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/06/2023
Next Scheduled EDR Contact: 04/24/2023
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 12/20/2022
Next Scheduled EDR Contact: 02/27/2023
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/01/2022
Next Scheduled EDR Contact: 03/20/2023
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

E23-001P
22220 BUNDY CANYON ROAD
WILDOMAR, CA 92595

TARGET PROPERTY COORDINATES

Latitude (North):	33.628029 - 33ˆ 37’ 40.90’’
Longitude (West):	117.271878 - 117ˆ 16’ 18.76’’
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	474783.2
UTM Y (Meters):	3720753.8
Elevation:	1410 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12015893 LAKE ELSINORE, CA
Version Date:	2018
Southwest Map:	12015931 WILDOMAR, CA
Version Date:	2018

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

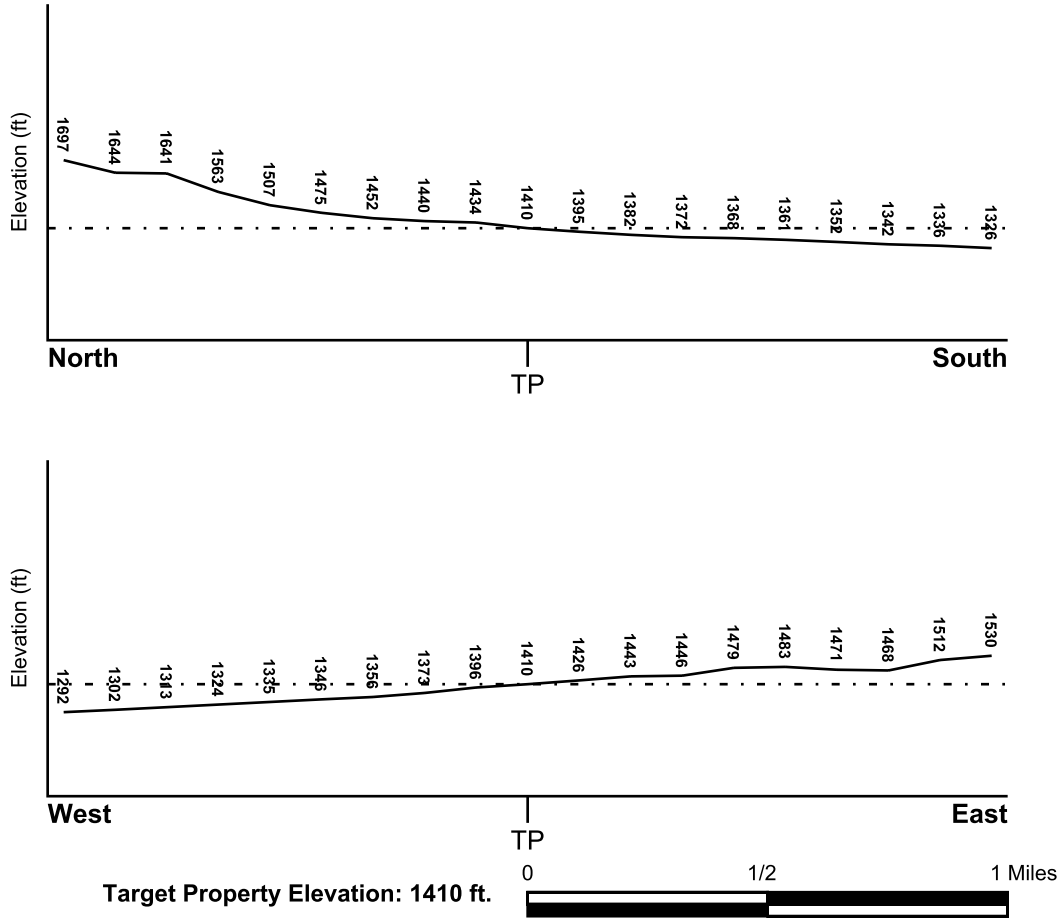
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
0602452070B	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
06065C2043G	FEMA FIRM Flood data
0602452710B	FEMA Q3 Flood data
06065C2681G	FEMA FIRM Flood data
06065C2682G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

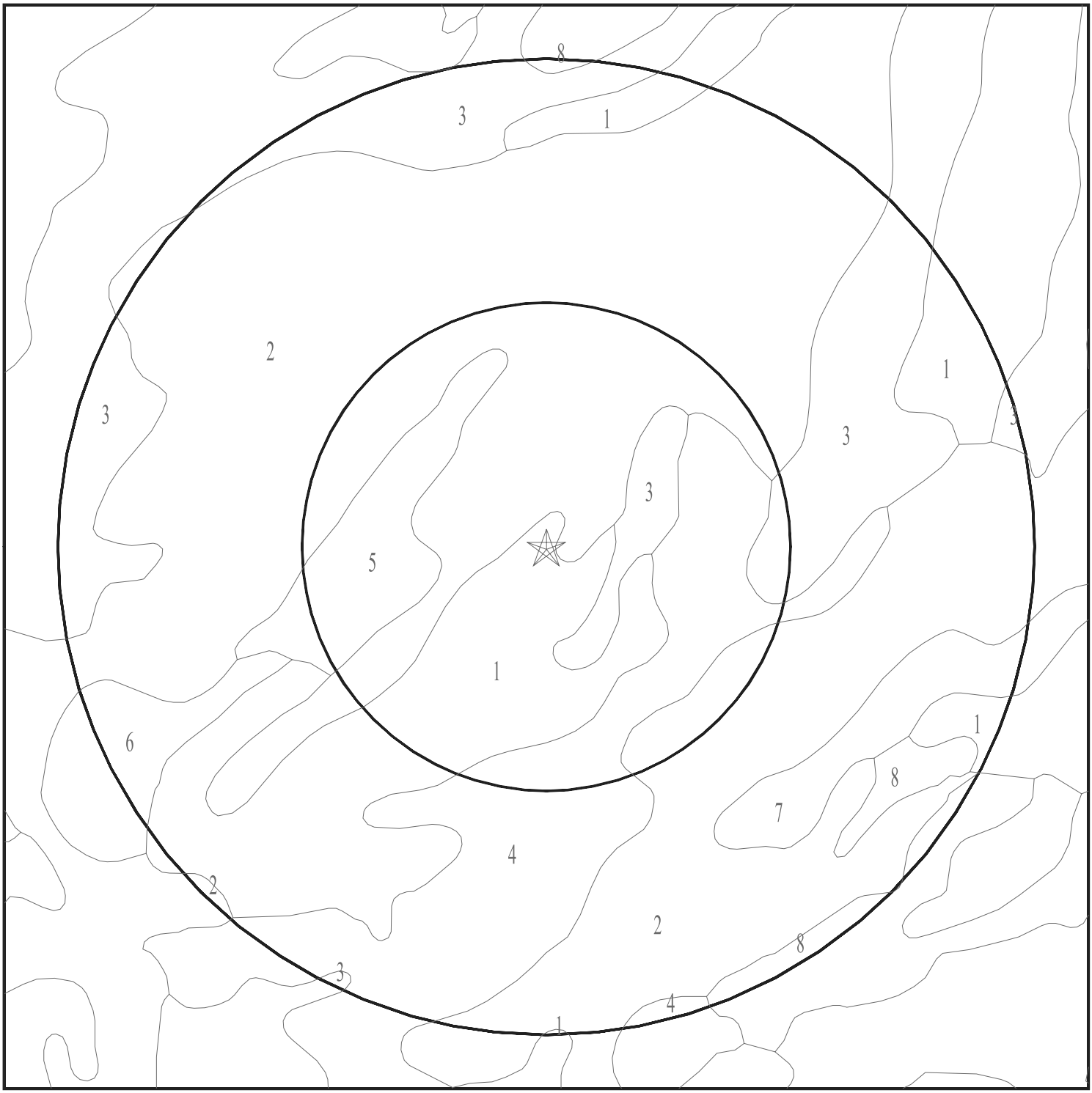
Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7240065.2s



★ Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	E23-001P	CLIENT:	Herron Environmental
ADDRESS:	22220 Bundy Canyon Road	CONTACT:	Ron Russell
	Wildomar CA 92595	INQUIRY #:	7240065.2s
T/LONG:	33.628029 / 117.271878	DATE:	January 31, 2023 5:38 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
2	14 inches	22 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
3	22 inches	68 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 2

Soil Component Name: GREENFIELD

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	25 inches	42 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
3	42 inches	59 inches	loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6
4	59 inches	72 inches	stratified loamy sand to sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.6

Soil Map ID: 3

Soil Component Name: HANFORD

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
2	7 inches	40 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6
3	40 inches	59 inches	stratified loamy sand to coarse sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.8 Min: 5.6

Soil Map ID: 4

Soil Component Name: RAMONA

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
2	14 inches	22 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
3	22 inches	68 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
4	68 inches	74 inches	gravelly sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 5

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
2	7 inches	16 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
3	16 inches	68 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 6

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
2	7 inches	16 inches	fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
3	16 inches	68 inches	sandy clay loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
4	68 inches	74 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 7

Soil Component Name: PLACENTIA

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
2	18 inches	38 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
3	38 inches	57 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9
4	57 inches	59 inches	gravelly sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 1.4 Min: 0.42	Max: 8.4 Min: 7.9

Soil Map ID: 8

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	18 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	18 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	USGS40000136126	1/4 - 1/2 Mile South
A3	USGS40000136110	1/2 - 1 Mile South
A5	USGS40000136103	1/2 - 1 Mile South
C8	USGS40000136092	1/2 - 1 Mile South
B9	USGS40000136098	1/2 - 1 Mile SSE
C11	USGS40000136084	1/2 - 1 Mile South
D12	USGS40000136088	1/2 - 1 Mile SSW
D15	USGS40000136076	1/2 - 1 Mile South
F20	USGS40000136102	1/2 - 1 Mile SE
21	USGS40000136111	1/2 - 1 Mile SW
22	USGS40000136096	1/2 - 1 Mile SE
G24	USGS40000136033	1/2 - 1 Mile South
25	USGS40000136066	1/2 - 1 Mile SE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

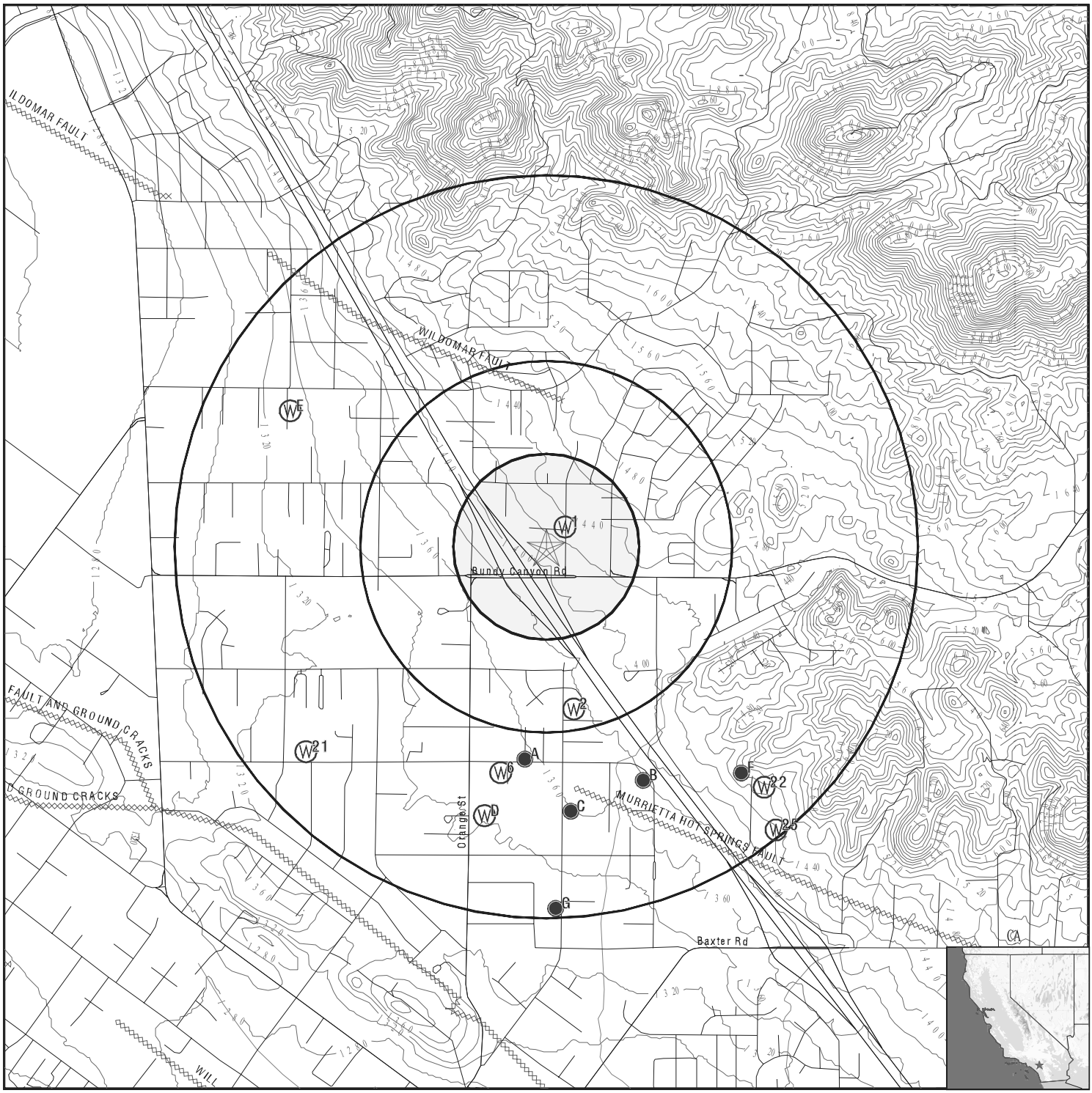
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADWR0000011422	0 - 1/8 Mile NE
A4	CADWR9000004545	1/2 - 1 Mile South
6	CADWR9000004542	1/2 - 1 Mile SSW
B7	CADWR9000004537	1/2 - 1 Mile SSE
C10	CADWR9000004530	1/2 - 1 Mile South
E13	CADDW0000020619	1/2 - 1 Mile WNW
E14	CADDW0000011703	1/2 - 1 Mile WNW
F16	CADWR9000004541	1/2 - 1 Mile SE
E17	6947	1/2 - 1 Mile WNW
E18	6948	1/2 - 1 Mile WNW
E19	6949	1/2 - 1 Mile WNW
G23	CADWR9000004502	1/2 - 1 Mile South

PHYSICAL SETTING SOURCE MAP - 7240065.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

N

SITE NAME:	E23-001P	CLIENT:	Herron Environmental
ADDRESS:	22220 Bundy Canyon Road Wildomar CA 92595	CONTACT:	Ron Russell
		INQUIRY #:	7240065.2s
T/LONG:	33.628029 / 117.271878	DATE:	January 31, 2023 5:37 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
NE
0 - 1/8 Mile
Higher

CA WELLS **CADWR0000011422**

Well ID:	06S04W26C001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	06S04W26C001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=06S04W26C001S&store_num=		
GeoTracker Data:	Not Reported		

2
South
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000136126**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26E001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19470101	Well Depth:	332
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

A3
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000136110**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26E002S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-03-01
Feet below surface:	44.00	Feet to sea level:	Not Reported
Note:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A4
South
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000004545**

State Well #:	06S04W26E002S	Station ID:	7098
Well Name:	Not Reported	Basin Name:	Temecula Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

A5
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000136103**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26M001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	102
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-03-01
Feet below surface:	44.00	Feet to sea level:	Not Reported
Note:	Not Reported		

6
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000004542**

State Well #:	06S04W26M001S	Station ID:	7102
Well Name:	Not Reported	Basin Name:	Temecula Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

B7
SSE
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000004537**

State Well #:	06S04W26L001S	Station ID:	7100
Well Name:	Not Reported	Basin Name:	Not Reported
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C8
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000136092**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26M002S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	91
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

B9
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS40000136098**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26L001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19470101	Well Depth:	100
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-03-01
Feet below surface:	61.00	Feet to sea level:	Not Reported
Note:	Not Reported		

C10
South
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000004530**

State Well #:	06S04W26L002S	Station ID:	7101
Well Name:	Not Reported	Basin Name:	Not Reported
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C11
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000136084**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26L002S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	130
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-03-01
Feet below surface:	45.00	Feet to sea level:	Not Reported
Note:	Not Reported		

D12
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000136088**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W27J002S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19490101	Well Depth:	250
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

E13
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000020619**

Well ID:	3310012-018	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	SEDCO 03 - INACTIVE	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3310012-018&store_num=		
GeoTracker Data:	Not Reported		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E14
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADDW0000011703**

Well ID:	3310012-017	Well Type:	MUNICIPAL
Source:	Department of Health Services		
Other Name:	SEDCO 02 - INACTIVE	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=3310012-017&store_num=		
GeoTracker Data:	Not Reported		

D15
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000136076**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26M003S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19510101	Well Depth:	171
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

F16
SE
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000004541**

State Well #:	06S04W26K001S	Station ID:	7099
Well Name:	Not Reported	Basin Name:	Not Reported
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

E17
WNW
1/2 - 1 Mile
Lower

CA WELLS **6947**

Seq:	6947	Prim sta c:	06S/04W-22M05 S
Frds no:	3310012018	County:	33
District:	14	User id:	WAT
System no:	3310012	Water type:	G
Source nam:	SEDCO 03 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	333800.0	Longitude:	1171700.0
Precision:	8	Status:	IR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported

Comment 7:	Not Reported		
System no:	3310012	System nam:	Elsinore Valley Mwd
Hqname:	Not Reported	Address:	P.O. BOX 3000
City:	LAKE ELSINORE	State:	CA
Zip:	92531	Zip ext:	Not Reported
Pop serv:	59200	Connection:	21140
Area serve:	LAKE ELSINORE VICINITY		

E18
WNW
1/2 - 1 Mile
Lower

CA WELLS 6948

Seq:	6948	Prim sta c:	06S/04W-22M06 S
Frds no:	3310012016	County:	33
District:	14	User id:	WAT
System no:	3310012	Water type:	G
Source nam:	SEDCO 01 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	333800.0	Longitude:	1171700.0
Precision:	8	Status:	IR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3310012	System nam:	Elsinore Valley Mwd
Hqname:	Not Reported	Address:	P.O. BOX 3000
City:	LAKE ELSINORE	State:	CA
Zip:	92531	Zip ext:	Not Reported
Pop serv:	59200	Connection:	21140
Area serve:	LAKE ELSINORE VICINITY		

E19
WNW
1/2 - 1 Mile
Lower

CA WELLS 6949

Seq:	6949	Prim sta c:	06S/04W-22M07 S
Frds no:	3310012017	County:	33
District:	14	User id:	WAT
System no:	3310012	Water type:	G
Source nam:	SEDCO 02 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	333800.0	Longitude:	1171700.0
Precision:	8	Status:	IR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		
System no:	3310012	System nam:	Elsinore Valley Mwd
Hqname:	Not Reported	Address:	P.O. BOX 3000
City:	LAKE ELSINORE	State:	CA
Zip:	92531	Zip ext:	Not Reported
Pop serv:	59200	Connection:	21140
Area serve:	LAKE ELSINORE VICINITY		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F20
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000136102**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26K001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	87	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1968-03-01
Feet below surface:	65.00	Feet to sea level:	Not Reported
Note:	Not Reported		

21
SW
1/2 - 1 Mile
Lower

FED USGS **USGS40000136111**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W27G001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	200
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

22
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000136096**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26K002S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19520101
Well Depth:	76	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G23
South
1/2 - 1 Mile
Lower

CA WELLS **CADWR9000004502**

State Well #:	06S04W26N001S	Station ID:	38338
Well Name:	Not Reported	Basin Name:	Temecula Valley
Well Use:	Unknown	Well Type:	Unknown
Well Depth:	0	Well Completion Rpt #:	Not Reported

G24
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000136033**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26N001S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	128
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-03-01
Feet below surface:	54.00	Feet to sea level:	Not Reported
Note:	Not Reported		

25
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000136066**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S004W26J001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92595	5	0

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX C

Client/Owner/Occupant Furnished Information Checklist



HERRON
COMPANIES

ENVIRONMENTAL CHECKLIST

Property Address: 22220 Bundy Canyon Rd, Wildomar, CA 92595

Completed By: Joseph Foley

Title: Owner **Firm: N.A.**

Address: 42525 De Portola Rd, Temecula Ca 92592

Phone Number: 951-265-8984 **Email: joefoley1@gmail.com**

CLIENT/OWNER/OCCUPANT- FURNISHED INFORMATION			
	Description	**Yes**	**No**
1.	Environmental Site Assessment Reports		X
2.	Environmental Audit Reports		X
3.	Environmental Permits (i.e. solid waste permits, hazardous waste disposal permits, wastewater permits, NPDES permits)	X	
4.	Registration for Underground and Aboveground Storage Tanks		X
5.	Material Safety Data Sheets (MSDS)		
6.	Community Right-To-Know Plan		
7.	Safety Plans; Preparedness and Prevention Plans; Spill Prevention, Counter Measure, and Control Plans; Etc.		X
8.	Reports Regarding Hydrogeologic Conditions on the Property or Surrounding Areas.		X
9.	Notices or Other Correspondence from Any Government Agency Relating to Past or Existing Environmental Liens Encumbering the Property.		X
10.	Hazardous Waste Generator Notices or Reports.		X
11.	Geotechnical Studies.		
12.	Information Concerning Any Pending, Threatened, or Past Litigation or Administrative Proceedings Relevant to Hazardous Substances or Petroleum Products.		X
13.	Notices from Governmental Entity Regarding Any Possible Violation of Environmental Laws or Possible Liability Relating to Hazardous Substances or Petroleum Products.		X
14.	Disclosure of Sumps, Pits, Drainage Systems Existence and Location		X
15.	Building Plans (Architectural, Utility, Structural)		X
16.	Description of Current Site Operations, Including Layout Drawings and/or Sketches		X
17.	Title Report/Chain of Title		X
18.	Preliminary Title Report/Appraisal Report		X
19.	Tax Assessor Records (Previous Owner and Occupants)		X
20.	Purchase Price Analysis (If Lower Than Comparables)		X
21.	Current and Historical Photographs of the Site		X

Please provide copies of ALL documents for which you checked "Yes" to. If you do not have all of the documents checked readily available, please provide copies of documents for numbers 1, 2, 12, 13, 20 and 21 if those documents are checked. Thank you.

Date: 2/6/22

Signature

Charles) Joseph Foley
Print Name



HERRON
COMPANIES

ENVIRONMENTAL USER QUESTIONNAIRE

The Environmental User Questionnaire will help to provide us with some history of the site from a current owner, occupant or user of the property. Please answer ALL of the questions to the best of your knowledge.

PROPERTY ADDRESS: **22220 Bundy Canyon Rd** **Wildomar Ca. 92595**	

The questionnaire was completed by:

Name	C. Joseph Foley
Title	Owner
Firm	N.A.
Address	4525 De Portola Rd, Temecula Ca 92592
Phone Number	951-265-8984
Date	2/6/23
Owner/Occupant	Self
Number of Years at the Site	11 - as owner, not occupant
Relationship to User (principal, employee, agent, consultant or landlord):	

Information pertaining to the Subject Property:

Property Owner	C. Joseph Foley
Length of Ownership	11 years
Reason for Phase I ESA	pending sale
Current Site Operations	vacant land
Site History (Previous Use)	commercial nursery and before that, believe residence
Records or Permits on Site	demolition and asbestos removal in 2014, previous unknown
Chemicals Used at the Site	None known
Any Chemicals Awaiting Disposal	No

Property Use: • **Residential X** • **Office/Retail** • **Industrial** • **Agricultural X** • **Vacant Land X**	In different time periods
Parcel Number(s)	
Property Size (Acreage)	6.27 together per assessor's records
Number of Buildings	0
Building Size(s) – Square Footage	N.A.
Original Construction Date	Unknown
Major Renovations Date	Unknown
Any Planned Renovations	Demolished in 2014
Waste Discharge at the site (Septic Tank/Leachfield, Sanitary Sewer, Other, None)	There is believed to be a septic tank and leach filed somewhere, no lonnger in use.

Section 1

Are there any previous environmental documents (Phase I, Phase II, Soil Testing, Soil Vapor Testing or Groundwater Testing) available for the Subject Property? Yes __X___ No __X___

If so, please list the document(s) below and provide copies to Herron Environmental.

The property went through most of the steps to be approved for a small commercial site about 14
years ago, the biggest one left having been paying as yet unpaid county fees. This was confirmed to
me by county personal and also by the civil engineer who worked on it with whom Jack has had contact. Both county people and the engineer said all the environmental had been done and that there were no
particular problems. Unfortunately, the file was lost. The county said that they delivered it to the newly formed City of but they haven't been able to find it, despite an extensive search. The engineer said that,
as of the last time we discussed it, and although all the studies would need to be updated, the people who did them were still in business.

Section 2

Has the Property ever been used for:		
	Yes	**No**
Industrial		X
Commercial	Nursery?	
Gasoline Station		X
Commercial Printing Facility		X
Dry Cleaners		X
Photo Developing Laboratory		X
Junkyard		X
Landfill		X
Motor Vehicle Repair		X
Waste Treatment Facility		X
Storage Facility		X
Disposal Facility		X
Processing Facility		X
Recycling Facility		X

Please provide an explanation below for any items checked "yes" above. The nursery was growing trees and reselling them retail and maybe wholesale. Technically it's a business but the environmental impact would be more agricultural.

Section 3

Has any adjoining property ever been used for:		
	Yes	**No**
Industrial		X
Commercial	X	
Gasoline Station	X	
Commercial Printing Facility		X
Dry Cleaners		X
Photo Developing Laboratory		X
Junkyard		X
Landfill		X
Motor Vehicle Repair		X
Waste Treatment Facility		X
Storage Facility		X
Disposal Facility		X
Processing Facility		X
Recycling Facility		X

Please provide an explanation below for any items checked "yes" above. Don't know if it counts as adjacent but there is gas station-convenience store across the street.

Section 4

Are there currently (or have there previously been) any Aboveground Storage Tanks (ASTs) or Underground Storage Tanks (USTs) at the property? If so, please provide the number of tanks, size and whether or not the tanks are currently at the property. If the tanks have been removed, please provide the date(s) of removal and any removal and/or closure documents from the appropriate city, county or state agency.

Nlo

Section 5

Is there a clarifier at the property?

NO

Section 6

Do you have any knowledge of the dumping or storage, above or below ground, of fill dirt of unknown origin, batteries, pesticides, paints, 55-gallon drums or storage tanks?

NO

Section 7

Do you have any knowledge of stained floors, drains, odors, pits, ponds or lagoons in conjunction with wastewater, private wells (non-public drinking water supplies), transformers, capacitors or hydraulic equipment (PCBs), septic tanks and leach fields?

NO

Section 8

Please provide the following information (if available).

Question	Yes	No
(1) Environmental cleanup liens that are filed or recorded against the site (40 CFR 312.25). Reasonably Ascertainable Title and Judicial Records for Environmental Liens and Activity and Use Limitations. • Are you aware of any environmental cleanup liens against the Property that are filed or recorded under federal, tribal, state or local law?		X
(2) Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26). Reasonably Ascertainable Title and Judicial Records for Environmental Liens and Activity and Use Limitations. • Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?		X
(3) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28). • As the User of this ESA do you have any specialized knowledge or experience related to the Property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the Property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?		X
(4) Relationship of the purchase price to the fair market value of the Property if it were not contaminated (40 CFR 312.29). • Does the purchase price being paid for this Property reasonably reflect the fair market value of the Property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the Property?	**Actually somewhat low but no known problems**	

(5) Commonly known or reasonably ascertainable information about the Property (40 CFR 312.30). Are you aware of commonly known or reasonably ascertainable information about the Property that would help the Environmental Professional (EP) to identify conditions indicative of releases or threatened releases? For example, as User: • Do you know the past uses of the Property? • Do you know of specific chemicals that are present or once were present at the Property? • Do you know of spills or other chemical releases that have taken place at the Property? • Do you know of any environmental cleanups that have taken place at the Property?	**Commercial Nursery**	
(6) The degree of obviousness of the presence or likely presence of contamination at the Property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31). • As the User of this ESA, based on your knowledge and experience related to the Property are there any obvious indicators that point to the presence or likely presence of contamination at the Property?		x

I hereby acknowledge that the above statements are true and correct and to the best of my knowledge, no facts have been misstated or omitted.

The undersigned owner(s) and/or operator(s) acknowledge(s) and agree(s) that intentionally falsifying or concealing any material fact with regard to the subject matter of this Environmental Questionnaire may, in addition to other penalties, result in prosecution under applicable law including 18 U.S.C. section 1001.

2/6/23
_____
DATE

C. Joseph Foley
_____
PRINT NAME

_____
SIGNATURE

Owner
_____
TITLE

N.A.
_____
COMPANY

Owner
_____
RELATIONSHIP TO SITE (I.E. LENDER, PURCHASER OR OWNER)

ALTA / NSPS
LAND TITLE SURVEY

IN THE CITY OF WILDOMAR
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

TITLE REPORT INFORMATION

THE BASIS OF THIS SURVEY IS A PRELIMINARY TITLE REPORT PREPARED BY STEWART TITLE COMPANY, UNDER ORDER NUMBER 2200010764, REVISED MAY 17, 2022. GEOGRAPHICALLY LOCATABLE ITEMS FROM THIS REPORT WHICH AFFECT THE PROPERTIES ARE SHOWN ON THIS MAP WITH A HEXAGON (X) AND ARE NUMERICALLY KEYED TO SAID REPORT.

1. WATER RIGHTS, CLAIMS OR TITLE TO WATER IN, ON OR UNDER THE LAND, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.

2. OWNERSHIP OF, OR RIGHTS TO, MINERALS OR OTHER SUBSTANCES, SUBSURFACE AND SURFACE, OF WHATSOEVER KIND, INCLUDING, BUT NOT LIMITED TO COAL, ORES, METALS, LIGNITE, OIL, GAS, GEOTHERMAL RESOURCES, BRINE, URANIUM, CLAY, ROCK, SAND AND GRAVEL IN, ON, UNDER AND THAT MAY BE PRODUCED FROM THE LAND, TOGETHER WITH ALL RIGHTS, PRIVILEGES, AND IMMUNITIES RELATING THERETO, WHETHER THE OWNERSHIP OR RIGHTS ARISE BY LEASE, GRANT, EXCEPTION, CONVEYANCE, RESERVATION OR OTHERWISE, AND WHETHER OR NOT APPEARING IN THE PUBLIC RECORDS OR LISTED IN SCHEDULE B. STEWART TITLE GUARANTY COMPANY AND ITS ISSUING AGENT MAKE NO REPRESENTATION AS TO THE PRESENT OWNERSHIP OF ANY SUCH INTERESTS. THERE MAY BE LEASES, GRANTS, EXCEPTIONS, OR RESERVATIONS OF INTERESTS THAT ARE NOT LISTED.

3. EASEMENT AND RIGHTS INCIDENTAL THERETO FOR UTILITIES TO SUPERIOR MUTUAL WATER CO., AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 22, 1913, IN BOOK 379, PAGE 385 OF DEEDS.
EASEMENT NOT LOCATEABLE FROM RECORD

4. THE RIGHT TO ENTER UPON SAID LOT 29 TO SINK WELLS, TO ESTABLISH AND MAINTAIN PUMPING PLANTS AND TO DEVELOP WATER FOR IRRIGATION AND DOMESTIC USE, WITH THE PERPETUAL RIGHT TO ENTER FOR SUCH PURPOSES; ALSO RIGHT OF WAY THROUGH AND ACROSS ANY PORTION OF SAID PROPERTY FOR SURFACE OR UNDERGROUND PIPE LINES, WITH PERPETUAL RIGHT OF ENTRY UPON SAID PROPERTY FOR THE CONSTRUCTION, MAINTENANCE, RENEWAL AND REPAIR OF SAID PIPE LINES; ALSO, RIGHT OF WAY THROUGH AND ACROSS ANY PORTION OF SAID PROPERTY FOR THE CONSTRUCTION OF POLE LINES FOR TRANSMISSION OF ELECTRIC POWER WITH PERPETUAL RIGHT OF ENTRY FOR THE CONSTRUCTION, MAINTANENCE, RENEWAL AND REPAIR OF SAID TRANSMISSION LINES, AS CONVEYED TO SOUTH ELSINORE MUTUAL WATER COMPANY, A CORPORATION.

(5) EASEMENT AND RIGHTS INCIDENTAL THERETO FOR PUBLIC UTILITIES EASEMENT TO CALIFORNIA ELECTRIC POWER COMPANY, ITS SUCCESSORS AND ASSIGNS, AS SET FORTH IN A DOCUMENT RECORDED APRIL 1, 1947, IN BOOK 824, PAGE 313, OF OFFICIAL RECORDS.
CENTERLINE SHOWN, NO WIDTH STATED IN DEED.

(6) RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED NOVEMBER 8, 1954, IN BOOK 1652, PAGE 64 AS INSTRUMENT NO. 58198 OF OFFICIAL RECORDS.

7. RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED APRIL 20, 1955 IN BOOK 1725, PAGE 467 AS INSTRUMENT NO. 25787 OF OFFICIAL RECORDS.

8. RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED DECEMBER 13, 1955, IN BOOK 1833, PAGE 333 AS INSTRUMENT NO. 78835 OF OFFICIAL RECORDS.

(9) EASEMENT AND RIGHTS INCIDENTAL THERETO FOR PUBLIC UTILITIES EASEMENT TO GENERAL TELEPHONE COMPANY OF CALIFORNIA, A CORPORATION, THEIR SUCCESSORS AND ASSIGNS, AS SET FORTH IN A DOCUMENT RECORDED NOVEMBER 28, 1969 AS INSTRUMENT NO. 122501 OF OFFICIAL RECORDS.

(10) RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED MARCH 30, 1978 AS INSTRUMENT NO. 59661 OF OFFICIAL RECORDS.

11. TAXES AND/OR ASSESSMENTS RESULTING FROM THE LAND LYING FULLY OR PARTIALLY WITHIN THE BOUNDARIES OF A COMMUNITY FACILITY DISTRICT AS DISCLOSED BY THE COMMUNITY FACILITIES DISTRICT MAP, RECORDED JULY 28,1999 AS INSTRUMENT NO. 1999-337077 OF OFFICIAL RECORDS.

12. DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW, AND ANY OTHER OBLIGATIONS SECURED THEREBY:
AMOUNT: $531,700.00
DATED: (NOT SHOWN)
TRUSTOR: JOSEPH FOLEY
TRUSTEE: CHICAGO TITLE COMPANY, A CALIFORNIA CORPORATION
BENEFICIARY: CAL-SOUTHWEST HOLDING, LTD., LLP.
RECORDED: JULY 18, 2012 AS INSTRUMENT NO. 2012-0335242 OF OFFICIAL RECORDS.

13. ANY FACTS, RIGHTS, INTERESTS OR CLAIMS WHICH WOULD BE DISCLOSED BY AN INSPECTION OF THE LAND.

14. RIGHTS OF TENANTS IN POSSESSION WHETHER OR NOT RECORDED IN THE PUBLIC RECORDS.

15. RIGHTS OF PARTIES IN POSSESSION WHETHER OR NOT RECORDED IN THE PUBLIC RECORDS.

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF RIVERSIDE, CITY OF WILDOMAR AND DESCRIBED AS FOLLOWS:

PARCEL 1:

THAT PORTION OF LOT 29 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT A TWO INCH IRON PIPE MARKING THE NORTHEAST CORNER OF SAID LOT 29; THENCE ALONG THE EASTERLY LINE OF SAID LOT 29, SOUTH 01° 11' 58" WEST(RECORD SOUTH 00° 37' 20" WEST) 133.12 FEET; THENCE COURSE 'A' NORTH 35° 22' 37"WEST, 20.59 FEET; THENCE COURSE "B" NORTH 44° 14' 20" WEST, 55.90 FEET; THENCE COURSE 'C'NORTH 33° 56' 00"WEST, 94.44 FEET TO THE NORTHERLY LINE OF SAID LOT29, DISTANT ALONG SAID NORTHERLY LINE NORTH 88° 52' 14" WEST (RECORD NORTH 89°26' 10" WEST) 105.44 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTHERLY LINE SOUTH 88° 52' 14" EAST (RECORD SOUTH 89° 26' 10" EAST) 106.44 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

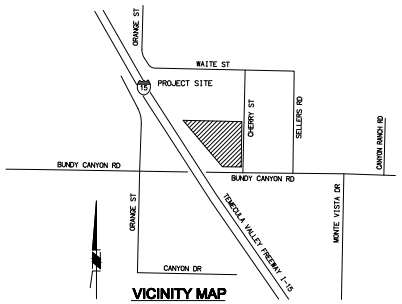
PARCEL 2:

ALL THAT PORTION OF LOT 19 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, LYING NORTHEASTERLY OF THE STATE HIGHWAY, AS CONVEYED TO THE STATE OFCALIFORNIA BY DEED RECORDED APRIL 20, 1955 IN BOOK 1725. PAGE 467, OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

EXCEPTING THEREFROM THAT PORTION AS DESCRIBED IN THE DEED TO THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 20.1970 AS FILE NO. 18792, OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

APN: 366-290-007; 366-290-008
APN: 366-290-007 AND 366-290-008



VICINITY MAP
NOT TO SCALE

BASIS OF BEARINGS NOTE

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, ZONE VI. NAD83 (EPOCH 2010.00) AS DETERMINED LOCALLY BY A LINE BETWEEN CONTINUOUS OPERATING REFERENCE STATIONS (CORS) P477 AND BILL BEING N28-53-23.51E AS DERIVED FROM GEODETIC VALUES PUBLISHED BY THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC) AND/OR NATIONAL GEODETIC SURVEY (NGS), RESPECTIVELY.

GENERAL NOTES

1. THE DESCRIBED PROPERTY CONTAINS: PARCEL 1- 5,572 S.F.
PARCEL 2- 6.52 ACRES, MORE OR LESS.
GROSS AREA- 6.65 ACRES, MORE OR LESS.

2. THIS A.L.T.A. SURVEY WAS PREPARED FOR THE EXCLUSIVE USE OF THE PERSONS OR ENTITIES NAMED HEREON. SAID SURVEYOR'S STATEMENT DOES NOT EXTEND TO UNNAMED PERSONS OR ENTITIES WITHOUT THE EXPRESSED CONSENT OF THE SURVEYOR NAMING SAID PERSONS OR ENTITIES.

3. THE PROJECT SITE LIES WITHIN FLOOD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN) ON FIRM PANEL 06065C2044G EFFECTIVE DATE AUGUST 31, 2022.

4. THE BASIS OF THIS SURVEY IS A PRELIMINARY TITLE REPORT PREPARED BY STEWART TITLE COMPANY, UNDER ORDER NUMBER 2200010764, REVISED MAY 17, 2022.

5. NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS DURING THE PROCESS OF FIELD WORK.

6. AERIAL TOPOGRAPHY WAS FLOWN AUGUST 2022.

SURVEYOR'S CERTIFICATE

TO: J&T INVESTMENTS

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS AND INCLUDES ITEMS 3, 4, 5, 10, 13, AND 18 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON AUGUST 25, 2022.

JOHN R. DUQUETTE, PLS 7566
DATE: SEPTEMBER 2, 2022

PROFESSIONAL LAND SURVEYOR — JOHN R. DUQUETTE — L.S. 7566 — STATE OF CALIFORNIA

ALTA / NSPS
LAND TITLE SURVEY

PREPARED FOR
J & T MANAGEMENT
139 RADIO RD.
CORONA, CA 92879

SHEET 1 OF 2 SHEETS

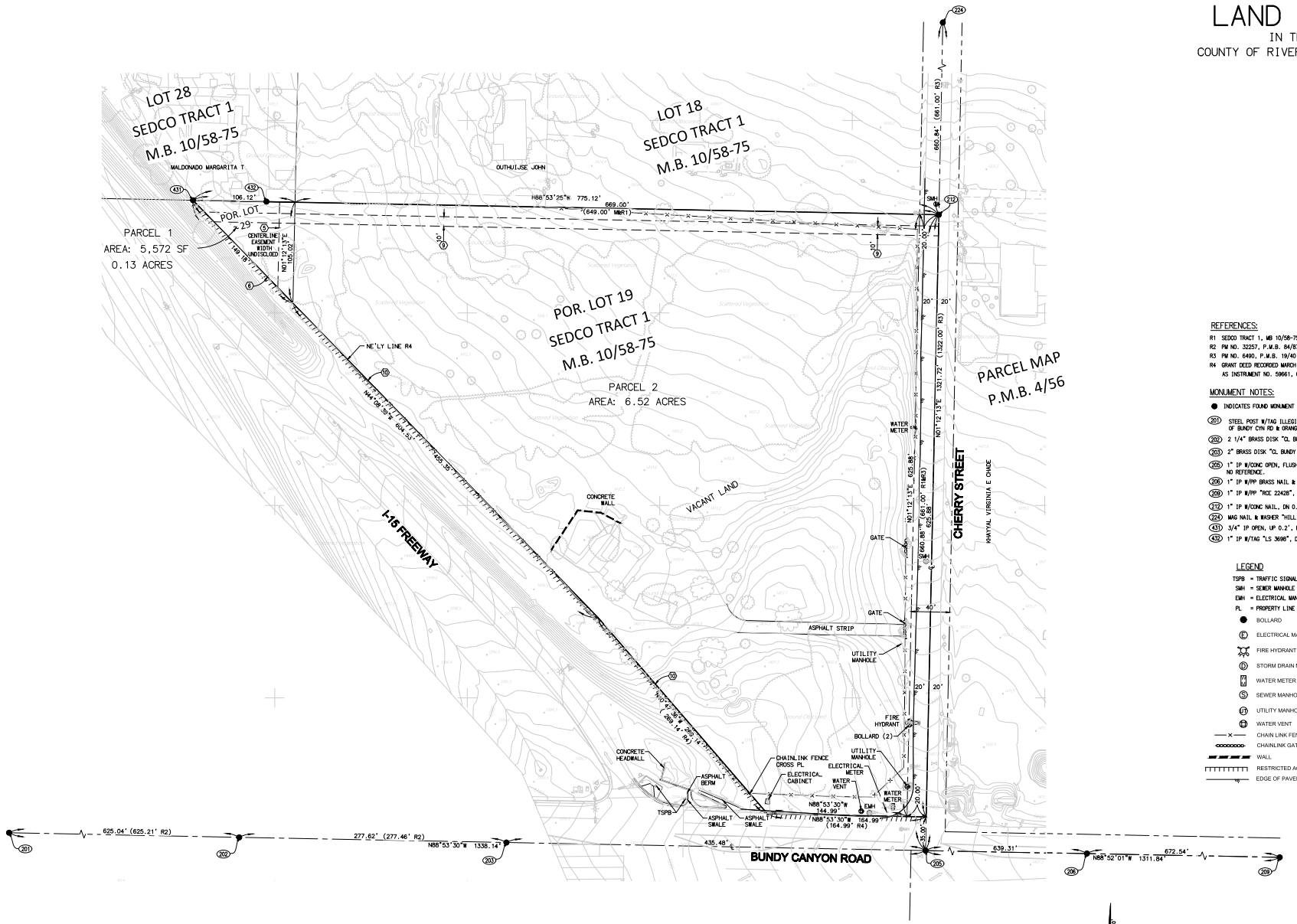
Michael Baker INTERNATIONAL
40810 COUNTY CENTER DR., SUITE 200
TEMECULA, CA 92591
PHONE: (951) 676-8042
MBAKERINTL.COM

SEPTEMBER 2, 2022 JN 190719

M:\PROJECTS\190719\CAD\MAPPING\ALTA\190719 ALTA.DWG GARRETT.ELLIS 9/7/22 5:58 pm

ALTA / NSPS
LAND TITLE SURVEY

IN THE CITY OF WILDOMAR
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.



REFERENCES:

R1 SEDCO TRACT 1, MB 10/58-75
R2 PM NO. 32257, P.M.B. 84/87
R3 PM NO. 6490, P.M.B. 19/40
R4 GRANT DEED RECORDED MARCH 30, 1978 AS INSTRUMENT NO. 59661, O.R.

MONUMENT NOTES:

- ● INDICATES FOUND MONUMENT AS NOTED.
- (201) STEEL POST W/TAG ILLEGIBLE, DN 0.8', ACCEPTED AS CL INTERSECTION OF BUNDY CYN RD & ORANGE ST, PER R2.
- (202) 2 1/4" BRASS DISK "CL BUNDY CANYON RD 860+35.75 P07 CALIF DOT", PER R2.
- (203) 2" BRASS DISK "CL BUNDY CANYON RD 863+13.37 P07", ACCEPTED AS CL BUNDY CYN ROAD, PER R2.
- (205) 1" IP W/CONC OPEN, FLUSH, ACCEPTED AS CL INTERSECTION BUNDY CYN ROAD AND CHERRY STREET, NO REFERENCE.
- (206) 1" IP W/PP BRASS NAIL & TAG "RCE 26571" ACCEPTED AS CL BUNDY CYN ROAD, PER R2.
- (209) 1" IP W/PP "RCE 22428", DN 0.6', ACCEPTED AS CL BUNDY CYN RD, PER R2.
- (212) 1" IP W/CONC NAIL, DN 0.3', ACCEPTED AS CL CHERRY RD, PER R3.
- (224) MAG NAIL & WASHER "HILLING GOODROW PLS 5737", NO REFERENCE.
- (431) 3/4" IP OPEN, UP 0.2', NO REFERENCE.
- (432) 1" IP W/TAG "LS 3698", DN 0.2', NO REFERENCE.

LEGEND

TSPB = TRAFFIC SIGNAL PULL BOX
SMH = SEWER MANHOLE
EMH = ELECTRICAL MANHOLE
PL = PROPERTY LINE

- ● BOLLARD
- (E) ELECTRICAL MANHOLE
- FIRE HYDRANT
- (D) STORM DRAIN MANHOLE
- WATER METER
- (S) SEWER MANHOLE
- (UT) UTILITY MANHOLE
- (W) WATER VENT
- —x— CHAIN LINK FENCE
- —oooooo— CHAINLINK GATE
- WALL
- RESTRICTED ACCESS
- —W— EDGE OF PAVEMENT

40 20 0 40 80 120
SCALE: 1"=40'

ALTA / NSPS
LAND TITLE SURVEY

PREPARED FOR
J & T MANAGEMENT
139 RADIO RD.
CORONA, CA 92879

SHEET 2 OF 2 SHEETS

Michael Baker INTERNATIONAL
40810 COUNTY CENTER DR. SUITE 200
TEMECULA, CA 92591
PHONE: (951) 676-8042
MBAKERINTL.COM

SEPTEMBER 2, 2022 JN 190719

N:\PROJECTS\190719\CAD\MAPPING\ALTA\ALTA 11.DWG GARRETT.ELLIS 9/7/22 7:39 am

AMBIENT ENVIRONMENTAL, INC.

CONFIDENTIAL AND PRIVILEGED

ASBESTOS BUILDING MATERIAL SURVEY

For the Project located at:

2220 Cherry Street
Wildomar, California

Prepared for:

Mr. Joe Foley
42525 De Portola Road
Temecula, California 92592

Prepared by:

Ambient Environmental Inc.
1464 Sixth Street
Norco, California 92860

December 2013

Ambient Environmental Inc. Project #13-1692

John L. Payne
California Certified
Asbestos Consultant #93-1226

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1.0 EXECUTIVE SUMMARY

Ambient Environmental Inc. was retained by Mr. Joe Foley to conduct an asbestos building materials survey for the property located at: 2220 Cherry Street in Wildomar, California. The survey was conducted on December 9, 2013 by Mr. John L. Payne a California Certified Asbestos Consultant (#93-1226) and a United States Environmental Protection Agency (USEPA) certified asbestos building inspector.

The property consists of two single story structures with wood framed walls covered with wood siding extending up to the roof level. Interior walls are covered with plaster. Ceiling consists of plaster or ceiling tiles. Flooring consists of vinyl flooring, carpeting or exposed concrete. Roof framing members are wood supporting a wood deck covered with typical composite roofing shingles with associated penetration mastic.

The purpose of the asbestos survey was to locate and identify suspect interior and exterior building materials that will be impacted during the demolition activities for detectable levels of asbestos. Once a visual inspection was performed, representative bulk samples were obtained from each homogeneous building material. Homogeneous building materials were divided into three main categories: Surfacing Materials, Thermal System Insulation and Miscellaneous Materials. Homogeneous building materials are defined as building materials that are uniform in texture, construction or application date and general appearance. The sample location, material type, friability and condition of material were also documented.

Asbestos bulk samples were obtained in accordance with USEPA established guidelines document, "Guidance for Controlling Asbestos-Containing Materials in Buildings" (USEPA 560/5-85-024, 1985) and USEPA 40 CFR Part 763.86 "Asbestos-Containing Materials in Schools, Final Rule" (AHERA). Each bulk sample was submitted to Forensic Analytical for analyzed of asbestos content by Polarized Light Microscopy (PLM) EPA Method 600/R-93-116 Visual Area Estimation. Laboratory analysis revealed detectable levels of asbestos or assumed asbestos in the following building materials. Building materials not identified in this report may be present within hidden or concealed areas of the property or outside the scope of services.

- Vinyl Sheet Flooring (Kitchen)
- 9x9 Vinyl Floor Tile and Mastic
- Roof Mastic
- Transite Pipe

Locations and conditions of the materials assessed and sampled can be found in the Material Inventory (Tables).

2.0 SURVEY PROCEDURES

Ambient Environmental Inc. performed a survey to locate and identify suspect building materials for detectable levels of asbestos. All accessible functional spaces that were to be impacted during the construction activities were visually assessed. Building materials identification was performed by entering each functional space and assessing all structural/mechanical components and architectural finishes. If building materials were installed at different times or if there is any reason to suspect that the building material might be different through appearance, Ambient separated each building material into a new homogeneous sampling area. Friable and Non-friable Building Materials assessments were conducted for each homogeneous building material by the use of hand pressure as defined in USEPA 40 CFR Part 763 "Asbestos-Containing Materials in Schools, Final Rule" (AHERA). Friable material is defined as any building material that by the means of hand pressure can be crumbled into a powder.

When each homogeneous sampling area was identified, a random sampling grid was utilized for sample collection of each building material as described in the EPA guidance document, Asbestos in Building: Simplified Sampling Scheme for Friable Surfacing Materials (EPA 560/5-85-030a, October 1985 Random Number Diagrams). The minimum number of samples was obtained for each identified friable homogeneous area based upon the overall square footage of material. The physical condition, friability, accessibility, activity and damage of building materials were also assessed and documented. The following procedures were performed during the survey:

- Perform a visual assessment to identify the location and type of friable/non-friable building materials.
- Obtain representative bulk samples from suspect building materials.
- Samples were analyzed by an independent accredited laboratory for the presence of asbestos by PLM analysis USEPA 40 CFR Part 763.87.
- Present all survey results in a written report including recommendations, locations and laboratory results. All findings, recommendations, and analytical data presented in this report are based on the information (assessment and sampling data) obtained by our inspector during the survey.

3.0 BULK SAMPLING PROCEDURES

Each suspect building material identified during the visual survey was sampled in accordance with sampling guidelines established by the USEPA. The following summarizes the sampling procedures utilized.

- Building materials were categorized into homogeneous building materials[1].
- A random sampling scheme was developed based upon the location and quantities of the various homogeneous building materials[2].
- Bulk samples were collected by extracting a representative section of each selected building material, placing the selected building material into a sampling container and assigning a unique sample number to each sample. The samples were then placed into a sealed shipping container for delivery to an accredited laboratory for analysis by PLM[3].
- Each building materials was also categorized into friable and non-friable materials[4].
- Personnel performed proper decontamination procedures to prevent the spread of secondary contamination.
- Each bulk sample was recorded on a bulk sample log and possession of the samples was tracked by a chain of custody record.
- The physical condition, friability, accessibility, activity and damage of building materials were also assessed and documented.

The reported laboratory results in this report are a visual estimate by area of asbestos concentration. Results for heterogeneous samples examined by component are reported as a composite. The lower limit of reliable detection for this method is 1%. Samples which contain more than 1% asbestos are reported in 5% ranges. Samples which contain asbestos in a concentration lower than the limit of reliable detection (<1%) are "Trace."

All bulk samples were submitted to Forensic Analytical located at: 2959 Pacific Commerce Drive Rancho Dominguez, California (310) 763-2374. Forensic Analytical is accredited by the American Industrial Hygiene Association (AIHA), National Voluntary Laboratory Accreditation Program (NVLAP #101459-0), National Institute of Standards and Testing (NIST), and is a successful participant in the Proficiency Analytical Testing Program (PAT). All findings, recommendations, and analytical data presented in this report are based on the information (assessment and sampling data) obtained by our inspector during the survey.

[1]Homogeneous building materials are defined as building materials that are uniform in texture, construction or application date and general appearance.

[2]A random sampling grid was utilized for sample collection of each friable building material as described in the EPA guidance document, Asbestos in Building: Simplified Sampling Scheme for Friable Surfacing Materials (EPA 560/5-85-030a, October 1985 Random Number Diagrams). The minimum numbers of samples were obtained for each identified friable homogeneous area based upon the overall square footage of friable building material in table-1.

Sample Table-1

Size of Sampling Area	Number of Samples Collected
Less Than 1,000 sq. ft.	3 – Samples
Between 1,000 & 5,000 sq. ft.	5 – Samples
Greater than 5,000 sq. Ft.	*7 – Samples

*The recommended number of samples per AHERA is nine for friable building materials areas greater than 5,000 square feet, or at least one additional sample per additional 1,000 square feet.

[3]Each sample was analyzed by an independent accredited laboratory for the presence of asbestos by Polarized Light Microscopy (PLM) method in accordance with the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples EPA - 600/R-93-116 dated December 1982 and adopted by the National Voluntary Laboratory Accreditation Program (NVLAP) Title 15, part 7 of the Code of Federal Register as affiliated with the National Institute for Standards and Testing (NIST) and USEPA 40 CFR Part 763.87. Quality Control (QC) program was strictly enforced to assure the accuracy of each sample result.

[4]Friable and Non-friable building materials assessments were conducted for each homogeneous building material by the use of hand pressure as defined in USEPA 40 CFR Part 763 "Asbestos-Containing Materials in Schools, Final Rule" (AHERA). Friable material is defined as any building material that by the means of hand pressure can be crumbled into a powder.

4.0 POSITIVE ASBESTOS SAMPLE RESULTS AND LOCATIONS

Material	Sample Number	Asbestos Content	Square Footage	Location of Material	Friable	Damage
Vinyl Sheet Flooring	04	12% Chrysotile Tile and Vinyl Sheet Flooring Mastic Non Detected	500 SF	Kitchen	No	No
Vinyl Floor Tile and Mastic (Brown)	07	Tile 2% Chrysotile Mastic Non Detected	500 SF	Under Carpet Bedroom	No	No
Vinyl Floor Tile and Mastic (Tan)	08	Tile 2% Chrysotile Mastic Non Detected	500 SF	Bedrooms	No	No
Roof Mastic	11	3% Chrysotile	50 SF	Throughout Roofs	No	No
Transite Pipe	---	Assumed	20 SF	Roof	No	No

This asbestos containing building materials table is designed to aid the building owner, architect, construction manager, general contractors and potential asbestos abatement contractors in locating asbestos containing building materials within the scope of work identified in section 1.0 of this report. All square footages identified in the above table are approximate and under no circumstances should these square footages be used for bidding or notification purpose. All asbestos containing building material square footages above should be field verified prior to submitting any removal quotes.

5.0 NEGATIVE ASBESTOS SAMPLE RESULTS AND LOCATIONS

Material	Sample Number	Location of Material
Interior Plaster	01 02 03	Throughout Interior Walls and Ceiling
Vinyl Sheet Flooring	05	Restroom
Vinyl Sheet Flooring	06	Entry
Ceiling Tile	09	Throughout Interior Ceiling
Roofing Shingles	10	Throughout Roofs

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6.0 DISCLAIMER

Maintenance, construction and repair personnel should be made aware of the presence of asbestos containing building materials and instructed them not to disturb and/or damage these asbestos containing building materials identified in this report.

Asbestos Containing Building Materials-Current regulations (SCAQMD Rule 1403) require if during any renovation or demolition activities asbestos containing building materials will be disturbed for any reason, then only contractors who have been properly trained in the correct handling of asbestos containing buildings materials conduct any repair, removal and/or demolition activities. A SCAQMD notification will have to be submitted and approved for any removal of 100 square feet or 160 linear feet of asbestos containing building materials. If any asbestos containing building materials becomes damaged for any reason or disturbed during any construction activities without the proper SCAQMD approved notification, then a SCAQMD Proceders-5 work plan should be written and approved prior to any asbestos removal activity. All environmental work should proceed under the guidance or direction of an independent State Certified Consultant.

The recommendations in this report are professional opinions based solely on visual observations and analytical analyses, as described in this report. Any opinions and/or recommendations presented herein apply to site conditions existing at the time of our investigation, they cannot necessarily apply to site changes of which this office is not aware of and/or has not had the opportunity to evaluate.

AMBIENT ENVIRONMENTAL, INC.

Asbestos / Lead Field Services
Indoor Air Quality Services
Phase I Site Assessments
Lab Services

1464 6TH STREET
NORCO, CALIFORNIA 92860
* TEL: (951) 272-4730
* FAX: (951) 272-4731

ASBESTOS BULK SAMPLE LOG

Client Name: Joe Foley

Project Location: 2220 Cherry St Wildomar, CA

Date: 12-9-13 **Field Technician:** John Rayner

Project Number: B-1692 **Priority:** ASAP ___ 24 HR ___ 3-5 Days ___

SAMPLE NUMBER	SAMPLE LOCATION	MATERIAL DESCRIPTION	SQUARE FOOTAGE
01	Kitchen	Interior Plaster	
02	Bathroom	↓ "	
03	Bathroom	↓ "	
04	Kitchen 2 Layer	Vinyl sheet flooring	
05	Bathroom	↓ "	
06	Entry	Vinyl sheet flooring	
07	Bathroom Brown Grey	Vinyl Floor Tile and Mastic	
08	Kitchen Tan Grey	↓ "	
09	Bathroom 12x12	Ceramic Tile	
10	Roof	Shingles	

Chain of Custody **Analytical Method:** PLM: 1 TEM: ___ Other: ___

Sampled By		Date	Time
Relinquished By		Date	Time
Received By		Date	Time
Relinquished By		Date	Time
Received By	FIG	Date 12-10-13	Time 9:50am

AMBIENT ENVIRONMENTAL, INC.

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Phase I Site Assessments
Lab Services

1464 6TH STREET
NORCO, CALIFORNIA 92860
* TEL: (951) 272-4730
* FAX: (951) 272-4731

ASBESTOS BULK SAMPLE LOG

Client Name: Joe Foley

Project Location: 2220 Cherry St Vista, CA

Date: 12-9-13 Field Technician: John Payne

Project Number: 13-1692 Priority: ASAP ___ 24 HR ✓ 3-5 Days ___

SAMPLE NUMBER	SAMPLE LOCATION	MATERIAL DESCRIPTION	SQUARE FOOTAGE
11	Roof	Mastic	

Chain of Custody Analytical Method: PLM: ✓ TEM: ___ Other: ___

Sampled By		Date	Time
Relinquished By		Date	Time
Received By		Date	Time
Relinquished By		Date	Time
Received By	J Smith FIE	Date 12-10-13	Time 9:50 am

APPENDIX A

CHAIN OF CUSTODY
AND BULK SAMPLE LOG

Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

Ambient Environmental Inc
John Payne
1464 6th Street

Norco, CA 92860

Client ID: 5697
Report Number: B185236
Date Received: 12/10/13
Date Analyzed: 12/11/13
Date Printed: 12/11/13
First Reported: 12/11/13

Job ID/Site: 13-1692; 2220 Cherry St., Wildomar, CA

Date(s) Collected: 12/09/2013

FALI Job ID: 5697
Total Samples Submitted: 11
Total Samples Analyzed: 11

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
01	50833585						
Layer: Beige Plaster			**ND**				
Layer: Orange Plaster			**ND**				
Layer: Paint			**ND**				
Layer: Beige Plaster			**ND**				
Layer: Pink Plaster			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
02	50833586						
Layer: Beige Plaster			**ND**				
Layer: Orange Plaster			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
03	50833587						
Layer: Beige Plaster			**ND**				
Layer: Orange Plaster			**ND**				
Layer: Paint			**ND**				
Layer: Beige Plaster			**ND**				
Layer: Pink Plaster			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
04	50833588						
Layer: Beige Sheet Flooring			**ND**				
Layer: Fibrous Backing			**ND**				
Layer: Tan Mastic			**ND**				
Layer: White Non-Fibrous Material			**ND**				
Layer: Fibrous Backing/Beige Mastic		Chrysotile	**70 %**				
Layer: Beige Tile		Chrysotile	**5 %**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (12%)**							
Cellulose (15 %) Fibrous Glass (2 %) Synthetic (Trace)							

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684

Report Number: B185236

Client Name: Ambient Environmental Inc **Date Printed:** 12/11/13

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
05	50833589						
Layer: Beige Sheet Flooring			**ND**				
Layer: Fibrous Backing			**ND**				
Layer: Tan Mastic			**ND**				
Layer: White Non-Fibrous Material			**ND**				
Layer: Tan Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (20 %) Fibrous Glass (5 %) Synthetic (10 %)							
06	50833590						
Layer: Off-White Sheet Flooring			**ND**				
Layer: Fibrous Backing			**ND**				
Layer: Off-White Mastic			**ND**				
Layer: Tan Tile			**ND**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
07	50833591						
Layer: Brown Tile		Chrysotile	**2 %**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (2%)**							
Cellulose (Trace)							
08	50833592						
Layer: Tan Tile		Chrysotile	**2 %**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (2%)**							
Cellulose (Trace)							
09	50833593						
Layer: Tan Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (95 %)							
10	50833594						
Layer: Grey Roof Shingle			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Fibrous Glass (45 %)							
11	50833595						
Layer: Black Semi-Fibrous Tar		Chrysotile	**3 %**				
Layer: Tan Woven Material with Coating			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (3%)**							
Cellulose (3 %)							

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Report Number: B185236

Client Name: Ambient Environmental Inc **Date Printed:** 12/11/13

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer

Steven Takahashi, Laboratory Supervisor, Rancho Dominguez Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684

APPENDIX B

LABORATORY CERTIFICATES OF ANALYSIS

AMBIENT ENVIRONMENTAL, INC.

Asbestos / Lead Field Services
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Phase I Site Assessments
Lab Services

1464 6TH STREET
NORCO, CALIFORNIA 92860
* TEL: (951) 272-4730
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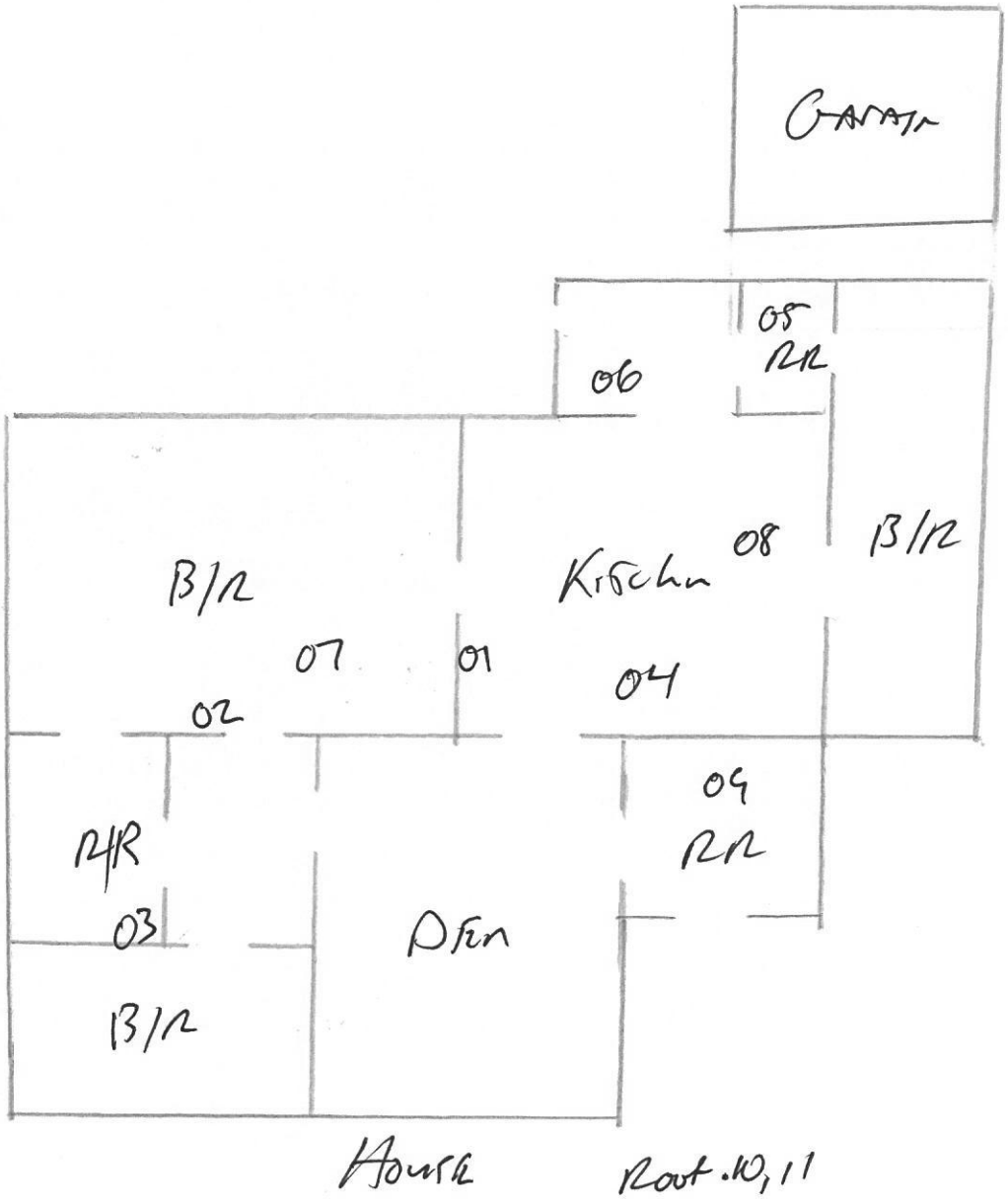
SITE DRAWING



CIRCLE ONE

N
N N
N

DRAWING NOT TO SCALE

CLIENT: JOE FOLEY

BUILDING ADDRESS: 2220 Cherry St.
W. Diamond

PROJECT NUMBER#_____ FLOOR_____

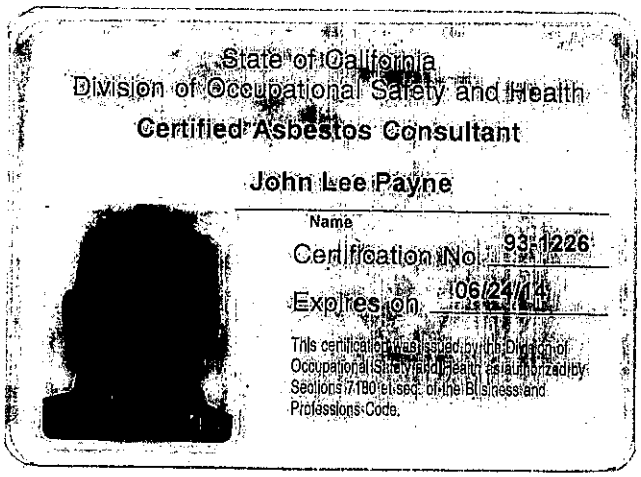
928

APPENDIX C

SITE DRAWING WITH SAMPLE LOCATION

APPENDIX D

CERTIFICATIONS



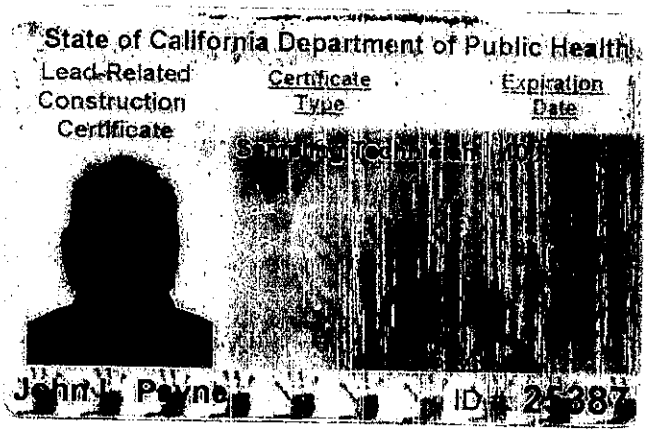
State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

John Lee Payne
Name

Certification No. 93-1226

Expires on 06/24/14

This certification was issued pursuant to the Division of Occupational Safety and Health's authority by Sections 7180 et seq. of the Business and Professions Code.



State of California Department of Public Health
Lead-Related Construction Certificate

Certificate Type

Expiration Date

John L. Payne

ID # 2[illegible]387

WDR Contracting
Environmental and Demolition Services

Ph. 626.975.1077
Fax. 562.291.2796
www.WDRContracting.com
CSLB #946226 DOSH # 1015

Certificate of Completion

PROJECT NAME/ADDRESS: 2220 Cherry St. Wildomar, CA

Work Completed on: 02/01/2014

WDR Contracting has completed the removal of the sprayed applied asbestos containing acoustic ceiling material

- Kitchen: Removal of approx. 500 SF of floor tile and vinyl sheeting
- Bedroom under carpet : Removal of approx. 500 SF floor tile (brown)
- Bedrooms : Removal of approx. 500 SF floor tile (tan)
- Roof: removal of roof mastic approx. 50 SF
- Roof: removal of transite pipe approx. 20 SF
-

All work has been performed in strict compliance with all Federal, State and Local Codes and Regulations

Please feel free to call anytime, with any question or concerns.

Thank you.

William Rojo

William Rojo / Project Manager

626-975-1077
rojo@wdrcontracting.com

AMBIENT ENVIRONMENTAL, INC.

CONFIDENTIAL AND PRIVILEGED

ASBESTOS BUILDING MATERIAL SURVEY

For the Project located at:

2220 Cherry Street
Wildomar, California

Prepared for:

Mr. Joe Foley
42525 De Portola Road
Temecula, California 92592

Prepared by:

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Norco, California 92860

December 2013

Ambient Environmental Inc. Project #13-1692

John L. Payne
California Certified
Asbestos Consultant #93-1226

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- 9x9 Vinyl Floor Tile and Mastic
- Roof Mastic
- Transite Pipe

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- The physical condition, friability, accessibility, activity and damage of building materials were also assessed and documented.

The reported laboratory results in this report are a visual estimate by area of asbestos concentration. Results for heterogeneous samples examined by component are reported as a composite. The lower limit of reliable detection for this method is 1%. Samples which contain more than 1% asbestos are reported in 5% ranges. Samples which contain asbestos in a concentration lower than the limit of reliable detection (<1%) are "Trace."

All bulk samples were submitted to Forensic Analytical located at: 2959 Pacific Commerce Drive Rancho Dominguez, California (310) 763-2374. Forensic Analytical is accredited by the American Industrial Hygiene Association (AIHA), National Voluntary Laboratory Accreditation Program (NVLAP #101459-0), National Institute of Standards and Testing (NIST), and is a successful participant in the Proficiency Analytical Testing Program (PAT). All findings, recommendations, and analytical data presented in this report are based on the information (assessment and sampling data) obtained by our inspector during the survey.

[1]Homogeneous building materials are defined as building materials that are uniform in texture, construction or application date and general appearance.

[2]A random sampling grid was utilized for sample collection of each friable building material as described in the EPA guidance document, Asbestos in Building: Simplified Sampling Scheme for Friable Surfacing Materials (EPA 560/5-85-030a, October 1985 Random Number Diagrams). The minimum numbers of samples were obtained for each identified friable homogeneous area based upon the overall square footage of friable building material in table-1.

Sample Table-1

Size of Sampling Area	Number of Samples Collected
Less Than 1,000 sq. ft.	3 – Samples
Between 1,000 & 5,000 sq. ft.	5 – Samples
Greater than 5,000 sq. Ft.	*7 – Samples

*The recommended number of samples per AHERA is nine for friable building materials areas greater than 5,000 square feet, or at least one additional sample per additional 1,000 square feet.

[3]Each sample was analyzed by an independent accredited laboratory for the presence of asbestos by Polarized Light Microscopy (PLM) method in accordance with the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples EPA - 600/R-93-116 dated December 1982 and adopted by the National Voluntary Laboratory Accreditation Program (NVLAP) Title 15, part 7 of the Code of Federal Register as affiliated with the National Institute for Standards and Testing (NIST) and USEPA 40 CFR Part 763.87. Quality Control (QC) program was strictly enforced to assure the accuracy of each sample result.

[4]Friable and Non-friable building materials assessments were conducted for each homogeneous building material by the use of hand pressure as defined in USEPA 40 CFR Part 763 "Asbestos-Containing Materials in Schools, Final Rule" (AHERA). Friable material is defined as any building material that by the means of hand pressure can be crumbled into a powder.

4.0 POSITIVE ASBESTOS SAMPLE RESULTS AND LOCATIONS

Material	Sample Number	Asbestos Content	Square Footage	Location of Material	Friable	Damage
Vinyl Sheet Flooring	04	12% Chrysotile Tile and Vinyl Sheet Flooring Mastic Non Detected	500 SF	Kitchen	No	No
Vinyl Floor Tile and Mastic (Brown)	07	Tile 2% Chrysotile Mastic Non Detected	500 SF	Under Carpet Bedroom	No	No
Vinyl Floor Tile and Mastic (Tan)	08	Tile 2% Chrysotile Mastic Non Detected	500 SF	Bedrooms	No	No
Roof Mastic	11	3% Chrysotile	50 SF	Throughout Roofs	No	No
Transite Pipe	---	Assumed	20 SF	Roof	No	No

This asbestos containing building materials table is designed to aid the building owner, architect, construction manager, general contractors and potential asbestos abatement contractors in locating asbestos containing building materials within the scope of work identified in section 1.0 of this report. All square footages identified in the above table are approximate and under no circumstances should these square footages be used for bidding or notification purpose. All asbestos containing building material square footages above should be field verified prior to submitting any removal quotes.

5.0 NEGATIVE ASBESTOS SAMPLE RESULTS AND LOCATIONS

Material	Sample Number	Location of Material
Interior Plaster	01 02 03	Throughout Interior Walls and Ceiling
Vinyl Sheet Flooring	05	Restroom
Vinyl Sheet Flooring	06	Entry
Ceiling Tile	09	Throughout Interior Ceiling
Roofing Shingles	10	Throughout Roofs

6.0 DISCLAIMER

Maintenance, construction and repair personnel should be made aware of the presence of asbestos containing building materials and instructed them not to disturb and/or damage these asbestos containing building materials identified in this report.

Asbestos Containing Building Materials-Current regulations (SCAQMD Rule 1403) require if during any renovation or demolition activities asbestos containing building materials will be disturbed for any reason, then only contractors who have been properly trained in the correct handling of asbestos containing buildings materials conduct any repair, removal and/or demolition activities. A SCAQMD notification will have to be submitted and approved for any removal of 100 square feet or 160 linear feet of asbestos containing building materials. If any asbestos containing building materials becomes damaged for any reason or disturbed during any construction activities without the proper SCAQMD approved notification, then a SCAQMD Proceders-5 work plan should be written and approved prior to any asbestos removal activity. All environmental work should proceed under the guidance or direction of an independent State Certified Consultant.

The recommendations in this report are professional opinions based solely on visual observations and analytical analyses, as described in this report. Any opinions and/or recommendations presented herein apply to site conditions existing at the time of our investigation, they cannot necessarily apply to site changes of which this office is not aware of and/or has not had the opportunity to evaluate.

AMBIENT ENVIRONMENTAL, INC.

Asbestos / Lead Field Services
Indoor Air Quality Services
Phase I Site Assessments
Lab Services

1464 6TH STREET
NORCO, CALIFORNIA 92860
* TEL: (951) 272-4730
* FAX: (951) 272-4731

ASBESTOS BULK SAMPLE LOG

Client Name: Joe Foley

Project Location: 2220 Cherry St Wildomar, CA

Date: 12-9-13 **Field Technician:** John Rayner

Project Number: B-1692 **Priority:** ASAP ___ 24 HR ___ 3-5 Days ___

SAMPLE NUMBER	SAMPLE LOCATION	MATERIAL DESCRIPTION	SQUARE FOOTAGE
01	Kitchen	Interior Plaster	
02	Bathroom	↓ "	
03	Bathroom	↓ "	
04	Kitchen 2 Layer	Vinyl sheet flooring	
05	Bathroom	↓ "	
06	Entry	Vinyl sheet flooring	
07	Bathroom Brown Grey	Vinyl Floor Tile and Mastic	
08	Kitchen Tan Grey	↓ "	
09	Bathroom 12x12	Ceramic Tile	
10	Roof	Shingles	

Chain of Custody **Analytical Method:** PLM: 1 TEM: ___ Other: ___

Sampled By		Date	Time
Relinquished By		Date	Time
Received By		Date	Time
Relinquished By		Date	Time
Received By	FIG	Date 12-10-13	Time 9:50am

AMBIENT ENVIRONMENTAL, INC.

Asbestos / Lead Field Services
Indoor Air Quality Services
Phase I Site Assessments
Lab Services

1464 6TH STREET
NORCO, CALIFORNIA 92860
* TEL: (951) 272-4730
* FAX: (951) 272-4731

ASBESTOS BULK SAMPLE LOG

Client Name: Joe Foley

Project Location: 2220 Cherry St Vista, CA

Date: 12-9-13 Field Technician: John Payne

Project Number: 13-1692 Priority: ASAP ___ 24 HR X ___ 3-5 Days ___

SAMPLE NUMBER	SAMPLE LOCATION	MATERIAL DESCRIPTION	SQUARE FOOTAGE
11	Roof	Mastic	

Chain of Custody Analytical Method: PLM: X TEM: ___ Other: ___

Sampled By		Date	Time
Relinquished By		Date	Time
Received By		Date	Time
Relinquished By		Date	Time
Received By	FIE	Date 12-10-13	Time 9:50 am

APPENDIX A

CHAIN OF CUSTODY
AND BULK SAMPLE LOG

Bulk Asbestos Analysis

(EPA Method 600/R-93-116, Visual Area Estimation)

Ambient Environmental Inc
John Payne
1464 6th Street

Norco, CA 92860

Client ID: 5697
Report Number: B185236
Date Received: 12/10/13
Date Analyzed: 12/11/13
Date Printed: 12/11/13
First Reported: 12/11/13

Job ID/Site: 13-1692; 2220 Cherry St., Wildomar, CA

Date(s) Collected: 12/09/2013

FALI Job ID: 5697
Total Samples Submitted: 11
Total Samples Analyzed: 11

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
01	50833585						
Layer: Beige Plaster			**ND**				
Layer: Orange Plaster			**ND**				
Layer: Paint			**ND**				
Layer: Beige Plaster			**ND**				
Layer: Pink Plaster			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
02	50833586						
Layer: Beige Plaster			**ND**				
Layer: Orange Plaster			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
03	50833587						
Layer: Beige Plaster			**ND**				
Layer: Orange Plaster			**ND**				
Layer: Paint			**ND**				
Layer: Beige Plaster			**ND**				
Layer: Pink Plaster			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (Trace)							
04	50833588						
Layer: Beige Sheet Flooring			**ND**				
Layer: Fibrous Backing			**ND**				
Layer: Tan Mastic			**ND**				
Layer: White Non-Fibrous Material			**ND**				
Layer: Fibrous Backing/Beige Mastic		Chrysotile	**70 %**				
Layer: Beige Tile		Chrysotile	**5 %**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (12%)**							
Cellulose (15 %) Fibrous Glass (2 %) Synthetic (Trace)							

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684

Report Number: B185236

Client Name: Ambient Environmental Inc **Date Printed:** 12/11/13

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
05	50833589						
Layer: Beige Sheet Flooring			**ND**				
Layer: Fibrous Backing			**ND**				
Layer: Tan Mastic			**ND**				
Layer: White Non-Fibrous Material			**ND**				
Layer: Tan Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (20 %) Fibrous Glass (5 %) Synthetic (10 %)							
06	50833590						
Layer: Off-White Sheet Flooring			**ND**				
Layer: Fibrous Backing			**ND**				
Layer: Off-White Mastic			**ND**				
Layer: Tan Tile			**ND**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
07	50833591						
Layer: Brown Tile		Chrysotile	**2 %**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (2%)**							
Cellulose (Trace)							
08	50833592						
Layer: Tan Tile		Chrysotile	**2 %**				
Layer: Black Mastic			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (2%)**							
Cellulose (Trace)							
09	50833593						
Layer: Tan Fibrous Material			**ND**				
Layer: Paint			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Cellulose (95 %)							
10	50833594						
Layer: Grey Roof Shingle			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (ND)**							
Fibrous Glass (45 %)							
11	50833595						
Layer: Black Semi-Fibrous Tar		Chrysotile	**3 %**				
Layer: Tan Woven Material with Coating			**ND**				
Total Composite Values of Fibrous Components: **Asbestos (3%)**							
Cellulose (3 %)							

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684

Report Number: B185236

Client Name: Ambient Environmental Inc **Date Printed:** 12/11/13

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer

Steven Takahashi, Laboratory Supervisor, Rancho Dominguez Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

Analytical results and reports are generated by Forensic Analytical Laboratories Inc. (FALI) at the request of and for the exclusive use of the person or entity (client) named on such report. Results, reports or copies of same will not be released by FALI to any third party without prior written request from client. This report applies only to the sample(s) tested. Supporting laboratory documentation is available upon request. This report must not be reproduced except in full, unless approved by FALI. The client is solely responsible for the use and interpretation of test results and reports requested from FALI. Forensic Analytical Laboratories Inc. is not able to assess the degree of hazard resulting from materials analyzed. FALI reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. All samples were received in acceptable condition unless otherwise noted.

2959 Pacific Commerce Drive, Rancho Dominguez, CA 90221 / Telephone: (310) 763-2374 (888) 813-9417 / Fax: (310) 763-8684

APPENDIX B

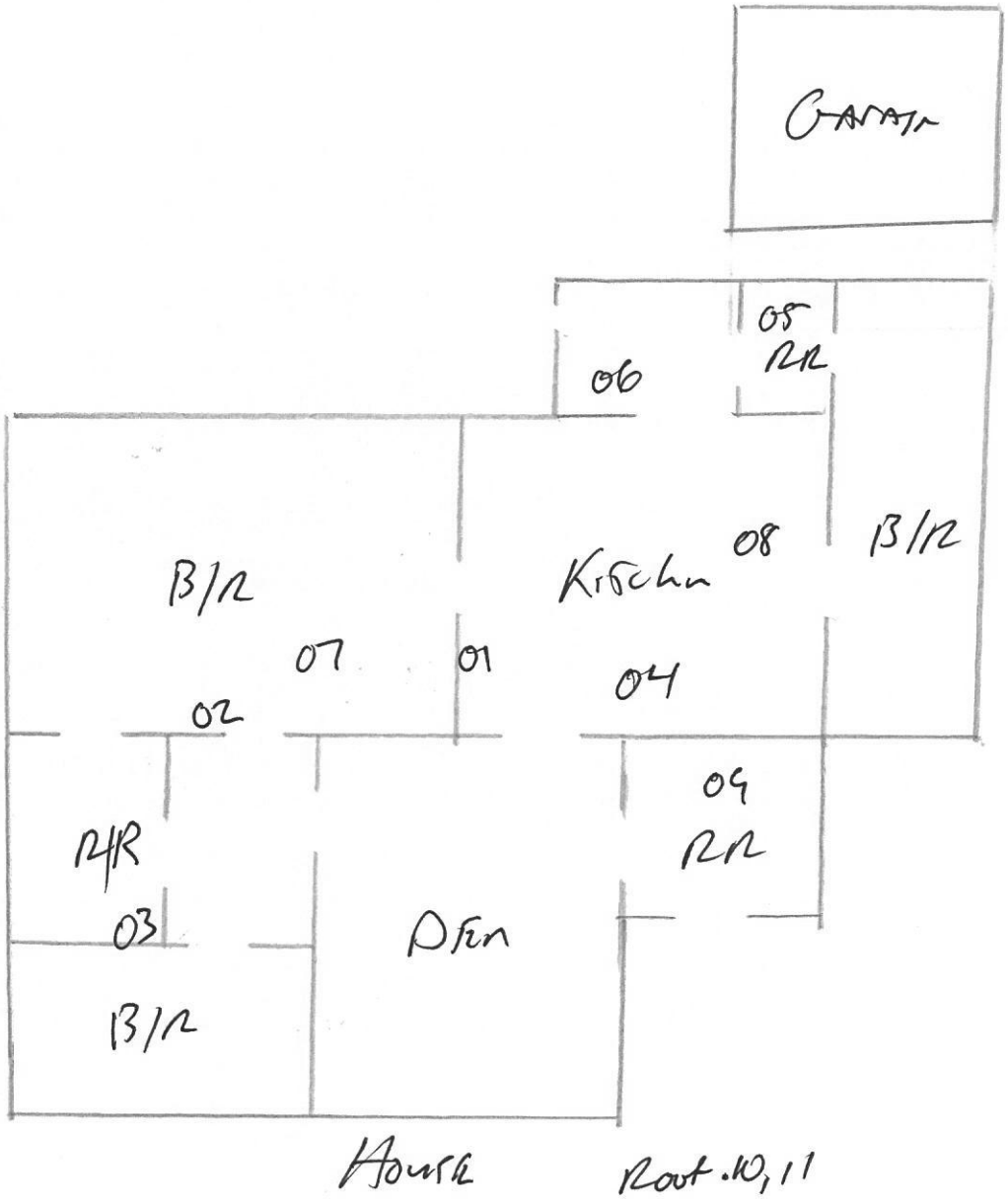
LABORATORY CERTIFICATES OF ANALYSIS

AMBIENT ENVIRONMENTAL, INC.

Asbestos / Lead Field Services
Indoor Air Quality Services
Phase I Site Assessments
Lab Services

1464 6TH STREET
NORCO, CALIFORNIA 92860
*** TEL: (951) 272-4730**
*** FAX: (951) 272-4731**

SITE DRAWING



CIRCLE ONE

N
N N
N

DRAWING NOT TO SCALE

CLIENT: JOE FOLEY

BUILDING ADDRESS: 2220 Cherry St.
W. Diamond

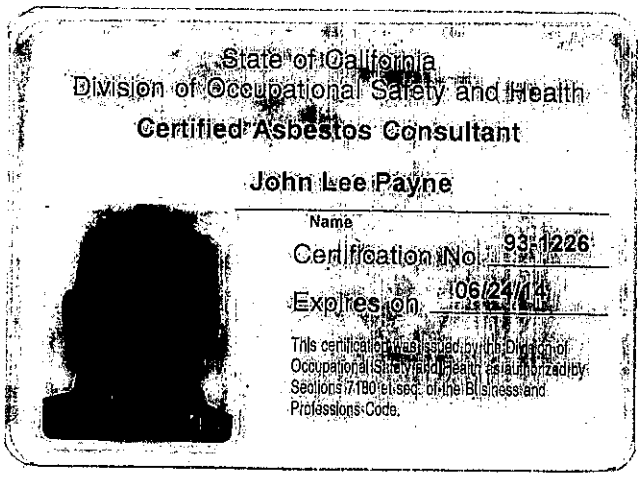
PROJECT NUMBER#_____ FLOOR_____

APPENDIX C

SITE DRAWING WITH SAMPLE LOCATION

APPENDIX D

CERTIFICATIONS



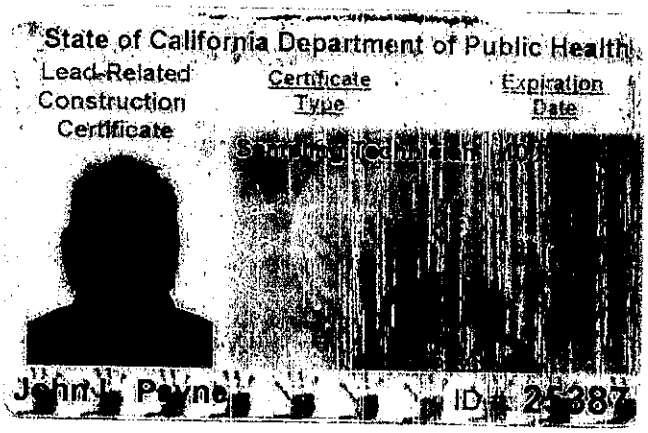
State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

John Lee Payne
Name

Certification No. 93-1226

Expires on 06/24/14

This certification was issued pursuant to the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.



State of California Department of Public Health
Lead-Related Construction Certificate

Certificate Type

Expiration Date

John L. Payne

ID # 2[illegible]387

County of Riverside
DEPARTMENT OF ENVIRONMENTAL HEALTH

www.rivcoeh.org

REQUEST FOR RECORDS

To help expedite your request, mark the program for which you are requesting records (Call 951-358-5172 if you are uncertain):

☒ Hazardous Materials / Underground Storage Tanks

☐ Land Use / Water Resources / Body Art / Medical Waste / Solid Waste

☐ Food facility / Public Pools and Water Features / Retail Tobacco

- Requests will be responded to within ten (10) business days per California Government Code, sections 6253 and 6256.
- Pursuant to California Government Code section 6254 (f), records of pending investigations and informants' names, addresses, and telephone numbers will not be released.
- **This form is for acquisition of any existing records. Any consultation in reference to these records may be subject to a consultation fee (pursuant to Riverside County Ordinance 640).**
- For access to electronic records available online, visit the public information section at www.rivcoeh.org for more details.

NAME OF REQUESTING PARTY: Ron Russell	DATE OF REQUEST: February 1, 2023	
BUSINESS NAME (IF ANY) OF REQUESTING PARTY: Herron Environmental	TELEPHONE NUMBER: (9096315907	
RETURN LEGAL MAILING ADDRESS: 1 Technology Drive, Suite J701	EMAIL ADDRESS: ronmrussell@gmail.com	
CITY: Irvine	STATE: CA	ZIP: 92618

The following information is required. **List each street address separately.**

NAME OF FACILITY (IF APPLICABLE)	RECORDS REQUESTED (e.g., inspection reports, complaint reports, etc.):	PERIOD OF TIME TO BE RESEARCHED (If applicable) FROM:	TO:
	Documents for preparation of Phase I ESA		
SITE STREET ADDRESS (1): 22220 Bundy Canyon Road		CITY: Wildomar	
SITE STREET ADDRESS (2):		CITY:	
SITE STREET ADDRESS (3):		CITY:	
SITE STREET ADDRESS (4):		CITY:	
SITE STREET ADDRESS (5):		CITY:	
SITE STREET ADDRESS (6):		CITY:	
APN (**For Land Use and Water Resources ONLY**):			

Email this completed form to:

Land Use/Water Resources: landuserecords@rivco.org

Hazardous Materials: DEHRecordsMgmt@rivco.org

All other programs: dehwebmaster@rivco.org

To mail this form, go to http://rivcoeh.org/Contactus for the address of the DEH office closest to the requested location(s).

Duplication costs for records researched and duplicated must be paid upon receipt of records.

FOR OFFICE USE ONLY		
COST OF REPRODUCTION: $_____	EACH ADDITIONAL PAGE: $_____	TOTAL: $_____
REVIEWED BY	TITLE	
RECORDS RECEIVED BY	DATE	

*** IF RECORD REQUEST IS MADE USING ALTERNATE METHOD AND NOT THIS FORM, ATTACH A COPY OF REQUEST TO THIS FORM.**

For our office locations call us at (888) 722-4234 or visit our website at www.rivcoeh.org

Gmail **Ronald Russell <ronmrussell@gmail.com>**

Request for Records - 22220 Bundy Canyon Road, Wildomar, CA 92525

DEH-Records Management <DEHRecordsMgmt@rivco.org> Wed, Feb 1, 2023 at 12:58 PM
To: Ronald Russell <ronmrussell@gmail.com>

Hello,

Your request has been received and is being processed. See attached for your records.

You will receive further correspondence by mail or email regarding your records request.

Thank you,

Records Management

Riverside County Department of Environmental Health

Hazardous Materials Management Branch

4065 County Circle Dr. Ste. #104

Riverside, CA 92503

Phone #: 951-358-5055

E-mail: DEHRecordsMgmt@rivco.org

www.rivcoeh.org

From: Ronald Russell <ronmrussell@gmail.com>
Sent: Wednesday, February 1, 2023 6:57 AM
To: DEH-Records Management <DEHRecordsMgmt@rivco.org>
Subject: Request for Records - 22220 Bundy Canyon Road, Wildomar, CA 92525

CAUTION: This email originated externally from the **Riverside County** email system. **DO NOT** click links or open attachments unless you recognize the sender and know the content is safe.

[Quoted text hidden]

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County of Riverside California

SR0057082_22220 Bundy Canyon Road, Wildomar_Ack. Letter.pdf
202K

Gmail **Ronald Russell <ronmrussell@gmail.com>**

Public Record Request - 22220 Bundy Canyon Road, Wildomar, CA 92525

Ronald Russell <ronmrussell@gmail.com> Wed, Feb 1, 2023 at 6:46 AM
To: jaguilar@cityofwildomar.org

Ms. Aguilar:

Herron Environmental has been hired to conduct a Phase I Environmental Site Assessment for the property located at **22220 Bundy Canyon Road, Wildomar, CA 92525.** Please provide the following information regarding the property:

Building Department:

- Permit summary, construction date, list of tenants, permits of environmental concern (petroleum storage tanks, septic systems), site layout plan and record of violations or complaints.

Planning Department:

- Record of any Activity Use Limitations (AULs), zoning and any current zoning violations.

Fire Department:

- Records pertaining to Above Ground Storage Tanks, Underground Storage Tanks, Reported Incidents of Fires, Hazardous Materials, Spills or Leaks.

Please process or forward these requests to the appropriate departments at your earliest convenience for processing.

If you have any questions, please do not hesitate to contact me at (909) 631-5907.

Thank you,

--
Ron Russell
Herron Environmental
1 Technology Drive
Suite J701
Irvine, CA 92618
(949) 733-0070 (Office)
(949) 733-0073 (Fax)
(909) 631-5907 (Cell)

Gmail **Ronald Russell <ronmrussell@gmail.com>**

Request for Records - 22220 Bundy Canyon Road, Wildomar, CA 92525

Ronald Russell <ronmrussell@gmail.com> Wed, Feb 1, 2023 at 6:57 AM
To: DEHRecordsmgmt@rivco.org

County of Riverside Department of Environmental Health:

Attached is a Request for Records for the property located at **22220 Bundy Canyon Road, Wildomar, CA 92525**.
Please process this request at your earliest convenience.

Thank you,
--
Ron Russell
Herron Environmental
1 Technology Drive
Suite J701
Irvine, CA 92618
(949) 733-0070 (Office)
(949) 733-0073 (Fax)
(909) 631-5907 (Cell)

E23-001P County of Riverside Dept of Env Health_Request for Records_22220 Bundy Canyon Road, Wildomar, CA 92525.pdf
190K

County of Riverside

DEPARTMENT OF ENVIRONMENTAL HEALTH

JEFF JOHNSON, DIRECTOR

Records Request Acknowledgement Letter

February 1, 2023

Request No: **57082**

Request Date: **1/31/2023**

Ron Russell
Herron Environmental
22220 Bundy Canyon Road
Irvine, Ca 92618

Re: **22220 Bundy Canyon Road, Wildomar**

We have received your request for records and a search of our files is being processed.

Once the research is completed, you will be notified regarding the outcome.

Note: Riverside County Environmental Health began storing records for the Hazardous Materials Management Division in 1986. Records for disclosure information in the cities of Corona and Riverside may need to be directed to the local City Fire Department. They can be reached at 951-736-2220 (Corona) and 951-826-5737 (Riverside).

Please feel free to use the following contact information to reach out to us with any questions:

Riverside County Department of Environmental Health
Hazardous Materials Management Division
4065 County Circle Dr., Rm. 104
Riverside, CA 92503
Telephone: 951-358-5055 Fax: 951-358-5017

Additional information can be found on our website at **www.rivcoeh.org**

WDR Contracting
Environmental and Demolition Services

Ph. 626.975.1077
Fax. 562.291.2796
www.WDRContracting.com
CSLB #946226 DOSH # 1015

Certificate of Completion

PROJECT NAME/ADDRESS: 2220 Cherry St. Wildomar, CA

Work Completed on: 02/01/2014

WDR Contracting has completed the removal of the sprayed applied asbestos containing acoustic ceiling material

- Kitchen: Removal of approx. 500 SF of floor tile and vinyl sheeting
- Bedroom under carpet : Removal of approx. 500 SF floor tile (brown)
- Bedrooms : Removal of approx. 500 SF floor tile (tan)
- Roof: removal of roof mastic approx. 50 SF
- Roof: removal of transite pipe approx. 20 SF
-

All work has been performed in strict compliance with all Federal, State and Local Codes and Regulations

Please feel free to call anytime, with any question or concerns.

Thank you.

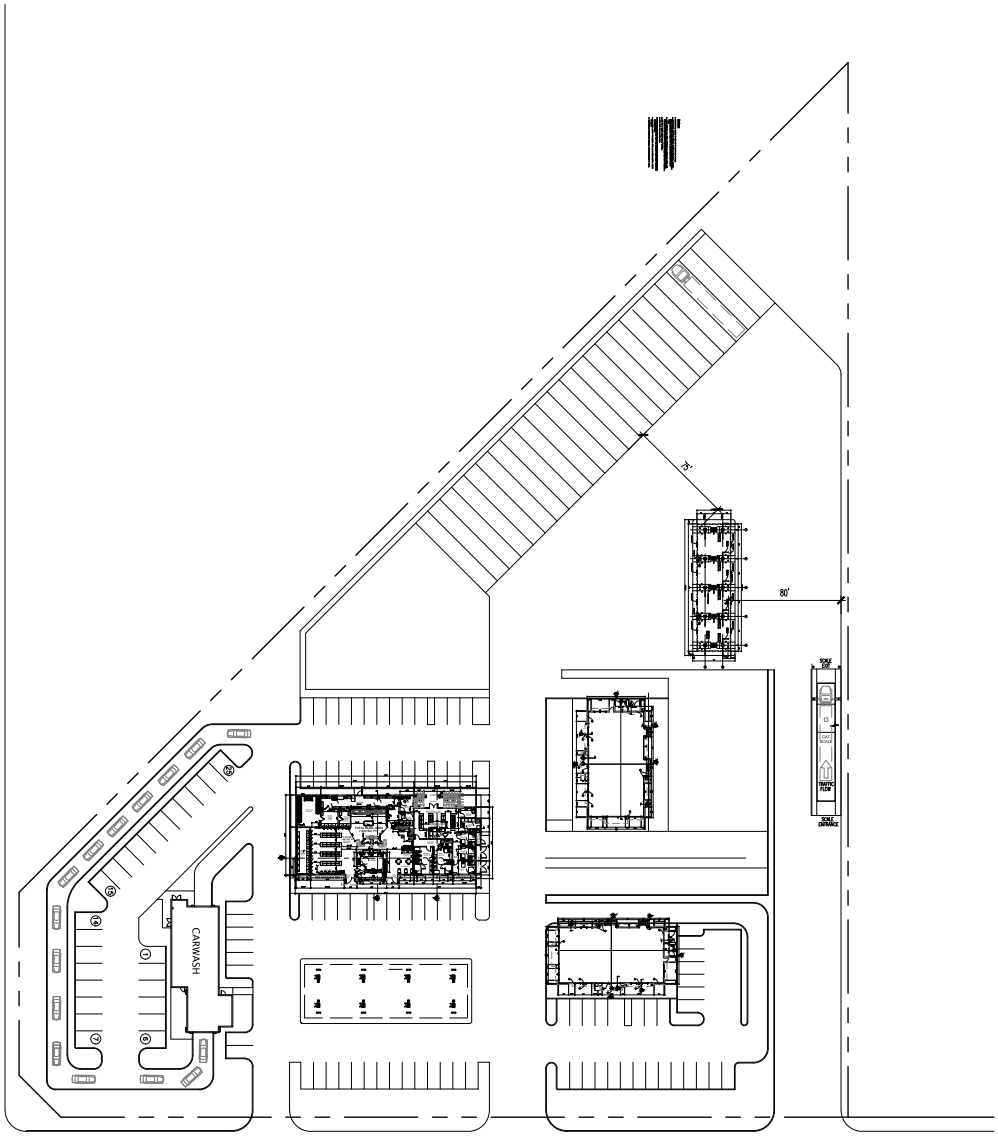
William Rojo

William Rojo / Project Manager

626-975-1077
rojo@wdrcontracting.com


22220 Bundy Canyon Rd., Wildomar, CA.
Legend
Waite St
2ND Chances Preserve
Cherry St
Spur Brook Dr
Orange St
Temecula Valley Fwy
CENTENO POOL PLUMBING
22220 Bundy Canyon Rd
Wildomar, CA
in the Box
Bundy Canyo
Bundy Canyon Rd
Shell
15
N
Google Earth
700 ft

INFO: P:\Calimesa-7th-Sandalwood\CUP\CA1-2.DWG Jemma Hurgo PLOTTED: 01-31-22 13:32:02



DIESEL CANOPY FLOOR PLAN

NORTH

SCALE: 1/4"=1'-0"

1

CA1-2

DRAWING NO.

CUP

DRAWN BY: JH

JOB NO: 000.000

DATE: 09/09/21

SCALE: AS SHOWN

REVISION

1 -
2 -
3 -
4 -
5 -
6 -
7 -
8 -

5 DEISEL CANOPY
FLOOR PLAN

CALIMESA SANDALWOOD
SANDALWOOD / 7TH STREET FORNTAGE
CALIMESA, CA

Absolute Design Method
CORONA, CALIFORNIA

224 SOUTH JOY STREET
CORONA, CA 92879-1958

P.O. BOX 1958
CORONA, CA 92878-1958

DIRECT (951) 280-3833
FAX (951) 280-3832

Jimmy Morada
Title Officer

Jeff Kreueger
Title Officer

Kristine Poole
Title Officer

Stewart Title Guaranty Compan
Commercial Services (Los Ange
525 North Brand Blvd.
Glendale, CA 91203
Phone
Fax
Jimmy.Morada@stewart.com

PRELIMINARY REPORT

Order No.	:	22000110764
Title Unit No.	:	11
Your File No.	:	
Buyer/Borrower Name	:	JNT Management
Seller Name	:	Joseph Foley

Property Address: 22220 Bundy Canyon, Wildomar, CA

In response to the above referenced application for a Policy of Title Insurance, Stewart Title Guaranty Company Commercial Services (Los Angeles) hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Stewart Title Guaranty Company Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referenced to as an Exception on Schedule B or not excluded from coverage pursuant to the printed Schedules, Conditions, and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on covered Risks of said policy or policies are set forth in Exhibit A attached. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limits of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters, which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report, (and any supplements or amendments thereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance a binder or commitment should be requested.

Dated as of May 17, 2022 at 7:30 a.m.

When replying, please contact:

StewartcommercialservicesLA@Stewart.com

IF ANY DECLARATION, GOVERNING DOCUMENT (FOR EXAMPLE, COVENANT, CONDITION OR RESTRICTION) OR DEED IDENTIFIED AND/OR LINKED IN THIS TITLE PRODUCT CONTAINS ANY RESTRICTION BASED ON AGE, RACE COLOR, RELIGION, SEX, GENDER, GENDER IDENTITY, GENDER EXPRESSION, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, VETERAN OR MILITARY STATUS, GENETIC INFORMATION, NATIONAL ORIGIN, SOURCE OF INCOME AS DEFINED IN SUBDIVISION (p) OF SECTION 12955, OR ANCESTRY, THAT RESTRICTION VIOLATES STATE AND FEDERAL FAIR HOUSING LAWS AND IS VOID, AND MAY BE REMOVED PURSUANT TO SECTION 12956.2 OF THE GOVERNMENT CODE BY SUBMITTING A "RESTRICTIVE COVENANT MODIFICATION" FORM, TOGETHER WITH A COPY OF THE ATTACHED DOCUMENT WITH THE UNLAWFUL PROVISION REDACTED TO THE COUNTY RECORDER'S OFFICE. THE "RESTRICTIVE COVENANT MODIFICATION" FORM CAN BE OBTAINED FROM THE COUNTY RECORDER'S OFFICE AND MAY BE AVAILABLE ON ITS WEBSITE. THE FORM MAY ALSO BE AVAILABLE FROM THE PARTY THAT PROVIDED YOU WITH THIS DOCUMENT. LAWFUL RESTRICTIONS UNDER STATE AND FEDERAL LAW ON THE AGE OF OCCUPANTS IN SENIOR HOUSING OR HOUSING FOR OLDER PERSONS SHALL NOT BE CONSTRUED AS RESTRICTIONS BASED ON FAMILIAL STATUS.

PRELIMINARY REPORT

The form of Policy of Title Insurance contemplated by this report is:

☒ Standard Coverage Owner's Policy

☐ Extended Coverage Owner's Policy

☐ CLTA/ALTA Homeowner's Policy

☐ Standard Coverage Loan Policy

☐ Extended Coverage Loan Policy

☐ Short Form Residential Loan Policy

☐

SCHEDULE A

The estate or interest in the land hereinafter described or referred to covered by this report is:

Fee

Title to said estate or interest at the date hereof is vested in:

Joseph Foley, a married man, as his sole and separate property

LEGAL DESCRIPTION

The land referred to herein is situated in the State of California, County of Riverside, City of Wildomar and described as follows:

PARCEL 1:
:
THAT PORTION OF LOT 29 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FLLE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT A TWO INCH IRON PIPE MARKING THE NORTHEAST CORNER OF SAID LOT 29; THENCE ALONG THE EASTERLY LINE OF SAID LOT 29, SOUTH 01° 11' 58" WEST (RECORD SOUTH 00° 37' 20" WEST) 133.12 FEET; THENCE COURSE "A" NORTH 35° 22' 37" WEST, 20.59 FEET; THENCE COURSE "B" NORTH 44° 14' 20" WEST, 55.90 FEET; THENCE COURSE "C" NORTH 33° 56' 00" WEST, 94.44 FEET TO THE NORTHERLY LINE OF SAID LOT 29, DISTANT ALONG SAID NORTHERLY LINE NORTH 88° 52' 14" WEST (RECORD NORTH 89° 26' 10" WEST) 105.44 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTHERLY LINE SOUTH 88° 52' 14" EAST (RECORD SOUTH 89° 26' 10" EAST) 106.44 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

PARCEL 2:

ALL THAT PORTION OF LOT 19 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, LYING NORTHEASTERLY OF THE STATE HIGHWAY, AS CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED APRIL 20, 1955 IN BOOK 1725. PAGE 467, OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

EXCEPTING THEREFROM THAT PORTION AS DESCRIBED IN THE DEED TO THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 20.1970 AS FILE NO. 18792, OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

APN: 366-290-007; 366-290-008

APN: 366-290-007 and 366-290-008
(End of Legal Description)

THE MAP ATTACHED THROUGH THE HYPERLINK ABOVE IS BEING PROVIDED AS A COURTESY AND FOR INFORMATION PURPOSES ONLY; THIS MAP SHOULD NOT BE RELIED UPON. FURTHERMORE, THE PARCELS SET OUT ON THIS MAP MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES. THERE WILL BE NO LIABILITY, RESPONSIBILITY OR INDEMNIFICATION RELATED TO ANY MATTERS CONCERNING THE CONTENTS OR ACCURACY OF THE MAP.

SCHEDULE B

At the date hereof, exceptions to coverage in addition to the printed exceptions and exclusions contained in said policy or policies would be as follows:

Taxes:

A. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes, to be levied for the fiscal year 2022 - 2023.

B. General and special city and/or county taxes, including any personal property taxes, and any assessments collected with taxes, for the fiscal year 2021 - 2022:
1st Installment: $87.49
Status 1st: Delinquent
Penalty: $8.74
2nd Installment: $87.49
Status 2nd: Delinquent
Penalty: $46.80
Parcel No.: 366-290-007
Code Area/Tracer No.: 025-068

Prior to recording, the final amount due for taxes must be confirmed with tax collector.

C. Taxes and/or assessments affecting the Land, if any, for community facility districts, including Mello Roos, which may exist by virtue of assessment maps or filed notices. These taxes and/or assessments are typically collected with the county taxes; however, sometimes they're removed and assessed and collected separately.

D. The lien of supplemental taxes, if any, assessed pursuant to the provisions of Chapter 3.5 (commencing with Section 75) of the revenue and taxation code of the State of California.

Exceptions:

1. Water rights, claims or title to water in, on or under the Land, whether or not shown by the public records.

2. Ownership of, or rights to, minerals or other substances, subsurface and surface, of whatsoever kind, including, but not limited to coal, ores, metals, lignite, oil, gas, geothermal resources, brine, uranium, clay, rock, sand and gravel in, on, under and that may be produced from the Land, together with all rights, privileges, and immunities relating thereto, whether the ownership or rights arise by lease, grant, exception, conveyance, reservation or otherwise, and whether or not appearing in the public records or listed in Schedule B. Stewart Title Guaranty Company and its issuing agent make no representation as to the present ownership of any such interests. There may be leases, grants, exceptions, or reservations of interests that are not listed.

3. Easement and rights incidental thereto for utilities to Superior Mutual Water Co., as set forth in a document recorded September 22, 1913, in Book 379, Page 385 of Deeds.

4. The right to enter upon said Lot 29 to sink wells, to establish and maintain pumping plants and to develop water for irrigation and domestic use, with the perpetual right to enter for such purposes; also right of way through and across any portion of said property for surface or underground pipe lines, with perpetual right of entry upon said property for the construction, maintenance, renewal and repair of said pipe lines; also, right of way through and across any portion of said property for the construction of pole lines for transmission of electric power with perpetual right of entry for the construction, mainanence, renewal and repair of said transmission lines, as conveyed to South Elsinore Mutual Water Company, a corporation.

5. Easement and rights incidental thereto for public utilities easement to California Electric Power Company, its successors and assigns, as set forth in a document recorded April 1, 1947, in Book 824, Page 313, of Official Records.

6. Rights of access to or from the public road or street, highway or freeway adjacent to the Land, as relinquished or severed in deed recorded November 8, 1954, in Book 1652, Page 64 as Instrument No. 58198 of Official Records.

7. Rights of access to or from the public road or street, highway or freeway adjacent to the Land, as relinquished or severed in deed recorded April 20, 1955 in Book 1725, Page 467 as Instrument No. 25787 of Official Records.

8. Rights of access to or from the public road or street, highway or freeway adjacent to the Land, as relinquished or severed in deed recorded December 13, 1955, in Book 1833, Page 333 as Instrument No. 78835 of Official Records.

9. Easement and rights incidental thereto for public utilities easement to General Telephone Company of California, a corporation, their successors and assigns, as set forth in a document recorded November 28, 1969 as Instrument No. 122501 of Official Records.

10. Rights of access to or from the public road or street, highway or freeway adjacent to the Land, as relinquished or severed in deed recorded March 30, 1978 as Instrument No. 59661 of Official Records.

11. Taxes and/or assessments resulting from the Land lying fully or partially within the boundaries of a community facility district as disclosed by the community facilities district map, recorded July 28, 1999 as Instrument No. 1999-337077 of Official Records.

12. Deed of Trust to secure an indebtedness in the amount shown below, and any other obligations secured thereby:
    Amount: $531,700.00
    Dated: (Not shown)
    Trustor: Joseph Foley
    Trustee: Chicago Title Company, A California Corporation
    Beneficiary: Cal-Southwest Holding, Ltd., LLP.
    Recorded: July 18, 2012 as Instrument No. 2012-0335242 of Official Records.

13. Any facts, rights, interests or claims which would be disclosed by an inspection of the Land.

14. Rights of tenants in possession whether or not recorded in the public records.

15. Rights of parties in possession whether or not recorded in the public records.

Typist/Rev. H.P. 06-01-22

(End of Exceptions)

NOTES AND REQUIREMENTS

A. Property taxes for the fiscal year 2021 - 2022 shown below are paid. For proration purposes the amounts are:
1st Installment: $3,568.20
2nd Installment: $3,568.20
Parcel No.: 366-290-008
Code Area/Tracer No.: 025-068

B. To assist in the clarifying, confirming and eliminating certain title matters, provide to Stewart Title, prior to recording, a completed Statement of Information for all identified and known Sellers/ Owners in this transaction.

C. There are no transfers or conveyances shown in the public records within 24 months of the date of this Preliminary Report. If you have knowledge of any transfers or conveyances, please contact your title officer immediately for further requirements.

D. If an Owner's Policy of title insurance is requested, a CLTA Standard Coverage Owner's Policy will be issued unless instructed otherwise. If a different form of policy is desired, please contact your Title Officer.

E. All Transactions - Seller(s) and Buyer(s) or Borrowers are provided, as attachments, the document entitled "Acknowledgement of Receipt, Understanding and Approval of STG Privacy Notice for Stewart Title Companies and Stewart's Affiliated Business Arrangement Disclosure Statement" and the individually named documents, for review and acknowledgment prior to closing.

F. All Transactions - Buyer(s)/Seller(s)/Borrower(s) are provided the Preliminary Report for review and acknowledgment prior to closing. Buyer(s) approval shall include the Preliminary Report items that are to remain as exceptions to the title policy.

G. All Transactions - Seller(s)/Owner(s) are provided Stewart Title Guaranty Company's Owner's Affidavit and Indemnity for completion and submission prior to closing.

H. There are no items in this preliminary report that will cause Stewart Title Guaranty Company to decline to attach the CLTA Endorsement Form 116.01-06 (or similar ALTA 22-06 equivalent), indicating that there is located a Commercial Building, known as 22220 Bundy Canyon, Wildomar, CA.

CALIFORNIA "GOOD FUNDS" LAW

California Insurance Code Section 12413.1 regulates the disbursement of escrow and sub-escrow funds by title companies. The law requires that funds be deposited in the title company escrow account and available for withdrawal prior to disbursement. Funds received by Stewart Title Guaranty Company Commercial Services (Los Angeles) via wire transfer may be disbursed upon receipt. Funds received via cashier's checks or teller checks drawn on a California Bank may be disbursed on the next business day after the day of deposit. If funds are received by any other means, recording and/or disbursement may be delayed, and you should contact your title or escrow officer. All escrow and sub-escrow funds received will be deposited with other escrow funds in one or more non-interest bearing escrow accounts in a financial institution selected by Stewart Title Guaranty Company Commercial Services (Los Angeles). Stewart Title Guaranty Company Commercial Services (Los Angeles) may receive certain direct or indirect benefits from the financial institution by reason of the deposit of such funds or the maintenance of such accounts with the financial institution, and Stewart Title Guaranty Company Commercial Services (Los Angeles) shall have no obligation to account to the depositing party in any manner for the value of, or to pay to such party, any benefit received by Stewart Title Guaranty Company Commercial Services (Los Angeles). Such benefits shall be deemed additional compensation to Stewart Title Guaranty Company Commercial Services (Los Angeles) for its services in connection with the escrow or sub-escrow.

If any check submitted is dishonored upon presentation for payment, you are authorized to notify all principals and/or their respective agents of such nonpayment.

OWNER'S AFFIDAVIT AND INDEMNITY

Order Number: 22000110764
Address/Location: 22220 Bundy Canyon, Wildomar, CA
APN: 366-290-007 and 366-290-008

In connection with the request of the Undersigned ("Affiant") for the preparation and issuance of insurance, Affiant makes the following statements and representations for the benefit of, and reliance by, title insurer STEWART TITLE GUARANTY COMPANY (hereafter referred to as "TITLE"):

1. Affiant owns and holds title to the land described in Schedule A of the Preliminary Report or Commitment issued in connection with the above referenced Order Number (the "Land").

2. The Affiant's ownership and/or possession of the Land has been peaceful and undisturbed, and title thereto has never been disputed, questioned or rejected, nor has the issuance of title insurance ever been refused, except as follows: **(If none, please state "none")**
   _____

3. Other than the Affiant, there are no parties entitled to possession of the Land other than the following: **(If none, please state "none")**
   _____

4. There are no leases, licenses, options, rights of first refusal, or contracts to sell, affecting the Land, or any parties currently in possession, of the Land, except the following: **(If none, please state "none")**
   _____

5. All assessments by a management company or owners' association, or for common area or building maintenance, if any, are paid current or are not yet due and payable except for the following **(If none, please state "none)**
   _____

6. There are no pending contemplated repairs/improvements to the Land, except the following: **(If none, please state "none)**
   _____

7. There has been no construction, building materials, repairs, improvements or remodeling performed, provided, furnished or delivered within the last 12 months, except as follows: **(If none, please state "none")**
   _____
   This work performed, as detailed above, was completed on _____ (date of completion).

8. Affiant is not aware of the existence of any of the following::
   a. Improvements, including fences, encroaching into any easements on the Land, or over any boundary lines of the Land.
   b. Adjoining property improvements encroaching onto the Land.
   c. Liens against the Land and/or judgments or tax liens against Affiant or any other property owner currently in title, except those described in the Preliminary Report or Commitment issued in connection with the above referenced Order Number.
   d. Outstanding claims or persons entitled to claims for mechanics' or materialman liens against the Land.
   e. Pending repairs/improvements to any adjacent street(s) or any assessments related to road maintenance.
   f. Any pending litigation involving the Land, the Affiant or any other property owner currently in title.
   g. Recent improvements completed or being made to any common area(s) located within the subdivision in which the Land is located.
   h. Violations of building permits, zoning laws or recorded covenants, conditions and/or restrictions imposed on the Land.
   i. Any pending assessments for Community Facility Districts.
   j. Any new, pending or existing obligation or loan including any home improvements on the Land pursuant to the PACE or HERO program, or any other similar type program.

k. Any unrecorded or recorded easements, covenants, conditions, or restrictions affecting the Land, other than those listed in the Preliminary Report or Title Commitment.
l. Any use of the property for the production, sale, warehousing or transporting of fresh fruits, vegetables, livestock or poultry (e.g., supermarkets, restaurants, wineries, breweries and meat packing plants).

With regard to 8a.-8l, except as follows: **(If none, please state "none")**

_____

9. No proceedings in bankruptcy or receivership have been instituted or filed by, or against, the Affiant or any other property owner currently in title.

10. There are no unpaid taxes, assessments or utility type bills including but not limited to bills for water, sewer, hazardous waste, recycling, storm drain and/or rubbish and there are no liens related to such utilities from or on the Land, with the exception of the following: **(If none, please state "none")**

_____

11. There are no financial obligations secured by trust deeds, mortgages, financing statements, vendor's liens, security agreements or otherwise, against the Land, except as set forth in the Preliminary Report, proforma and/or Commitment, and as set forth below: **(If none, please state "none")**

Creditor	Approximate Balance
_____	_____
_____	_____

12. There has been no harvesting or production of any oil, gas, geothermal materials or other minerals from or on the Land and there are no oil, gas, geothermal and/or mineral leases, licenses, options, rights of first refusal, and/or contracts to sell, affecting the mineral rights associated with the Land, or other parties currently in possession, of the mineral rights on the Land, except the following: **(If none, please state "none")**

_____

13. Other than the Affiant, there are no other parties currently in possession of the Land, including but not limited to, any possessory interest associated with the harvesting of any oil, gas, geothermal materials or other minerals, except the following: **(If none, please state "none")**

_____

14. Affiant has not executed and will not execute any documents or instruments related to the title to, or interest in, the Land prior to the recordation of the documents in this transaction.

15. By signing below, Affiant agrees to cooperate with TITLE and, upon request from TITLE, to promptly provide and/or execute, any corrective or curative information or documentation requested.

This is a sworn affidavit and is made for the purpose of inducing TITLE to provide certain insurance coverage to a purchaser and/or lender, and the representations contained herein are material to such insurance coverage. The undersigned hereby indemnifies and holds TITLE harmless from any loss or damage, liability, costs, expenses and attorneys' fees which it may sustain under its policies of title insurance or commitments to the extent any representation contained herein is incorrect. The undersigned understands that TITLE may decide not to provide the requested title insurance despite the information and affirmations contained herein.

PLEASE READ, COMPLETE AND RESPOND TO ALL STATEMENTS CONTAINED IN THIS OWNER'S AFFIDAVIT AND INDEMNITY BEFORE SIGNING IN THE PRESENCE OF A NOTARY PUBLIC. THE NOTARY PUBLIC WILL EXECUTE THE ACKNOWLEDGMENT ON THE FOLLOWING PAGE. HOWEVER, IF YOU DO NOT UNDERSTAND OR HAVE ANY QUESTIONS ABOUT THIS AFFIDAVIT, YOU SHOULD SEEK THE ASSISTANCE OF YOUR INDEPENDENT FINANCIAL AND/OR LEGAL ADVISOR BEFORE SIGNING.

_____
Joseph Foley

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached and not the truthfulness, accuracy, or validity of that document.

State of California)
) ss.
County of _____)

Subscribed and sworn to (or affirmed) before me on this _____ day of _____, 20____, by _____, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

_____
Notary Signature

Jimmy Morada
Advisory Title Officer

Stewart Title Guaranty Company
Commercial Services (Los Angeles)
525 North Brand Blvd.
Glendale, CA 91203
Phone
Fax
Jimmy.Morada@stewart.com

Date : June 01, 2022
Escrow Officer :
Escrow No. : 22000110764
Title Order No. : 22000110764
Property Address : 22220 Bundy Canyon, Wildomar, CA

SELLER ACKNOWLEDGEMENT OF RECEIPT, UNDERSTANDING AND APPROVAL OF PRELIMINARY REPORT

The undersigned Seller(s) hereby acknowledge receipt of a copy of the Preliminary Report issued by Stewart Title Guaranty Company - Commercial Services under Order No. 22000110764, dated May 17, 2022 and hereby approves the legal description of subject property shown on Schedule A of the report.

Seller(s) Acknowledgement: Seller(s) herein warrant and confirm that, to Seller(s) knowledge, all Deeds of Trusts (e.g., mortgages, loans and lines of credit), liens, judgments and/or encumbrances affecting Seller(s) and subject property are reflected in the Preliminary Report. If not, Seller(s) will provide Escrow Holder with information to facilitate the pay-off and/or removal of any such items before or at the close of escrow.

The undersigned have received a copy of this acknowledgement as evidenced by the signature below.

Seller(s):

_____
Joseph Foley

Jimmy Morada
Advisory Title Officer

Stewart Title Guaranty Company
Commercial Services (Los Angeles)
525 North Brand Blvd.
Glendale, CA 91203
Phone
Fax
Jimmy.Morada@stewart.com

Date : June 01, 2022
Escrow Officer :
Escrow No. : 22000110764
Title Order No. : 22000110764
Property Address : 22220 Bundy Canyon, Wildomar, CA

BUYER ACKNOWLEDGEMENT OF RECEIPT, UNDERSTANDING AND APPROVAL OF PRELIMINARY REPORT

The undersigned Buyer(s) hereby acknowledge receipt of a copy of the Preliminary Report issued by Stewart Title Guaranty Company - Commercial Services under Order No. 22000110764, dated May 17, 2022 and hereby approves the legal description of subject property shown on Schedule A of the report.

Buyer(s) Approval of Preliminary Report: Buyer(s) herein hereby approves Items * of Schedule B of the report to be included in the Policy of Title Insurance as exceptions when written. Further, Buyer(s) hereby acknowledge receipt and approval of the Covenants, Conditions and Restrictions, and any and all Schedule B exceptions detailed above, for example, easements, right-of-ways, and restrictions, if any.

The undersigned have received a copy of this acknowledgement as evidenced by the signature below.

Buyer(s):

_____
JNT Management

EXHIBIT "A"

LEGAL DESCRIPTION

Order No.: 22000110764
Escrow No.: 22000110764

The land referred to herein is situated in the State of California, County of Riverside, City of Wildomar and described as follows:

PARCEL 1:
:
THAT PORTION OF LOT 29 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FLLE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT A TWO INCH IRON PIPE MARKING THE NORTHEAST CORNER OF SAID LOT 29; THENCE ALONG THE EASTERLY LINE OF SAID LOT 29, SOUTH 01° 11' 58" WEST (RECORD SOUTH 00° 37' 20" WEST) 133.12 FEET; THENCE COURSE "A" NORTH 35° 22' 37" WEST, 20.59 FEET; THENCE COURSE "B" NORTH 44° 14' 20" WEST, 55.90 FEET; THENCE COURSE "C" NORTH 33° 56' 00" WEST, 94.44 FEET TO THE NORTHERLY LINE OF SAID LOT 29, DISTANT ALONG SAID NORTHERLY LINE NORTH 88° 52' 14" WEST (RECORD NORTH 89° 26' 10" WEST) 105.44 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTHERLY LINE SOUTH 88° 52' 14" EAST (RECORD SOUTH 89° 26' 10" EAST) 106.44 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

PARCEL 2:

ALL THAT PORTION OF LOT 19 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, LYING NORTHEASTERLY OF THE STATE HIGHWAY, AS CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED APRIL 20, 1955 IN BOOK 1725. PAGE 467, OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

EXCEPTING THEREFROM THAT PORTION AS DESCRIBED IN THE DEED TO THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 20.1970 AS FILE NO. 18792, OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

APN: 366-290-007; 366-290-008

APN: 366-290-007 and 366-290-008

(End of Legal Description)

AFFILIATED BUSINESS ARRANGEMENT DISCLOSURE STATEMENT

Date: June 01, 2022

Escrow No.: 22000110764

Property: 22220 Bundy Canyon, Wildomar, CA

From: Stewart Title Guaranty Company - Commercial Services

This is to give you notice that Stewart Title Guaranty Company - Commercial Services ("Stewart Title") has a business relationship with Stewart Solutions, LLC, DBA – Stewart Specialty Insurance Services, LLC ("Stewart Insurance"). Stewart Information Services Corporation owns 100% of Stewart Insurance and Stewart Title of California. Because of this relationship, this referral may provide Stewart Title a financial or other benefit.

Set forth below is the estimated charge or range of charges for the settlement services listed. You are NOT required to use the listed provider(s) as a condition for purchase, sale, or refinance of the subject Property. THERE ARE FREQUENTLY OTHER SETTLEMENT SERVICE PROVIDERS AVAILABLE WITH SIMILAR SERVICES. YOU ARE FREE TO SHOP AROUND TO DETERMINE THAT YOU ARE RECEIVING THE BEST SERVICES AND THE BEST RATE FOR THESE SERVICES.

Stewart Insurance Settlement Service	***Charge or range of charges***
Hazard Insurance	$400.00 to $6,500.00
Home Warranty	$255.00 to $ 780.00
Natural Hazard Disclosure Report	$ 42.50 to $ 149.50

CALIFORNIA LAND TITLE ASSOCIATION

STANDARD COVERAGE POLICY – 1990
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.

3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.

4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.

5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.

6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.

3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.

4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

6. Any lien or right to a lien for services, labor or material unless such lien is shown by the Public Records at Date of Policy

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)
EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:

   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division;
   f. environmental protection.

This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.

2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.

4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they appear in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.

5. Failure to pay value for Your Title.

6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.

This Exclusion does not limit the coverage described in Covered Risk 11 or 21.

7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.

8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.

9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:
* For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.
The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1% of Policy Amount or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 18:	1% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19:	1% of Policy Amount or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21:	1% of Policy Amount or $2,500.00 (whichever is less)	$5,000.00

2006 ALTA LOAN POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.

3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.

4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.

5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.

6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.

7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

Except as provided in Schedule B - Part II, this policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

PART I

1. (a) taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   (b) proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.

3. Easements, liens or encumbrances, or claims thereof, which are not shown by the Public Records.

4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.

5. (a) unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

6. Any lien or right to a lien for services, labor or material unless such lien is shown by the Public Records at Date of Policy.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:

2006 ALTA OWNER'S POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.

3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.

4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.

5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.

3. Easements, liens or encumbrances, or claims thereof, which are not shown by the public records.

4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.

5. (a) unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.

6. Any lien or right to a lien for services, labor or material unless such lien is shown by the Public Records at Date of Policy..

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY - ASSESSMENTS PRIORITY (04-02-15)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys fees or expenses which arise by reason of:

1. a. Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions or location of any improvement now or hereafter erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
   b. Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.

3. Defects, liens, encumbrances, adverse claims or other matters:

   (a) created, suffered, assumed or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting In no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
   (e) resulting in loss or damage which would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.

4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.

5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.

6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.

7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.

8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.

9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is

   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.

10 Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.

11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

PROCEDURES TO ACCOMPANY THE
RESTRICTIVE COVENANT MODIFICATION FORM

The law prohibits unlawfully restrictive covenants based upon:

> "…age, race, color, religion, sex, gender, gender identity, gender expression, sexual orientation, familial status, marital status, disability, veteran or military status, genetic information, national origin, source of income as defined in subdivision (p) of Section 12955, or ancestry… Lawful restrictions under state and federal law on the age of occupants in senior housing or housing for older persons shall not be construed as restrictions based on familial status."

As the individual holding or acquiring an interest in the property, you may elect to have any unlawfully restrictive covenants "removed", which means "redacted."

To have the unlawfully restrictive covenant removed, you may prepare and submit to the county recorder's office, a "Restrictive Covenant Modification" form (RCM) together with a copy of the attached document with the unlawfully restrictive covenant redacted. This request must be submitted to the county recorder's office and must include your return address so the county recorder can notify you of the action taken by the county counsel.
NOTE: The RCM provided with your title product MAY NOT be the same form required by your county recorder's office; please double check your county recorder's office before completing this form.

The process at the county recorder's office is as follows:

- The county recorder takes the RCM with the redacted document and the original document attached and submits it to the county counsel for review to determine if, from a legal standpoint, the language was an unlawfully restrictive covenant and thus the redacted version should be indexed and recorded.
- The county counsel shall inform the county recorder of his/her determination within a reasonable amount of time, not to exceed three months from the date of your request.
- If county counsel determined that the redacted language was unlawful then, once recorded, the redacted document is the only one that effects the property and this modified document has the same effective date as the original document.
- If county counsel determined that the redacted language was not unlawful then county counsel will return the RCM package to the county recorder and the county recorder will advise the requestor that same the request has been denied and the redacted document has not been recorded.
- The modification document shall be indexed in the same manner as the original document and shall contain a recording reference to the original document.

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL TO

NAME

ADDRESS

CITY
STATE & ZIP

TITLE ORDER NO. **ESCROW NO.** **APN NO.**

RESTRICTIVE COVENANT MODIFICATION

(Unlawfully Restrictive Covenant Modification Pursuant to Government Code Section 12956.2)

I(We)_____have or are acquiring an ownership interest of record in the property located at _____ that is covered by the document described below.

The following reference document contains a restriction based on age, race, color, religion, sex, gender, gender identity, gender expression, sexual orientation, familial status, marital status, disability, veteran or military status, genetic information, national origin, source of income as defined in Section 12955 of the Government Code, or ancestry, that violates state and federal fair housing laws and is void. Pursuant to Section 12956.2 of the Government Code, this document is being recorded solely for the purpose of eliminating that restrictive covenant as shown on page(s)_____of the document recorded on _____ in book_____and page _____ or instrument number_____of the official records of the County of _____, State of California.

Attached hereto is a true, correct and complete copy of the document referenced above, with the unlawful restrictive covenant redacted.

This modification document shall be indexed in the same manner as the original document pursuant to subdivision (d) of Section 12956 of the Government.

The effective date of the terms and conditions of the modification document shall be the same as the effective date of the original document.

_____
(Signature of Submitting Party)

_____
(Printed Name)

_____
(Signature of Submitting Party)

_____
(Printed Name)

_____ County Counsel, or their designee, pursuant to Government Code Section 12956.2, hereby states that it has been determined that the original document referenced above
_____ Does _____ Does Not contain an unlawful restriction and this modification may be recorded.

County Counsel
By: _____
Date: _____

stewart title

Jimmy Morada
Title Officer

Jeff Kreueger
Title Officer

Kristine Poole
Title Officer

Stewart Title Guaranty Compan
Commercial Services (Los Ange
525 North Brand Blvd.
Glendale, CA 91203
Phone
Fax
Jimmy.Morada@stewart.com

Date: June 01, 2022
Title Officer: Jimmy Morada
Order No.: 22000110764
Property Address: 22220 Bundy Canyon, Wildomar, CA

UNLAWFULLY RESTRICTIVE COVENANTS ACKNOWLEGMENT AND INDEMNIFICATION

STEWART TITLE GAURANTY COMPANY
IS LICENSED BY THE STATE OF CALIFORNIA UNDER THE DEPARTMENT OF INSURANCE LICENSE NO. 1892

The undersigned hereby acknowledge receipt of (1) the statutory required language describing unlawfully restrictive covenants in the title product from Stewart Title Guaranty Company ("Stewart Title"); (2) a copy of the Restrictive Covenant Modification (RCM) form; and (3) the procedures describing how to have, when applicable, an unlawfully restrictive covenant of record updated.

The undersigned further acknowledge that he/she/they have received, read, understand and accept these documents in connection with the above described transaction and have received a copy of this acknowledgment as evidenced by the signature below.

The undersigned acknowledges and understands that Stewart Title will rely upon this acknowledgment as evidence that Stewart Title has fulfilled its duties and obligations under the law with respect to unlawfully restrictive covenants. The undersigned jointly and severally agree to hold harmless Stewart Title Guaranty Company, its officers, employees, agents, parent, affiliated and subsidiary companies, and successors and assigns from and against any and all damages or liability and agree to reimburse Stewart Title for all losses, costs, charges, attorneys' fees or other expenses which shall or may at any time be suffered, sustained or incurred by reason of, or in consequence of or related to these unlawfully restrictive covenants and the RCM form and submission.

_____
Joseph Foley

_____
JNT Management

STG Privacy Notice
Stewart Title Companies

WHAT DO THE STEWART TITLE COMPANIES DO WITH YOUR PERSONAL INFORMATION?

Federal and applicable state law and regulations give consumers the right to limit some but not all sharing. Federal and applicable state law regulations also require us to tell you how we collect, share, and protect your personal information. Please read this notice carefully to understand how we use your personal information. This privacy notice is distributed on behalf of the Stewart Title Guaranty Company and its title affiliates (the Stewart Title Companies), pursuant to Title V of the Gramm-Leach-Bliley Act (GLBA).

The types of personal information we collect and share depend on the product or service that you have sought through us. This information can include social security numbers and driver's license number.

All financial companies, such as the Stewart Title Companies, need to share customers' personal information to run their everyday business—to process transactions and maintain customer accounts. In the section below, we list the reasons that we can share customers' personal information; the reasons that we choose to share; and whether you can limit this sharing.

Reasons we can share your personal information.	Do we share	Can you limit this sharing?
For our everyday business purposes— to process your transactions and maintain your account. This may include running the business and managing customer accounts, such as processing transactions, mailing, and auditing services, and responding to court orders and legal investigations.	Yes	No
For our marketing purposes— to offer our products and services to you.	Yes	No
For joint marketing with other financial companies	No	We don't share
For our affiliates' everyday business purposes— information about your transactions and experiences. Affiliates are companies related by common ownership or control. They can be financial and non-financial companies. *Our affiliates may include companies with a Stewart name; financial companies, such as Stewart Title Company*	Yes	No
For our affiliates' everyday business purposes— information about your creditworthiness.	No	We don't share
For our affiliates to market to you — For your convenience, Stewart has developed a means for you to opt out from its affiliates marketing even though such mechanism is not legally required.	Yes	Yes, send your first and last name, the email address used in your transaction, your Stewart file number and the Stewart office location that is handling your transaction by email to optout@stewart.com or fax to 1-800-335-9591.
For non-affiliates to market to you. Non-affiliates are companies not related by common ownership or control. They can be financial and non-financial companies.	No	We don't share

We may disclose your personal information to our affiliates or to non-affiliates as permitted by law. If you request a transaction with a non-affiliate, such as a third party insurance company, we will disclose your personal information to that non-affiliate. [We do not control their subsequent use of information, and suggest you refer to their privacy notices.]

SHARING PRACTICES

How often do the Stewart Title Companies notify me about their practices?	We must notify you about our sharing practices when you request a transaction.
How do the Stewart Title Companies protect my personal information?	To protect your personal information from unauthorized access and use, we use security measures that comply with federal law. These measures include computer, file, and building safeguards.
How do the Stewart Title Companies collect my personal information?	We collect your personal information, for example, when you ▪ request insurance-related services ▪ provide such information to us We also collect your personal information from others, such as the real estate agent or lender involved in your transaction, credit reporting agencies, affiliates or other companies.
What sharing can I limit?	Although federal and state law give you the right to limit sharing (e.g., opt out) in certain instances, we do not share your personal information in those instances.

Contact us: If you have any questions about this privacy notice, please contact us at: **Stewart Title Guaranty Company, 1360 Post Oak Blvd., Ste. 100, Privacy Officer, Houston, Texas 77056**

Privacy Notice for California Residents

Pursuant to the California Consumer Privacy Act of 2018 ("CCPA"), Stewart Information Services Corporation and its subsidiary companies (collectively, "Stewart") are providing this **Privacy Notice for California Residents** ("CCPA Notice"). This CCPA Notice supplements the information contained in Stewart's existing privacy notice and applies solely to all visitors, users and others who reside in the State of California or are considered California Residents ("consumers" or "you"). Terms used but not defined shall have the meaning ascribed to them in the CCPA.

Information Stewart Collects

Stewart collects information that identifies, relates to, describes, references, is capable of being associated with, or could reasonably be linked, directly or indirectly, with a particular consumer, household, or device. Most of the information that Stewart collects in the course of its regular business is already protected pursuant to the Gramm-Leach-Bliley Act (GLBA). Additionally, much of this information comes from government records or other information already in the public domain. Personal information under the CCPA does not include:

- Publicly available information from government records.
- Deidentified or aggregated consumer information.
- Certain personal information protected by other sector-specific federal or California laws, including but not limited to the Fair Credit Reporting Act (FCRA), GLBA and California Financial Information Privacy Act (FIPA).

Specifically, Stewart has collected the following categories of personal information from consumers within the last twelve (12) months:

Category	Examples	Collected?
A. Identifiers.	A real name, alias, postal address, unique personal identifier, online identifier, Internet Protocol address, email address, account name, Social Security number, driver's license number, passport number, or other similar identifiers.	YES
B. Personal information categories listed in the California Customer Records statute (Cal. Civ. Code § 1798.80(e)).	A name, signature, Social Security number, physical characteristics or description, address, telephone number, passport number, driver's license or state identification card number, insurance policy number, education, employment, employment history, bank account number, credit card number, debit card number, or any other financial information, medical information, or health insurance information. Some personal information included in this category may overlap with other categories.	YES
C. Protected classification characteristics under California or federal law.	Age (40 years or older), race, color, ancestry, national origin, citizenship, religion or creed, marital status, medical condition, physical or mental disability, sex (including gender, gender identity, gender expression, pregnancy or childbirth and related medical conditions), sexual orientation, veteran or military status, genetic information (including familial genetic information).	YES
D. Commercial information.	Records of personal property, products or services purchased, obtained, or considered, or other purchasing or consuming histories or tendencies.	YES
E. Biometric information.	Genetic, physiological, behavioral, and biological characteristics, or activity patterns used to extract a template or other identifier or identifying information, such as, fingerprints, faceprints, and voiceprints, iris or retina scans, keystroke, gait, or other physical patterns, and sleep, health, or exercise data.	YES
F. Internet or other similar network activity.	Browsing history, search history, information on a consumer's interaction with a website, application, or advertisement.	YES
G. Geolocation data.	Physical location or movements.	YES
H. Sensory data.	Audio, electronic, visual, thermal, olfactory, or similar information.	YES
I. Professional or employment-related information.	Current or past job history or performance evaluations.	YES
J. Non-public education information (per the Family Educational Rights and Privacy Act (20 U.S.C. Section 1232g, 34 C.F.R. Part 99)).	Education records directly related to a student maintained by an educational institution or party acting on its behalf, such as grades, transcripts, class lists, student schedules, student identification codes, student financial information, or student disciplinary records.	YES
K. Inferences drawn from other personal information.	Profile reflecting a person's preferences, characteristics, psychological trends, predispositions, behavior, attitudes, intelligence, abilities, and aptitudes.	YES

Stewart obtains the categories of personal information listed above from the following categories of sources:

- Directly and indirectly from customers, their designees or their agents (For example, realtors, lenders, attorneys, etc.)
- Directly and indirectly from activity on Stewart's website or other applications.
- From third-parties that interact with Stewart in connection with the services we provide.

Use of Personal Information

Stewart may use or disclose the personal information we collect for one or more of the following purposes:

- To fulfill or meet the reason for which the information is provided.
- To provide, support, personalize, and develop our website, products, and services.
- To create, maintain, customize, and secure your account with Stewart.
- To process your requests, purchases, transactions, and payments and prevent transactional fraud.
- To prevent and/or process claims.
- To assist third party vendors/service providers who complete transactions or perform services on Stewart's behalf.
- As necessary or appropriate to protect the rights, property or safety of Stewart, our customers or others.
- To provide you with support and to respond to your inquiries, including to investigate and address your concerns and monitor and improve our responses.
- To personalize your website experience and to deliver content and product and service offerings relevant to your interests, including targeted offers and ads through our website, third-party sites, and via email or text message (with your consent, where required by law).
- To help maintain the safety, security, and integrity of our website, products and services, databases and other technology assets, and business.
- To respond to law enforcement or regulator requests as required by applicable law, court order, or governmental regulations.
- Auditing for compliance with federal and state laws, rules and regulations.
- Performing services including maintaining or servicing accounts, providing customer service, processing or fulfilling orders and transactions, verifying customer information, processing payments, providing advertising or marketing services or other similar services.
- To evaluate or conduct a merger, divestiture, restructuring, reorganization, dissolution, or other sale or transfer of some or all of our assets, whether as a going concern or as part of bankruptcy, liquidation, or similar proceeding, in which personal information held by us is among the assets transferred.

Stewart will not collect additional categories of personal information or use the personal information we collected for materially different, unrelated, or incompatible purposes without providing you notice.

Disclosure of Personal Information to Affiliated Companies and Nonaffiliated Third Parties

Stewart does not sell your personal information to nonaffiliated third parties. Stewart may share your information with those you have designated as your agent in the course of your transaction (for example, a realtor or a lender). Stewart may disclose your personal information to a third party for a business purpose. Typically, when we disclose personal information for a business purpose, we enter a contract that describes the purpose and requires the recipient to both keep that personal information confidential and not use it for any purpose except performing the contract.

We share your personal information with the following categories of third parties:

- Service providers and vendors (For example, search companies, mobile notaries, and companies providing credit/debit card processing, billing, shipping, repair, customer service, auditing, marketing, etc.)
- Affiliated Companies
- Litigation parties and attorneys, as required by law.
- Financial rating organizations, rating bureaus and trade associations.
- Federal and State Regulators, law enforcement and other government entities

In the preceding twelve (12) months, Stewart has disclosed the following categories of personal information for a business purpose:

Category A: Identifiers
Category B: California Customer Records personal information categories
Category C: Protected classification characteristics under California or federal law
Category D: Commercial Information
Category E: Biometric Information
Category F: Internet or other similar network activity
Category G: Geolocation data
Category H: Sensory data
Category I: Professional or employment-related information
Category J: Non-public education information
Category K: Inferences

Consumer Rights and Choices

The CCPA provides consumers (California residents) with specific rights regarding their personal information. This section describes your CCPA rights and explains how to exercise those rights.

Access to Specific Information and Data Portability Rights

You have the right to request that Stewart disclose certain information to you about our collection and use of your personal information over the past 12 months. Once we receive and confirm your verifiable consumer request, Stewart will disclose to you:

- The categories of personal information Stewart collected about you.
- The categories of sources for the personal information Stewart collected about you.
- Stewart's business or commercial purpose for collecting that personal information.
- The categories of third parties with whom Stewart shares that personal information.
- The specific pieces of personal information Stewart collected about you (also called a data portability request).
- If Stewart disclosed your personal data for a business purpose, a listing identifying the personal information categories that each category of recipient obtained.

Deletion Request Rights

You have the right to request that Stewart delete any of your personal information we collected from you and retained, subject to certain exceptions. Once we receive and confirm your verifiable consumer request, Stewart will delete (and direct our service providers to delete) your personal information from our records, unless an exception applies.

Stewart may deny your deletion request if retaining the information is necessary for us or our service providers to:

1. Complete the transaction for which we collected the personal information, provide a good or service that you requested, take actions reasonably anticipated within the context of our ongoing business relationship with you, or otherwise perform our contract with you
2. Detect security incidents, protect against malicious, deceptive, fraudulent, or illegal activity, or prosecute those responsible for such activities.
3. Debug products to identify and repair errors that impair existing intended functionality.
4. Exercise free speech, ensure the right of another consumer to exercise their free speech rights, or exercise another right provided for by law.
5. Comply with the California Electronic Communications Privacy Act (Cal. Penal Code § 1546 *seq.*).
6. Engage in public or peer-reviewed scientific, historical, or statistical research in the public interest that adheres to all other applicable ethics and privacy laws, when the information's deletion may likely render impossible or seriously impair the research's achievement, if you previously provided informed consent.
7. Enable solely internal uses that are reasonably aligned with consumer expectations based on your relationship with us.
8. Comply with a legal obligation.
9. Make other internal and lawful uses of that information that are compatible with the context in which you provided it.

Exercising Access, Data Portability, and Deletion Rights

To exercise the access, data portability, and deletion rights described above, please submit a verifiable consumer request to us either:

- Calling us Toll Free at 1-866-571-9270
- Emailing us at Privacyrequest@stewart.com
- Visiting http://stewart.com/ccpa

Only you, or someone legally authorized to act on your behalf, may make a verifiable consumer request related to your personal information. You may also make a verifiable consumer request on behalf of your minor child.

To designate an authorized agent, please contact Stewart through one of the methods mentioned above.

You may only make a verifiable consumer request for access or data portability twice within a 12-month period. The verifiable consumer request must:

- Provide sufficient information that allows us to reasonably verify you are the person about whom we collected personal information or an authorized representative.
- Describe your request with sufficient detail that allows us to properly understand, evaluate, and respond to it.

Stewart cannot respond to your request or provide you with personal information if we cannot verify your identity or authority to make the request and confirm the personal information relates to you.

Making a verifiable consumer request does not require you to create an account with Stewart.

Response Timing and Format

We endeavor to respond to a verifiable consumer request within forty-five (45) days of its receipt. If we require more time (up to an additional 45 days), we will inform you of the reason and extension period in writing.

A written response will be delivered by mail or electronically, at your option.

Any disclosures we provide will only cover the 12-month period preceding the verifiable consumer request's receipt. The response we provide will also explain the reasons we cannot comply with a request, if applicable. For data portability requests, we will select a format to provide your personal information that is readily useable and should allow you to transmit the information from one entity to another entity without hindrance.

Stewart does not charge a fee to process or respond to your verifiable consumer request unless it is excessive, repetitive, or manifestly unfounded. If we determine that the request warrants a fee, we will tell you why we made that decision and provide you with a cost estimate before completing your request.

Non-Discrimination

Stewart will not discriminate against you for exercising any of your CCPA rights. Unless permitted by the CCPA, we will not:

- Deny you goods or services.
- Charge you a different prices or rates for goods or services, including through granting discounts or other benefits, or imposing penalties.
- Provide you a different level or quality of goods or services.
- Suggest that you may receive a different price or rate for goods or services or a different level or quality of goods or services.

Changes to Our Privacy Notice

Stewart reserves the right to amend this privacy notice at our discretion and at any time. When we make changes to this privacy notice, we will post the updated notice on Stewart's website and update the notice's effective date. **Your continued use of Stewart's website following the posting of changes constitutes your acceptance of such changes.**

Contact Information

If you have questions or comments about this notice, the ways in which Stewart collects and uses your information described here, your choices and rights regarding such use, or wish to exercise your rights under California law, please do not hesitate to contact us at:

Phone: Toll Free at 1-866-571-9270

Website: http://stewart.com/ccpa

Email: Privacyrequest@stewart.com

Postal Address: Stewart Information Services Corporation
Attn: Mary Thomas, Deputy Chief Compliance Officer
1360 Post Oak Blvd., Ste. 100, MC #14-1
Houston, TX 77056

EXHIBIT A

Site Map


22220 Bundy Canyon Rd
15
15
Google Earth

EXHIBIT B

County Assessor's Parcel Map

Provided by:
PARCELQUEST

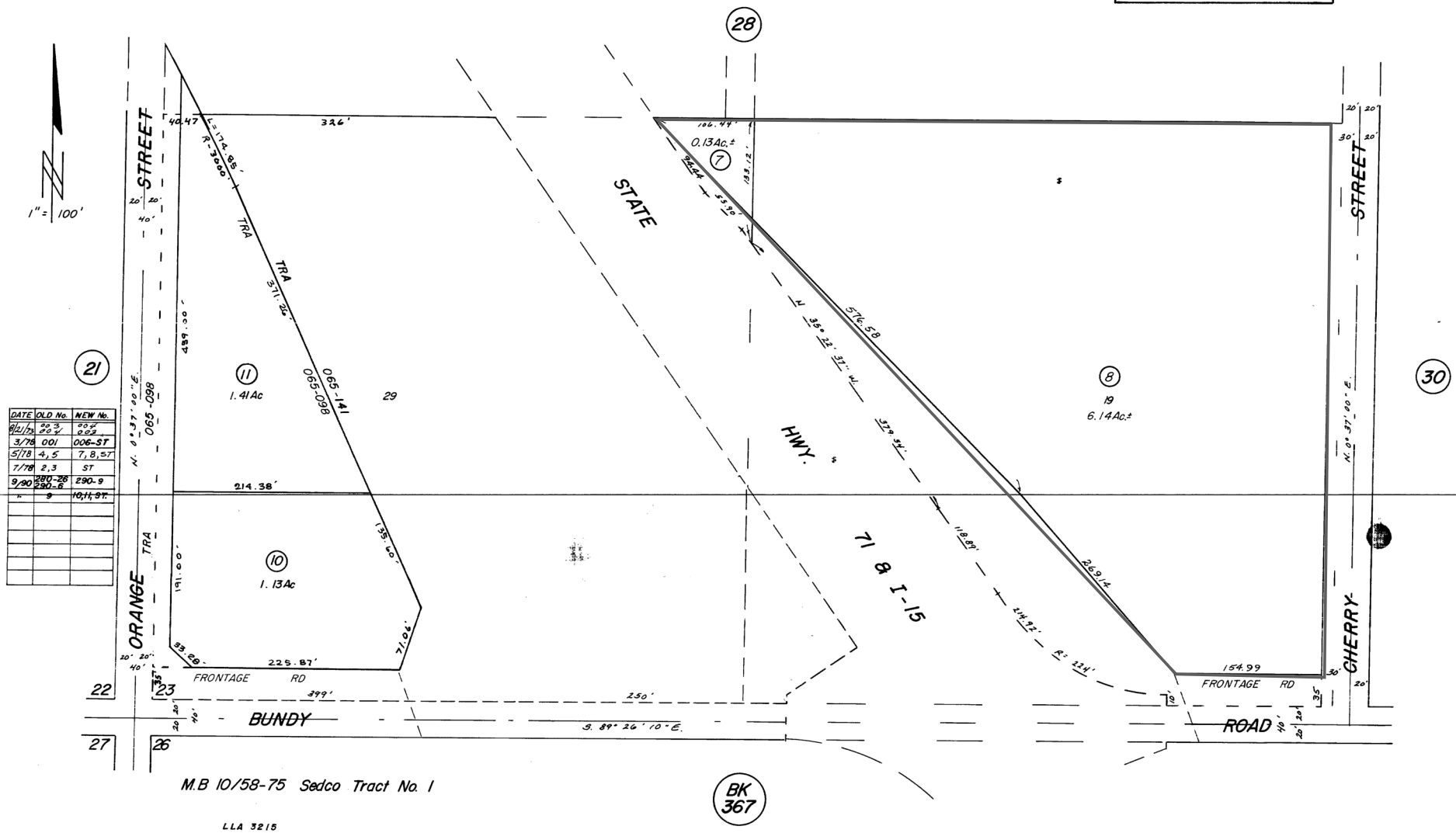
366-29

19-33

T.R.A 065-141
065-098

POR. SW1/4 SEC. 23, T.6S., R.4W.

THIS MAP IS FOR ASSESSMENT PURPOSES ONLY.



DATE	OLD No.	NEW No.
6/11/79	003 001	003 002
3/78	001	006-ST
5/78	4,5	7,8,ST
7/78	2,3	ST
9/90	280-26 280-6	290-9
"	9	10,11,31.

M.B 10/58-75 Sedco Tract No. 1

BK 367

LLA 3215
DATA: HWY MAP RT. 71
(#209013 12/82 Frontage Road RELINQUISHMENT TO COUNTY
STATE HWY MB 9/1-15 SEE "A" FILE)

OCTOBER 1972

ASSESSOR'S MAP BK 366 PG. 29
RIVERSIDE COUNTY, CALIF.

EXHIBIT C

U.S.G.S 7.5 Minute Topographical Maps


1
WOODCREEK LN
VICTORIAN LN
WILLOW TREE LN
WINDTREE AVE
SIMA CIR
DIAL RD
GRAPE ST
GAFFORD RD
BLONDON CT
LEMON ST
COUNTRY HILLS DR
SCHUITE
VIEW POINT DR
TAMERRON WAY
GREAT FALLS RD
VIEW CREST DR
DOROTHY LN
VALLEY TER
HAGER DR
WAITE ST
ORANGE ST
PARADISE LN
CHERRY ST
SELLERS RD
BARRENGO DR
SILVER RUN CTR
ANGELS LN
Elsinore HS
CANYON DR
FRYBACK LN
RAYNOR LN
SEQUOIA CIR
OSPREY CT
DEAN LN
TREE LN
WALNUT ST
PITT WAY
WOODS LN
WHITE ST
MONTE VISTA DR
BOGGS LN
GROVE ST
1680
1600
1560
1520
1480
1440
1400
15
750 ft

EXHIBIT D

Historical Fire Insurance Maps

E23-001P

22220 Bundy Canyon Road

Wildomar, CA 92595

Inquiry Number: 7240065.3

January 31, 2023

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

997

Certified Sanborn® Map Report

01/31/23

Site Name:

E23-001P
22220 Bundy Canyon Road
Wildomar, CA 92595
EDR Inquiry # 7240065.3

Client Name:

Herron Environmental
1 Technology Drive, Suite J701
Irvine, CA 92618
Contact: Ron Russell

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Herron Environmental were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # BCF8-4AF4-A0CC

PO # NA

Project E23-003P

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: BCF8-4AF4-A0CC

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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EXHIBIT E

Historical Aerial Photographs

E23-001P

22220 Bundy Canyon Road

Wildomar, CA 92595

Inquiry Number: 7240065.8

February 01, 2023

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

1000

EDR Aerial Photo Decade Package

02/01/23

Site Name:

E23-001P
22220 Bundy Canyon Road
Wildomar, CA 92595
EDR Inquiry # 7240065.8

Client Name:

Herron Environmental
1 Technology Drive, Suite J701
Irvine, CA 92618
Contact: Ron Russell

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2020	1"=500'	Flight Year: 2020	USDA/NAIP
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Acquisition Date: January 01, 2002	USGS/DOQQ
1994	1"=500'	Acquisition Date: January 01, 1994	USGS/DOQQ
1990	1"=500'	Flight Date: September 06, 1990	USDA
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: February 24, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1974	1"=500'	Flight Date: November 06, 1974	USGS
1967	1"=500'	Flight Date: May 15, 1967	USDA
1961	1"=500'	Flight Date: June 14, 1961	USDA
1953	1"=500'	Flight Date: September 22, 1953	USDA
1949	1"=500'	Flight Date: May 06, 1949	USDA
1938	1"=500'	Flight Date: June 14, 1938	USDA

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

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1001



INQUIRY #: 7240065.8

YEAR: 2020

1002

= 500'

N

EDR


INQUIRY #: 7240065.8
YEAR: 2016
1003
= 500'
N
EDR


INQUIRY #: 7240065.8
YEAR: 2012
1004
= 500'
N
EDR


INQUIRY #: 7240065.8
YEAR: 2009
1005
= 500'
N
EDR


INQUIRY #: 7240065.8
YEAR: 2005
1006
= 500'
N
EDR


INQUIRY #: 7240065.8
YEAR: 2002
= 500'
N
EDR


INQUIRY #: 7240065.8
YEAR: 1994
1008
= 500'
N
EDR


INQUIRY #: 7240065.8
YEAR: 1990
1009
= 500'
N
EDR


INQUIRY #: 7240065.8
YEAR: 1989
1010
= 500'
N
EDR



INQUIRY #: 7240065.8

YEAR: 1985

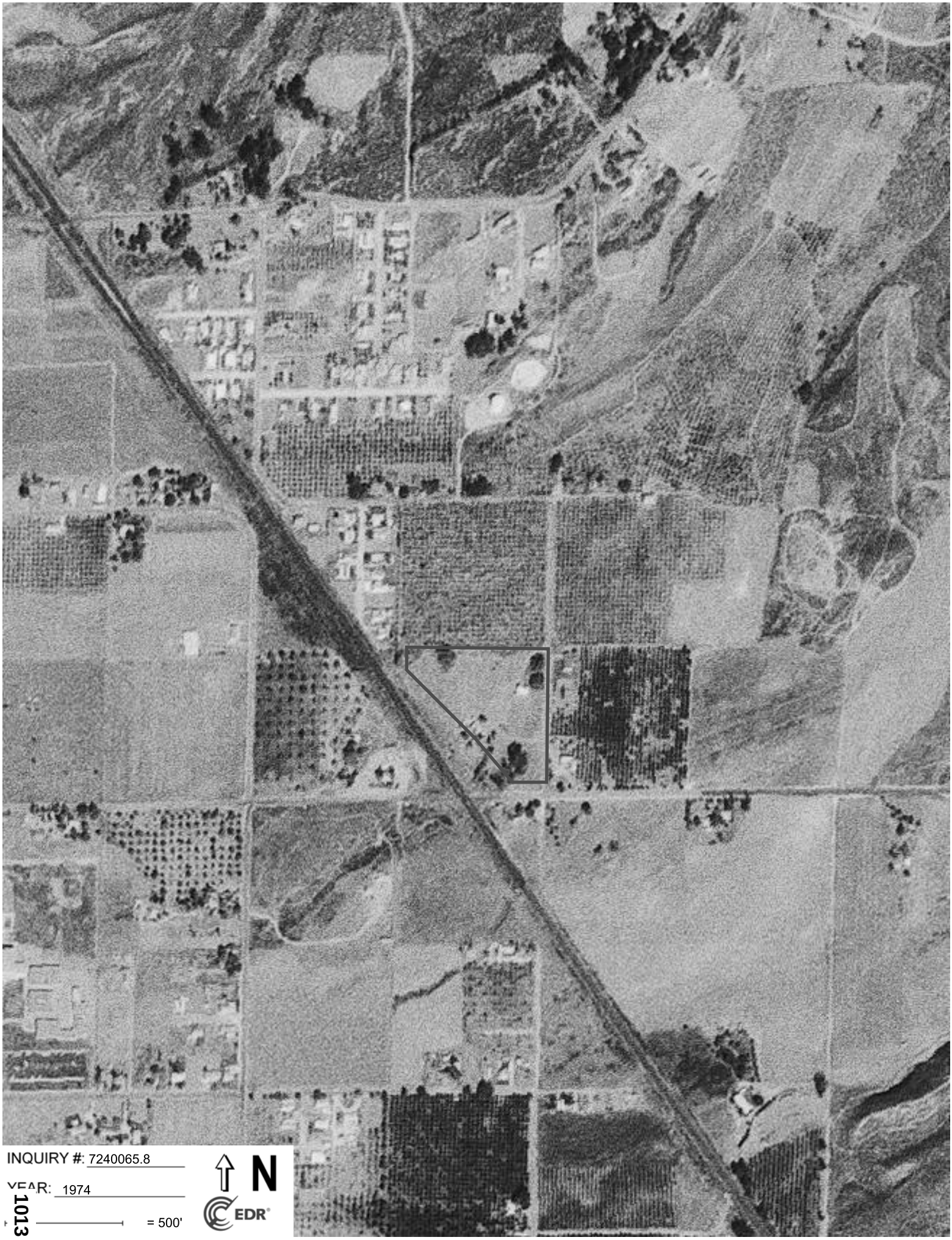
1011

= 500'

N

EDR


INQUIRY #: 7240065.8
YEAR: 1978
= 500'
N
EDR
1012



INQUIRY #: 7240065.8

YEAR: 1974

= 500'

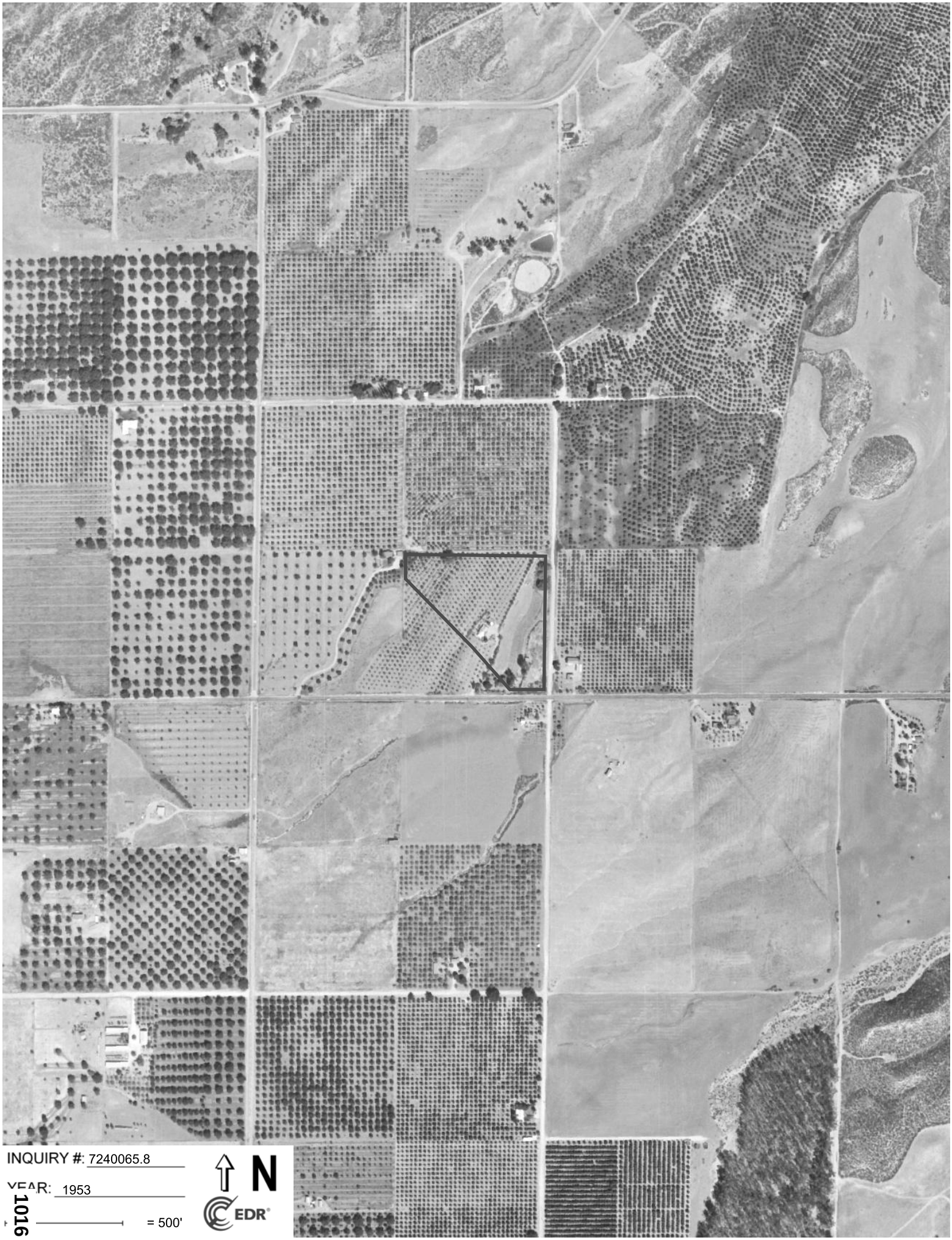
N

EDR

1013


INQUIRY #: 7240065.8
YEAR: 1967
= 500'
N
EDR
1014


INQUIRY #: 7240065.8
YEAR: 1961
= 500'
N
EDR
1015



INQUIRY #: 7240065.8

YEAR: 1953

= 500'

N

EDR

1016



INQUIRY #: 7240065.8

YEAR: 1949

= 500'

N

EDR

1017



INQUIRY #: 7240065.8

YEAR: 1938

= 500'

N

EDR

1018

EXHIBIT F

Historical Topographic Maps

E23-001P

22220 Bundy Canyon Road

Wildomar, CA 92595

Inquiry Number: 7240065.4

January 31, 2023

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

01/31/23

Site Name:	Client Name:
E23-001P	Herron Environmental
22220 Bundy Canyon Road	1 Technology Drive, Suite J701
Wildomar, CA 92595	Irvine, CA 92618
EDR Inquiry # 7240065.4	Contact: Ron Russell

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Herron Environmental were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA

Project: E23-003P

Coordinates:

Latitude:	33.628029 33° 37' 41" North
Longitude:	-117.271878 -117° 16' 19" West
UTM Zone:	Zone 11 North
UTM X Meters:	474783.71
UTM Y Meters:	3720946.95
Elevation:	1410.37' above sea level

Maps Provided:

2018	1973
2015	1953
2012	1901
1997	
1988	
1979, 1982	
1978	
1974	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2018 Source Sheets



Lake Elsinore
2018
7.5-minute, 24000



Wildomar
2018
7.5-minute, 24000



Romoland
2018
7.5-minute, 24000



Murrieta
2018
7.5-minute, 24000

2015 Source Sheets



Lake Elsinore
2015
7.5-minute, 24000



Wildomar
2015
7.5-minute, 24000



Romoland
2015
7.5-minute, 24000



Murrieta
2015
7.5-minute, 24000

2012 Source Sheets



Lake Elsinore
2012
7.5-minute, 24000



Wildomar
2012
7.5-minute, 24000



Romoland
2012
7.5-minute, 24000



Murrieta
2012
7.5-minute, 24000

1997 Source Sheets



Wildomar
1997
7.5-minute, 24000
Aerial Photo Revised 1994



Lake Elsinore
1997
7.5-minute, 24000
Aerial Photo Revised 1994

1022

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1988 Source Sheets



Lake Elsinore
1988
7.5-minute, 24000
Aerial Photo Revised 1985



Wildomar
1988
7.5-minute, 24000
Aerial Photo Revised 1985

1979, 1982 Source Sheets



Murrieta
1979
7.5-minute, 24000
Aerial Photo Revised 1976



Romoland
1979
7.5-minute, 24000
Aerial Photo Revised 1976



Lake Elsinore
1982
7.5-minute, 24000
Aerial Photo Revised 1980



Wildomar
1982
7.5-minute, 24000
Aerial Photo Revised 1980

1978 Source Sheets



Lake Elsinore
1978
7.5-minute, 24000
Aerial Photo Revised 1978

1974 Source Sheets



Wildomar
1974
7.5-minute, 24000
Aerial Photo Revised 1974

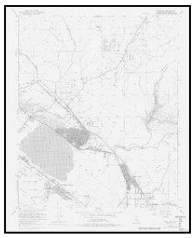


Elsinore
1974
7.5-minute, 24000
Aerial Photo Revised 1974

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1973 Source Sheets



Elsinore
1973
7.5-minute, 24000
Aerial Photo Revised 1973



Murrieta
1973
7.5-minute, 24000
Aerial Photo Revised 1973



Romoland
1973
7.5-minute, 24000
Aerial Photo Revised 1973



Wildomar
1973
7.5-minute, 24000
Aerial Photo Revised 1973

1953 Source Sheets



Romoland
1953
7.5-minute, 24000
Aerial Photo Revised 1951



Murrieta
1953
7.5-minute, 24000
Aerial Photo Revised 1951



Wildomar
1953
7.5-minute, 24000
Aerial Photo Revised 1951

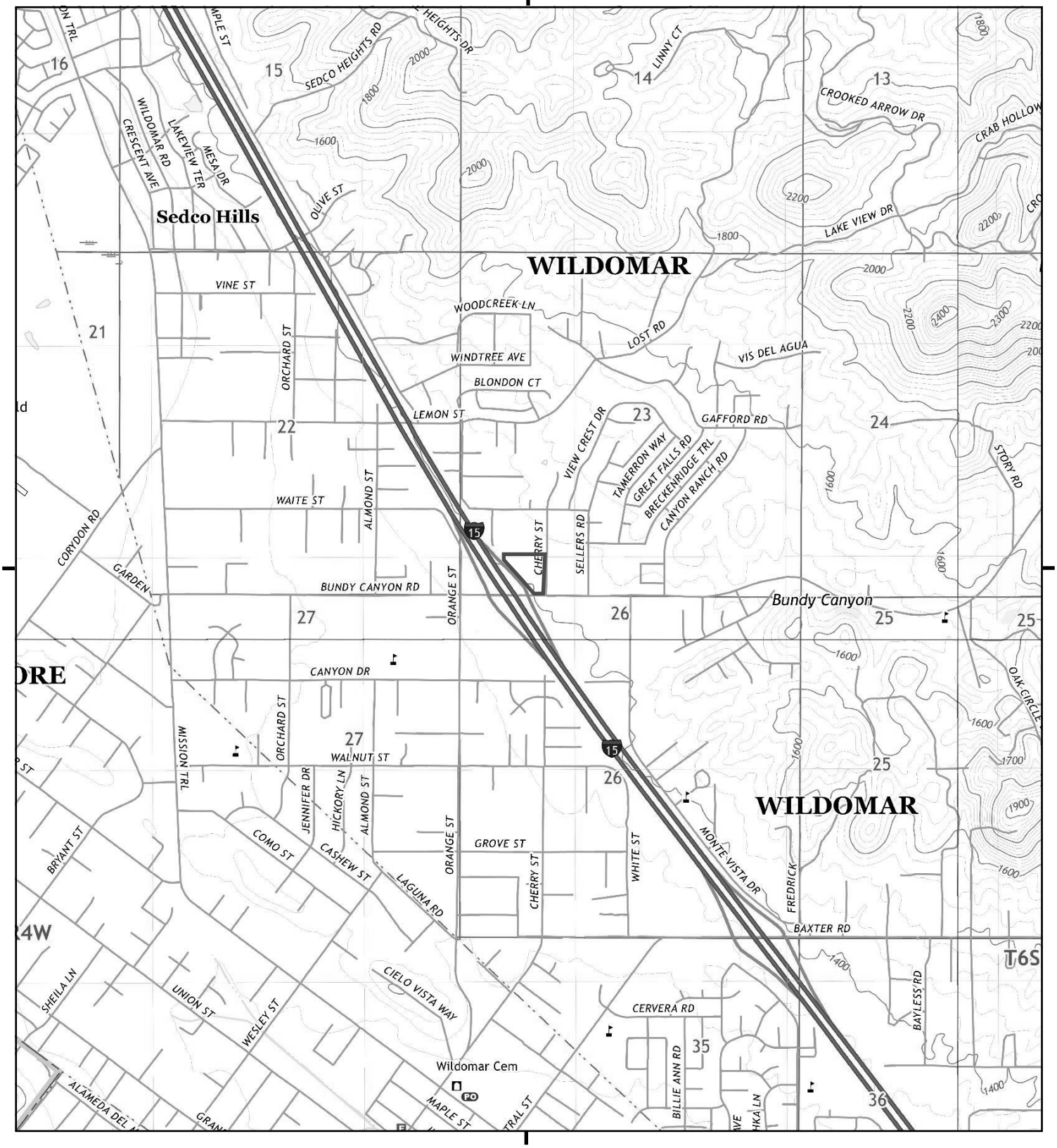


Elsinore
1953
7.5-minute, 24000
Aerial Photo Revised 1951

1901 Source Sheets



Elsinore
1901
30-minute, 125000



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lake Elsinore, 2018, 7.5-minute
NE, Romoland, 2018, 7.5-minute
SE, Murrieta, 2018, 7.5-minute
SW, Wildomar, 2018, 7.5-minute

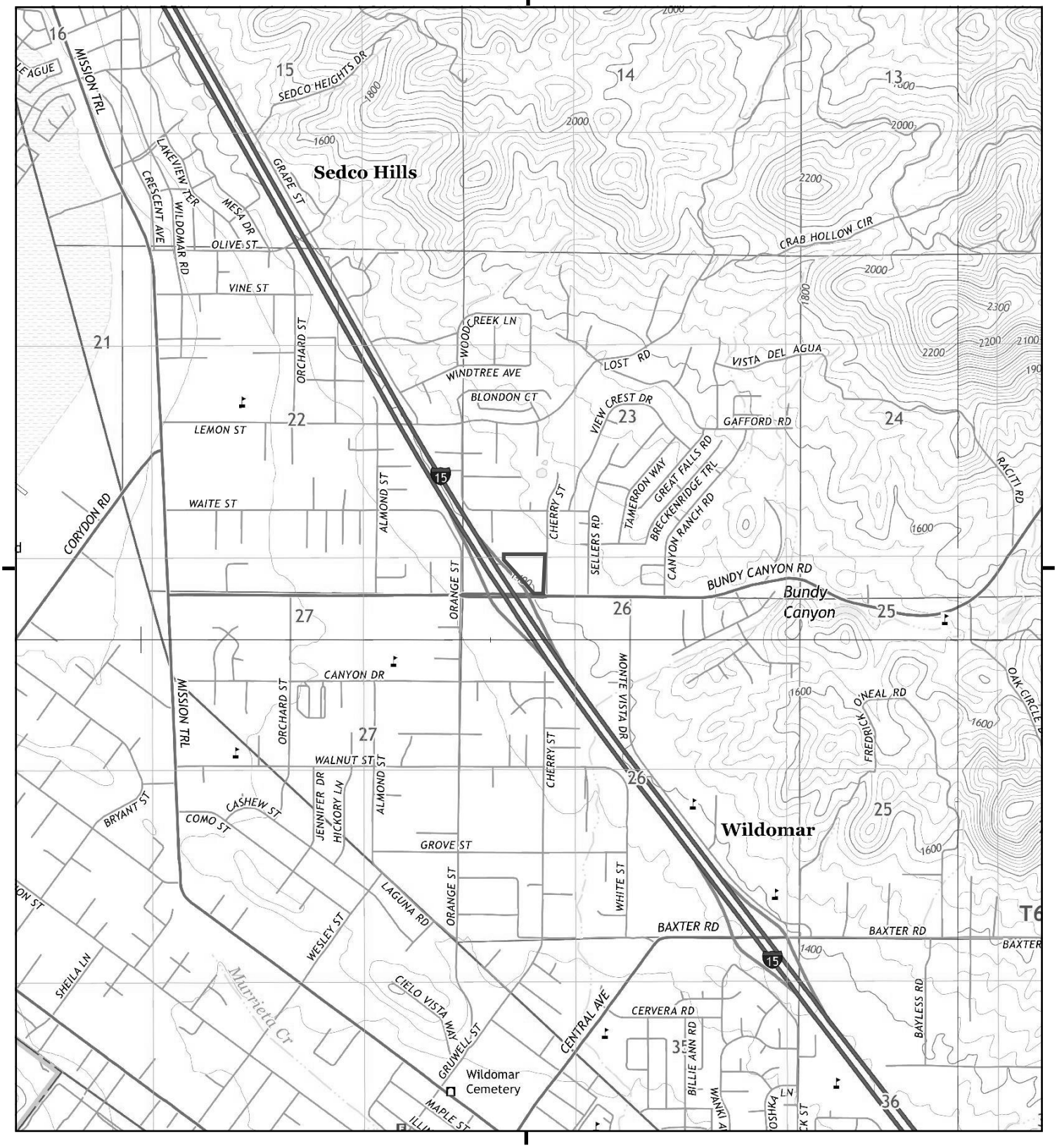
SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1025

Historical Topo Map

2015



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lake Elsinore, 2015, 7.5-minute
NE, Romoland, 2015, 7.5-minute
SE, Murrieta, 2015, 7.5-minute
SW, Wildomar, 2015, 7.5-minute

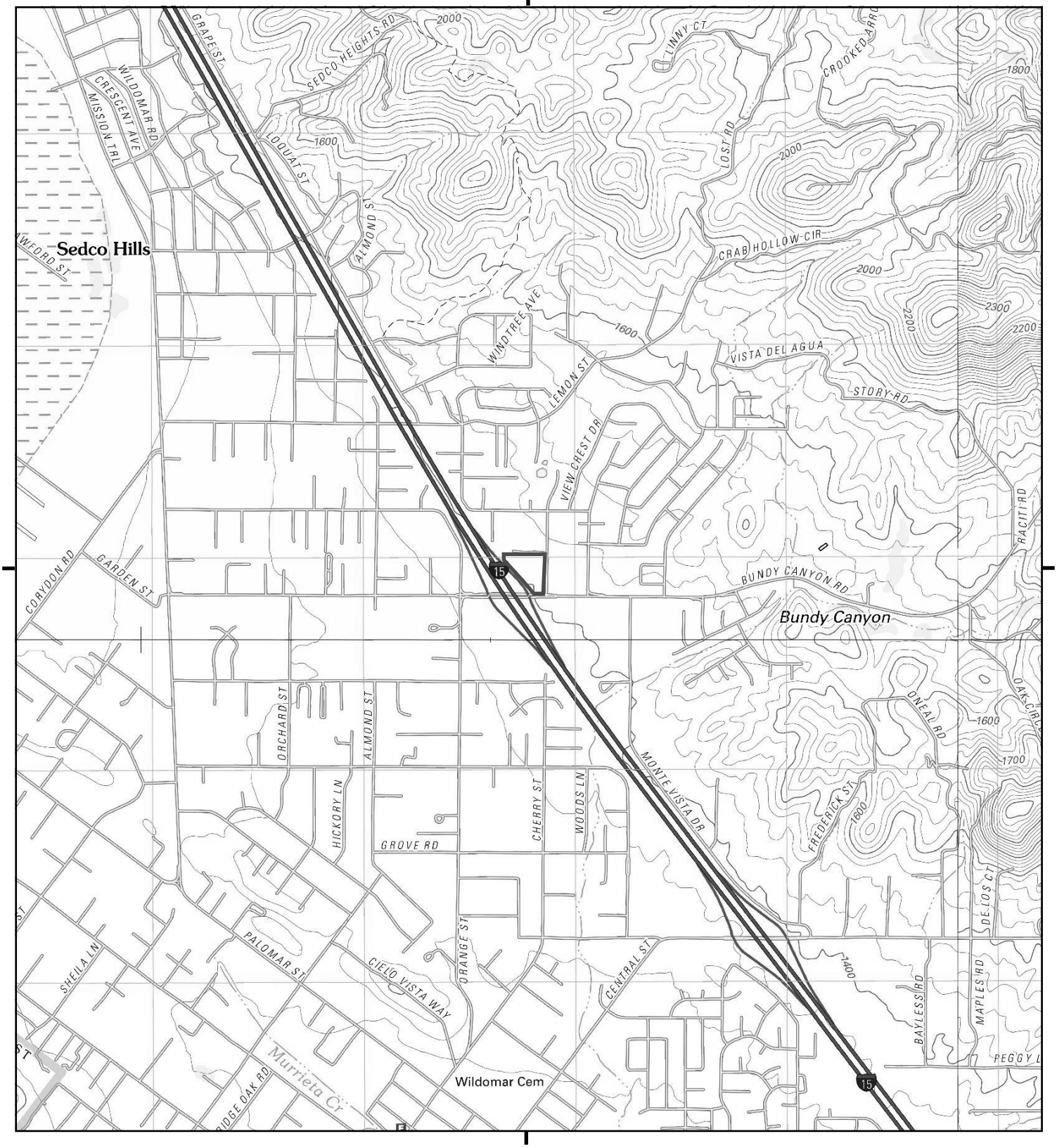
SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1026

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

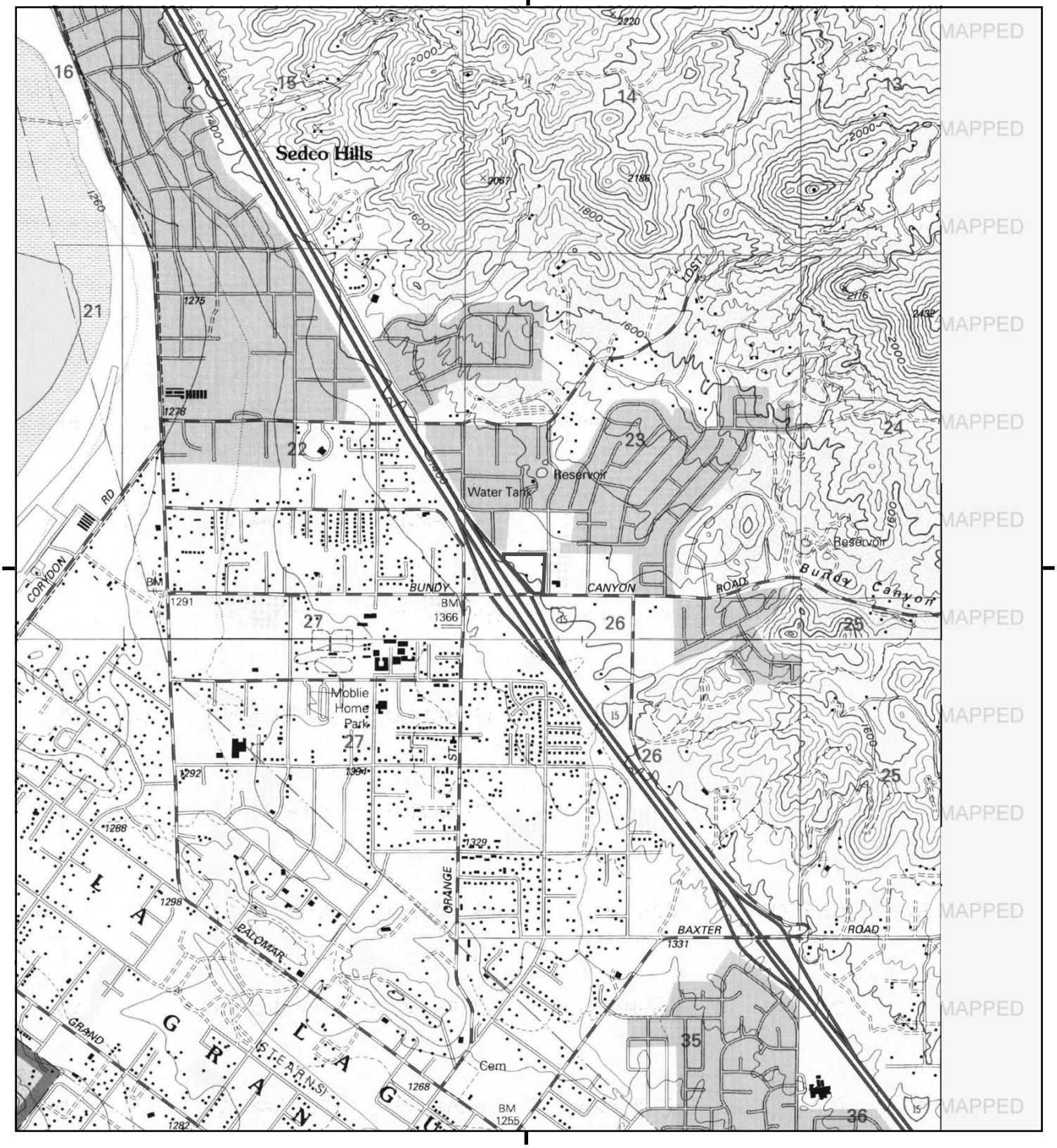
NW N NE
W E
SW S SE

TP, Lake Elsinore, 2012, 7.5-minute
NE, Romoland, 2012, 7.5-minute
SE, Murrieta, 2012, 7.5-minute
SW, Wildomar, 2012, 7.5-minute

SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1027



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

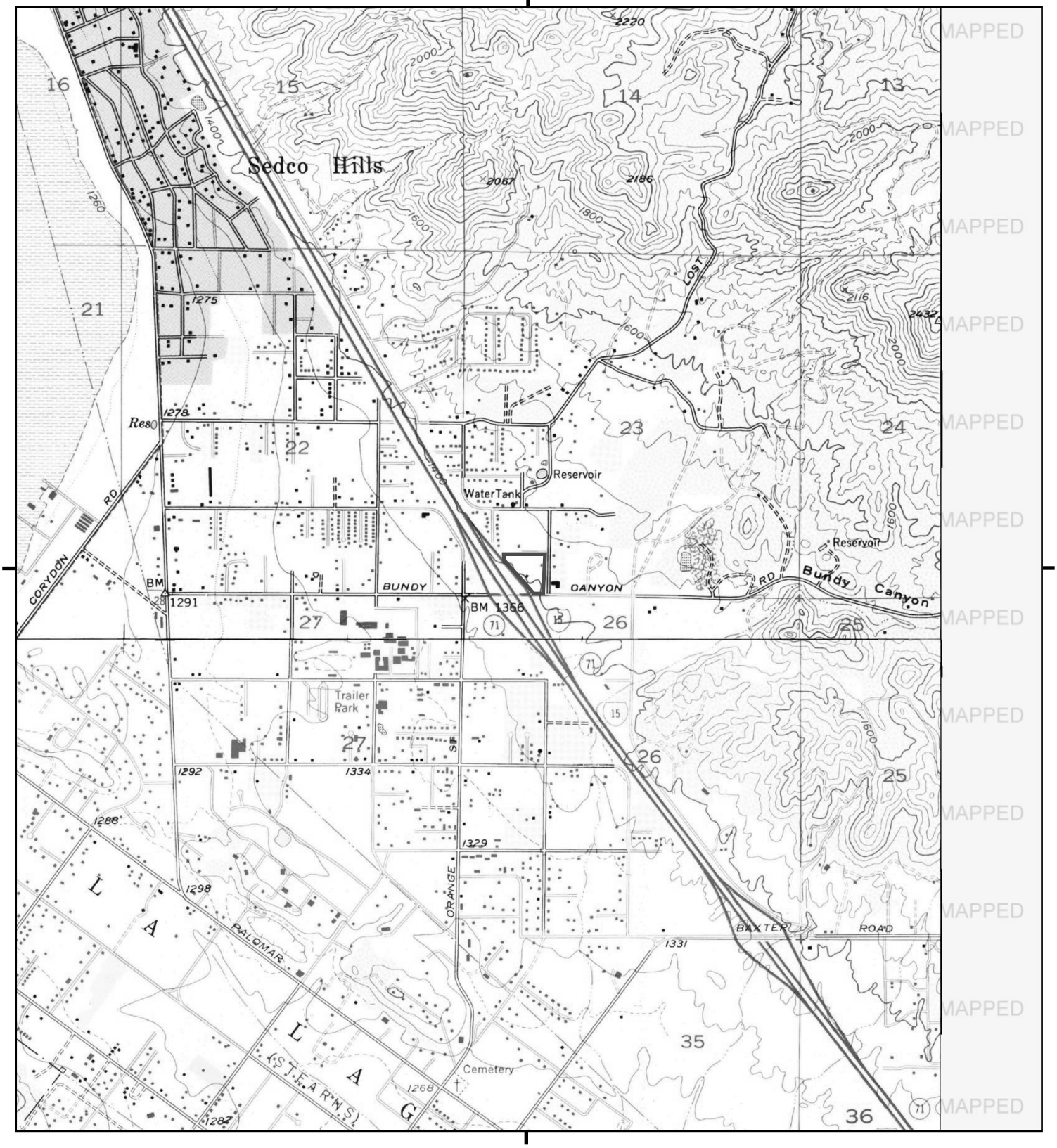
NW N NE
W E
SW S SE

TP, Lake Elsinore, 1997, 7.5-minute
SW, Wildomar, 1997, 7.5-minute

SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1028



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

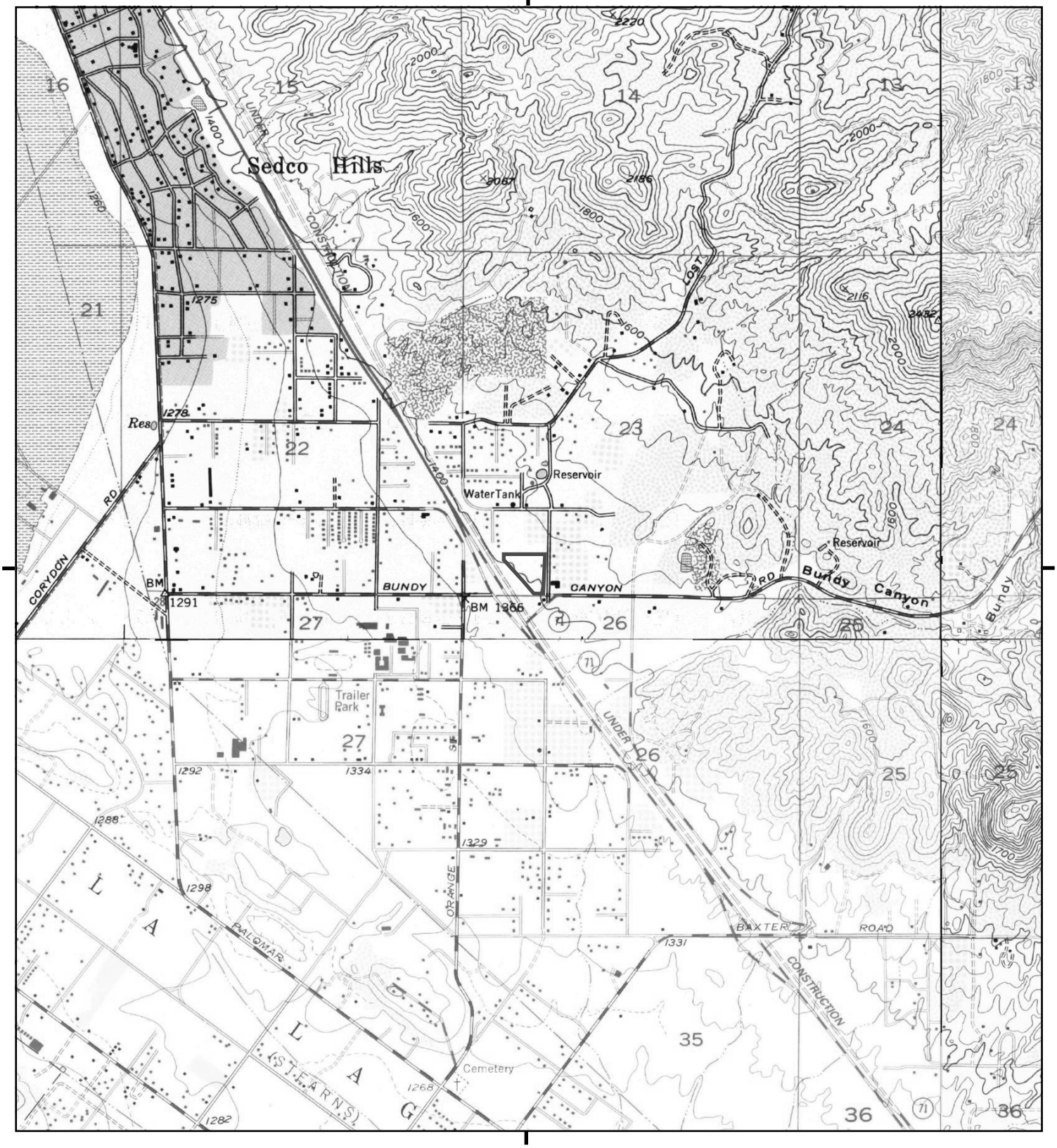
NW N NE
W E
SW S SE

TP, Lake Elsinore, 1988, 7.5-minute
SW, Wildomar, 1988, 7.5-minute

SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1029



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lake Elsinore, 1982, 7.5-minute
NE, Romoland, 1979, 7.5-minute
SE, Murrieta, 1979, 7.5-minute
SW, Wildomar, 1982, 7.5-minute

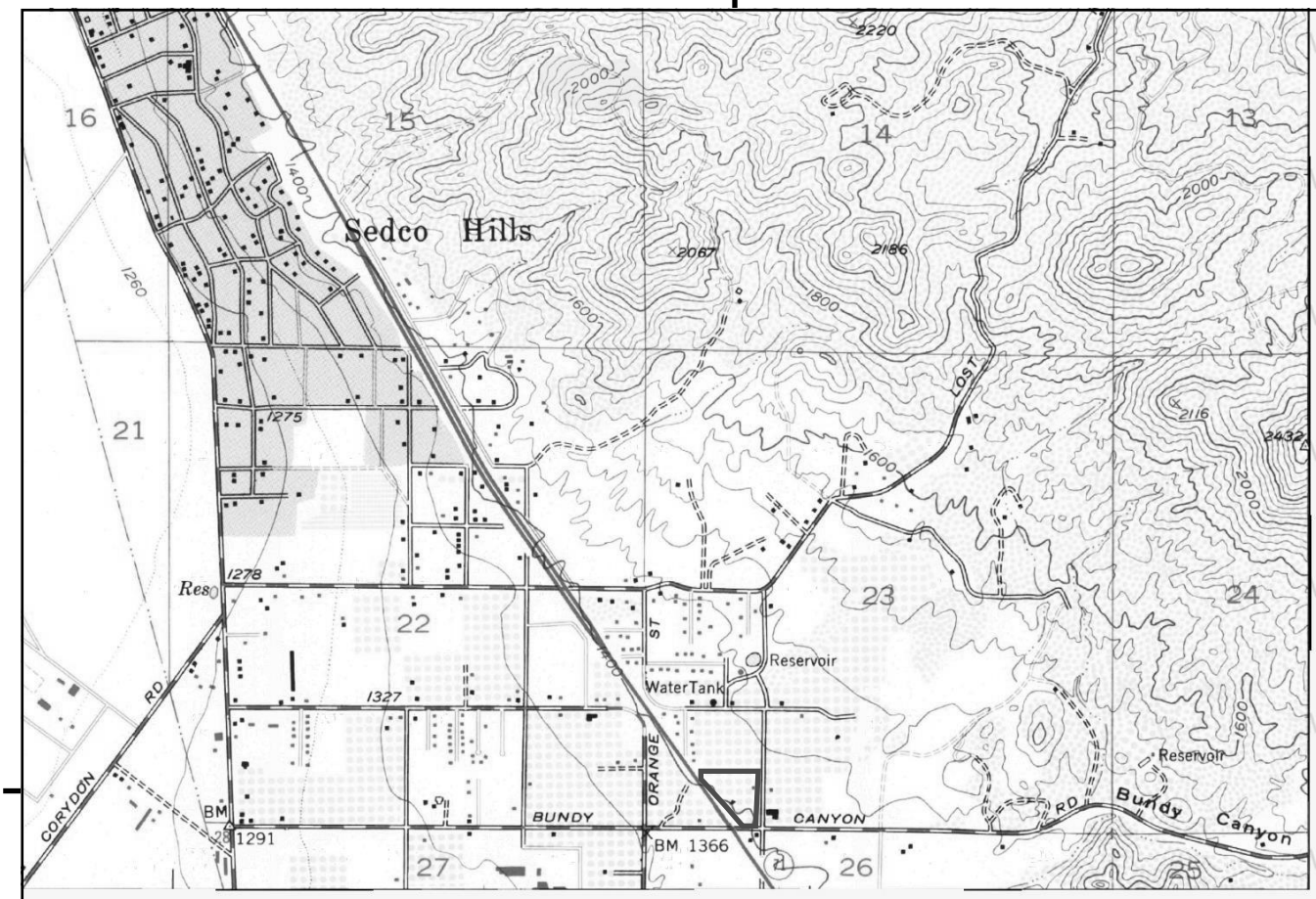
SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1030

Historical Topo Map

1978



UNMAPPED

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lake Elsinore, 1978, 7.5-minute

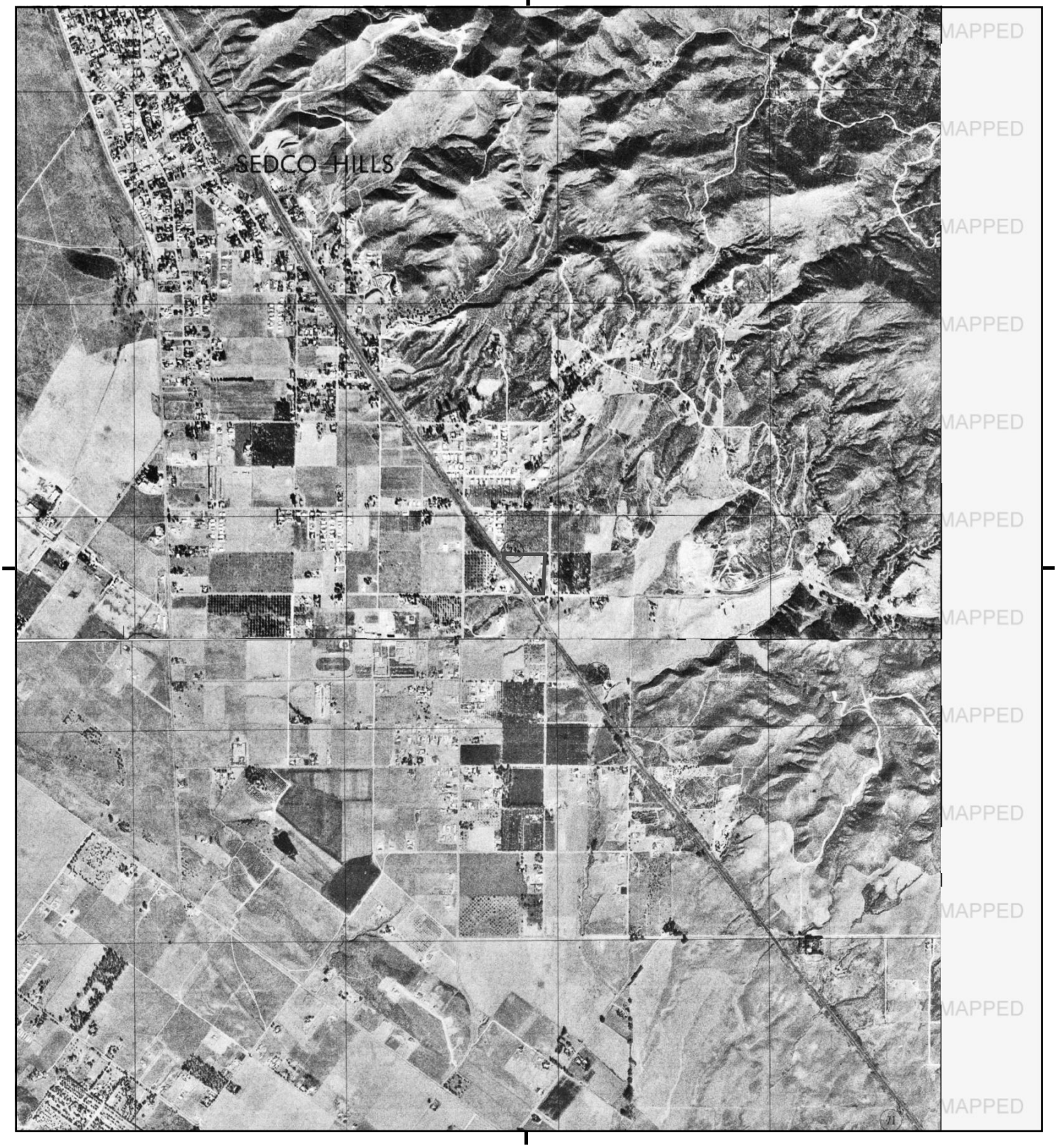
SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1031

Historical Topo Map

1974



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1974, 7.5-minute
SW, Wildomar, 1974, 7.5-minute

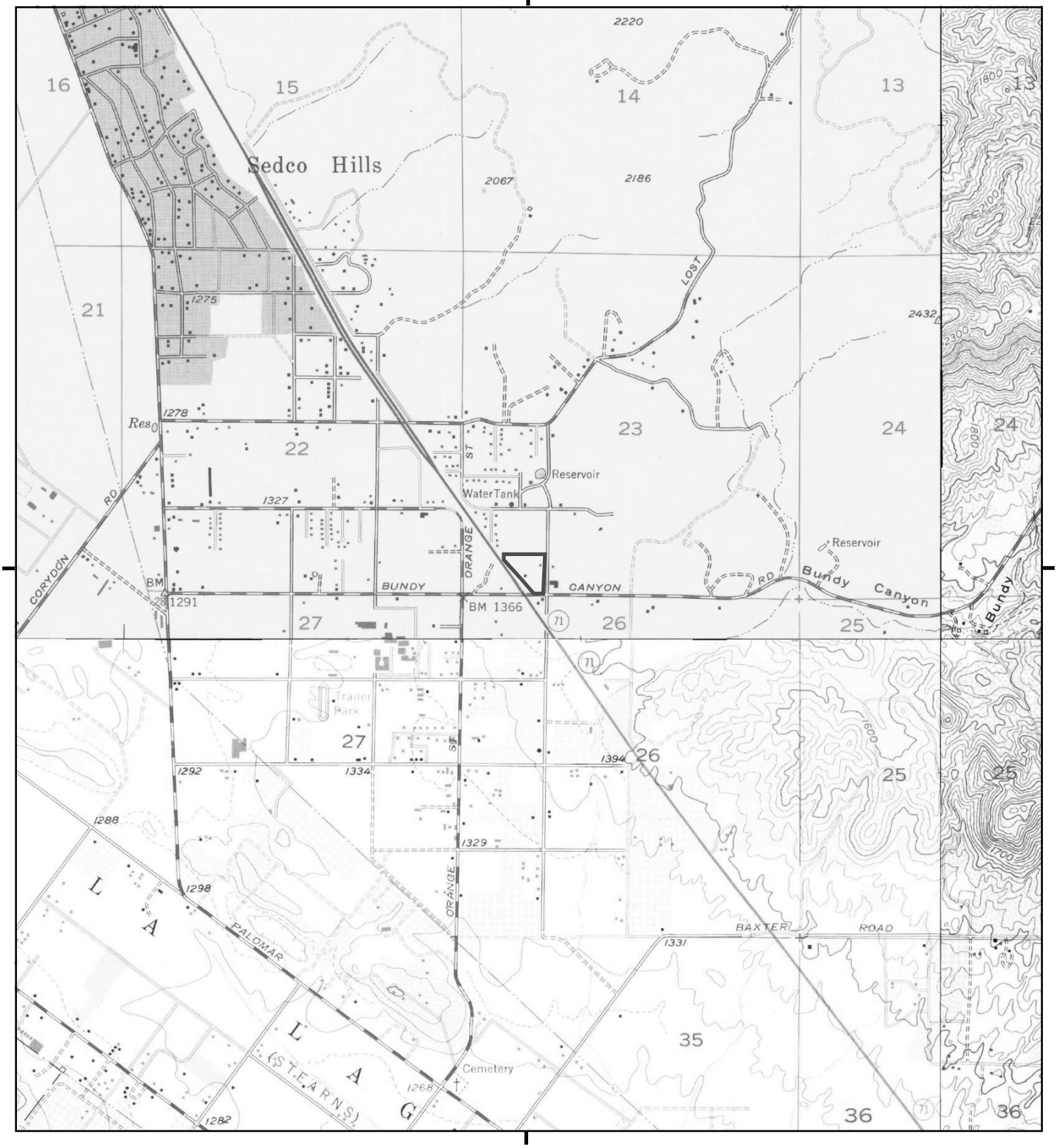
SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1032

Historical Topo Map

1973



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1973, 7.5-minute
NE, Romoland, 1973, 7.5-minute
SE, Murrieta, 1973, 7.5-minute
SW, Wildomar, 1973, 7.5-minute

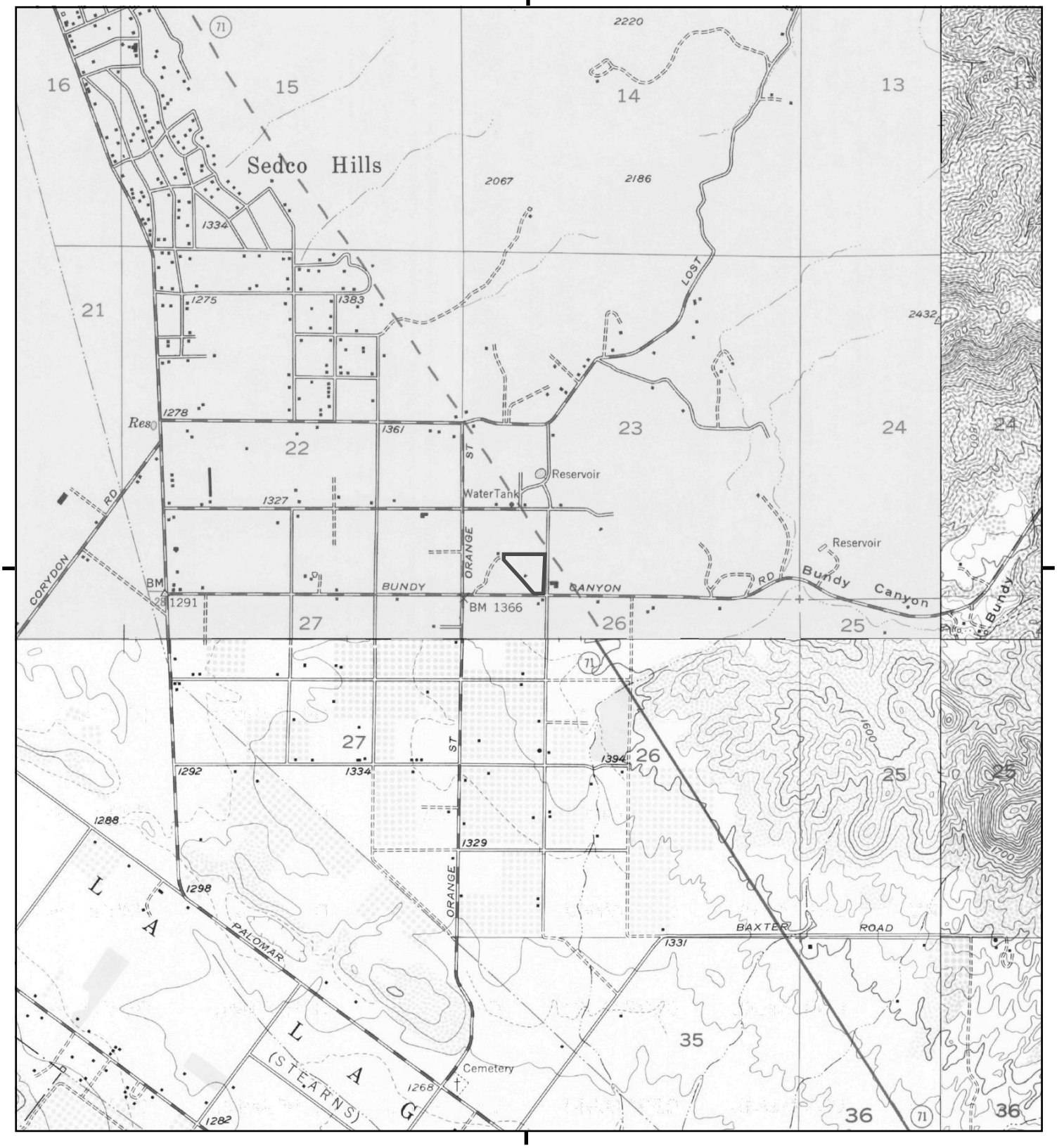
SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1033

Historical Topo Map

1953



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

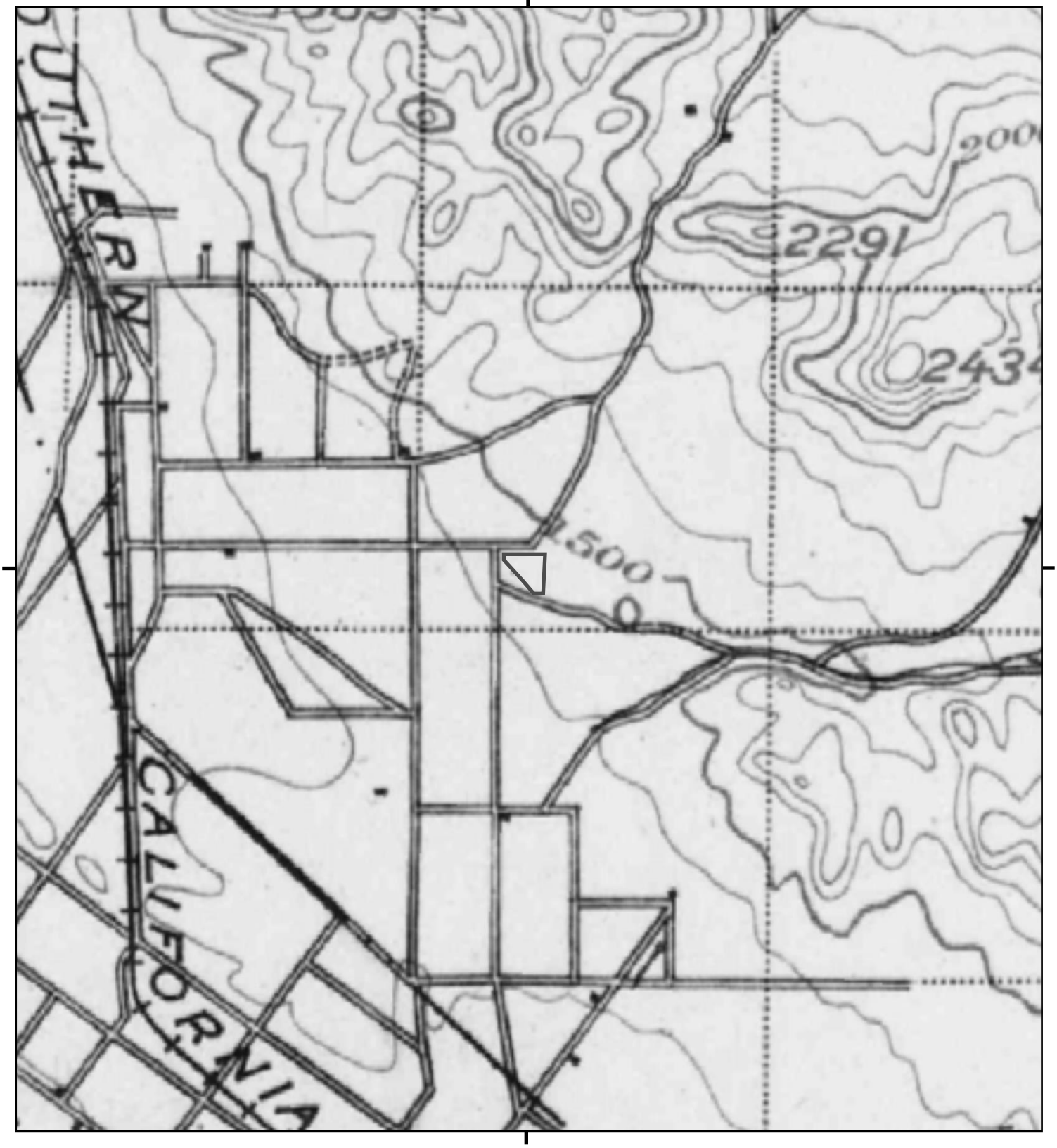
NW N NE
W E
SW S SE

TP, Elsinore, 1953, 7.5-minute
NE, Romoland, 1953, 7.5-minute
SE, Murrieta, 1953, 7.5-minute
SW, Wildomar, 1953, 7.5-minute

SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

1034



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1901, 30-minute

1035

SITE NAME: E23-001P
ADDRESS: 22220 Bundy Canyon Road
Wildomar, CA 92595
CLIENT: Herron Environmental

N

EXHIBIT G

Historical City Directories

E23-001P
22220 Bundy Canyon Road
Wildomar, CA 92595

Inquiry Number: 7240065.5
February 03, 2023

The EDR-City Directory Image Report

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR® Environmental Data Resources Inc

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City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☑	☐	EDR Digital Archive
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☐	☐	EDR Digital Archive
1990	☑	☐	Haines Criss-Cross Directory
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1976	☑	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

22220 Bundy Canyon Road
Wildomar, CA 92595

Year	*CD Image*	*Source*	
BUNDY CANYON RD			
2017	pg A1	EDR Digital Archive	
2014	pg A2	EDR Digital Archive	
2010	pg A3	EDR Digital Archive	
2005	pg A4	EDR Digital Archive	
2000	pg A6	EDR Digital Archive	
1995	-	EDR Digital Archive	Target and Adjoining not listed in Source
1990	pg A7	Haines Criss-Cross Directory	
1990	pg A8	Haines Criss-Cross Directory	
1985	pg A9	Haines Criss-Cross Directory	
1980	pg A10	Haines Criss-Cross Directory	
1976	pg A11	Haines Criss-Cross Directory	
1971	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

BUNDY CANYON RD 2017

21210	NEAL, JOHN M
21235	COLLISTER, GARY L
21255	GURROLA, ROBERTO
21275	LAKE, DELLA F
21285	SUSKAWICZ, WILLIAM I
21295	GOLDSTEIN, WILLIAM E
21311	GAGNON, CHARLES D
21340	CANCEL, JOHN R
21429	TRIBULA, YVONNE L
21445	CAMSOFT CORP
21490	PEREZ, BRENDA D
21646	FERNANDEZ, MANNY D
	WEAVER, ROGER A
21680	MO PAC ENTERPRISES INC
21730	DIVERSCAPE INC
	MORALEZ, PAUL J
21960	JACK IN THE BOX
22181	AMPM
	CIRCLE K
22460	BUNDY CANYON SUPER STORAGE
23200	CARY, GLEN A
23302	SLANE, TERRY L
23400	SPOONER, JOSHUA
23407	WALKER, TAMITHA W
23411	BUNDY CANYON CHRISTIAN SCHOOL
23456	CASSIL, JEFF M
23659	THRUM, EDWARD L
23742	STORM, CHRIS D
24550	UMBRELL, DANIEL
24740	DOWNTAIN, JEFFREY G
24772	GARCIA, ESTHER

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

BUNDY CANYON RD 2014

21138	CALDWELL, MORRIS W
21210	BRYSON, JOSHUA
21235	COLLISTER, GARY L
21255	FLECK, MARSHALL J
21263	OCCUPANT UNKNOWN,
21275	LAKE, DELLA F
21295	GOLDSTEIN, WILLIAM E
21311	CHARLES, GAGNON
21340	CANCEL, JOHN R
21375	VAZQUEZ, MARIO A
21415	MORALES, YADIRA
21420	THE YELLOW BIRD THRIFT STORE
21429	TRIBULA, YVONNE L
21485	GODDARD, DAVID W
21490	PEREZ, BRENDA D
21562	OCCUPANT UNKNOWN,
21572	OCCUPANT UNKNOWN,
21592	HEIL, SHARON E
21641	LAKE ELSINORE UNIFIED SCHOOL DISTRIC
21646	WEAVER, ROGER A
21650	OCCUPANT UNKNOWN,
21680	OCCUPANT UNKNOWN,
21730	DIVERSCAPE INC
21940	OCCUPANT UNKNOWN,
21960	JACK IN THE BOX
22181	CIRCLE K
22220	OCCUPANT UNKNOWN,
22313	OCCUPANT UNKNOWN,
22460	BUNDY CANYON MINI STORAGE
22557	USTANZ, DENISE
23200	CARY, GLEN A
23260	WOLFE, DENNIS C
23302	MCCLELLAN, JERET M
23400	DELP, DANNY L
23407	WALKER, TAMITHA W
23411	WALKER LARRY PASTR
23456	CASSIL, JEFF M
23659	THRUM, EDWARD L
23690	OCCUPANT UNKNOWN,
23742	STEELROCK ROOF PRODUCTS
	STORM, CHRIS D
23749	COOK, HENRY R
23750	GIEHLL, J
24240	OCCUPANT UNKNOWN,
24364	LEE, TIMOTHY R
24530	AGUILAR, ARLENE
24550	UMBRELL, DANIEL
24740	DOWNTAIN, JEFFREY G
24766	OCCUPANT UNKNOWN,
24772	GARCIA, ESTHER

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

BUNDY CANYON RD 2010

21138 OCCUPANT UNKNOWN,
21210 PIERCE, KATHY A
21235 COLLISTER, GARY L
21255 FLECK, MARSHALL J
21263 OCCUPANT UNKNOWN,
21275 LAKE, DELLA F
21285 OCCUPANT UNKNOWN,
21295 GOLDSTEIN, WILLIAM E
21311 GAGNON, CHARLES D
21335 P K MECHANICAL SYSTEMS
21340 CANCEL, JOHN R
21375 OCCUPANT UNKNOWN,
21400 BUNDY CANYON TURF SUPPLY
PACIFIC POOL TILE
PARK WEST
21415 MENDOZA, ARNOLD Y
21429 TRIBULA, YVONNE L
21485 GODDARD, DAVID W
21490 DUONG, PHUC Q
21562 OCCUPANT UNKNOWN,
21572 OCCUPANT UNKNOWN,
21646 WEAVER, ROGER A
21650 OCCUPANT UNKNOWN,
21680 OCCUPANT UNKNOWN,
21940 OCCUPANT UNKNOWN,
21960 JACK IN THE BOX
22220 GROWERS CHOICE
OCCUPANT UNKNOWN,
PEPPERTREE GARDEN CTR
22313 OCCUPANT UNKNOWN,
22460 BUNDY CANYON SUPER STORAGE
22557 OCCUPANT UNKNOWN,
23200 HAVIG, RONALD L
23260 WOLFE, DENNIS C
23263 OCCUPANT UNKNOWN,
23302 SLANE, TERRY L
23400 CAMPOS, HECTOR
23407 WALKER, PHILLIP E
23411 BUNDY CANYON CHRISTIAN SCHOOL
23456 CASSIL, JEFF M
23659 THRUM, EDWARD L
23690 OCCUPANT UNKNOWN,
23742 BROWN, TIM P
23750 JACK, ANDREA
24240 OCCUPANT UNKNOWN,
24364 MORALES, VICTOR H
24530 OCCUPANT UNKNOWN,
24740 DOWNTAIN, BILL J
24772 GARCIA, ESTHER

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

BUNDY CANYON RD 2005

21138 HEFFERNAN, ANTHONY A
21210 PIERCE, KATHY A
21235 COLLISTER, GARY L
21255 GINGER FLECK
WARD, GINGER L
21263 OCCUPANT UNKNOWN,
21275 LAKE, DELLA F
21285 OCCUPANT UNKNOWN,
21295 GOLDSTEIN, WILLIAM E
21335 MONTEITH, PETER J
PK MECHANICAL INC
21340 CANCEL, JOHN R
21375 OCCUPANT UNKNOWN,
21400 ALEXANDER, ALTON
21415 SALCEDO, LUIS M
21420 BUNDY CANYON TURF SUPPLY
21429 TRIBULA, YVONNE L
21444 RODRIGUEZ, J
21485 GODDARD, DAVID W
21490 DUONG, LAM
21551 OCCUPANT UNKNOWN,
21562 OCCUPANT UNKNOWN,
21571 GUTIERREZ, FRANK
21572 OCCUPANT UNKNOWN,
21592 HEIL, RICHARD
21641 LAKE ELSINORE UNIFIED SCHOOL DST
21646 FERNANDEZ, MANNY D
WEAVER, ROGER A
21650 OCCUPANT UNKNOWN,
21730 CORTEZ, ALEXIS
21765 OCCUPANT UNKNOWN,
21821 OCCUPANT UNKNOWN,
21823 POLLOCK, KATHARINA E
21940 OCCUPANT UNKNOWN,
21960 JACK IN THE BOX
22220 PEPPERTREE GARDEN CENTER
22313 OCCUPANT UNKNOWN,
22460 BUNDY CANYON SUPER STORAGE
22557 USTARIZ, GERMAN
23200 HAVIG, RONALD L
23260 WOLFE, DENNIS C
23263 COPE, SHELDON L
23302 SLANE, TERRY L
23407 WALKER, PHILLIP
23411 BUNDY CANYON CHRISTIAN SCHOOL
23659 THRUM, EDWARD L
23742 BROWN, TIMOT P
23749 OCCUPANT UNKNOWN,
23750 JACK, JAMES F
24240 BUSCH, N

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

BUNDY CANYON RD 2005 (Cont'd)

24320 NORMAN, MARY R
24364 MORALES, VICTOR
24530 ORDONEZ, CRYSTAL
24550 POWERS, JUSTIN R
24740 DOWNTAIN, JUDY A
24772 GARCIA, FRANK C

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

BUNDY CANYON RD 2000

21210 PIERCE KATHY REALTY
21235 COLLISTER, GARY
21275 MCCURDY, WILLARD
21285 SCHILLING, CATHY
21311 DOYLE, MARGERY
21335 WOOD, ROGER
21340 HODGSON, JOHN
21420 AGRONO TEC SEED COMPANY
WASHBURN, DOUGLAS G
21571 GUTIERREZ, FRANK
21646 FERRERA, CERECIA
21680 CURRAN, LINDA M
21823 GRANZOW, BRANDI M
22220 MARKAN, TINA
22460 LEHR, PAT
22557 USTARIZ, GERMAN
23260 WOLFE, DENNIS
23302 MILLAR, KEVIN
23400 SMETS, FRANK
23407 WALKER, LARRY
23411 BUNDY CANYON CHRISTIAN SCHOOL
WALKER LARRY PASTR
WALKER, LARRY P
23742 LEON, KEVIN A
23749 CASH, JIM
23750 JACK, JAMES F
24550 POWERS, JUSTIN

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BUNDY CANYON RD 1990

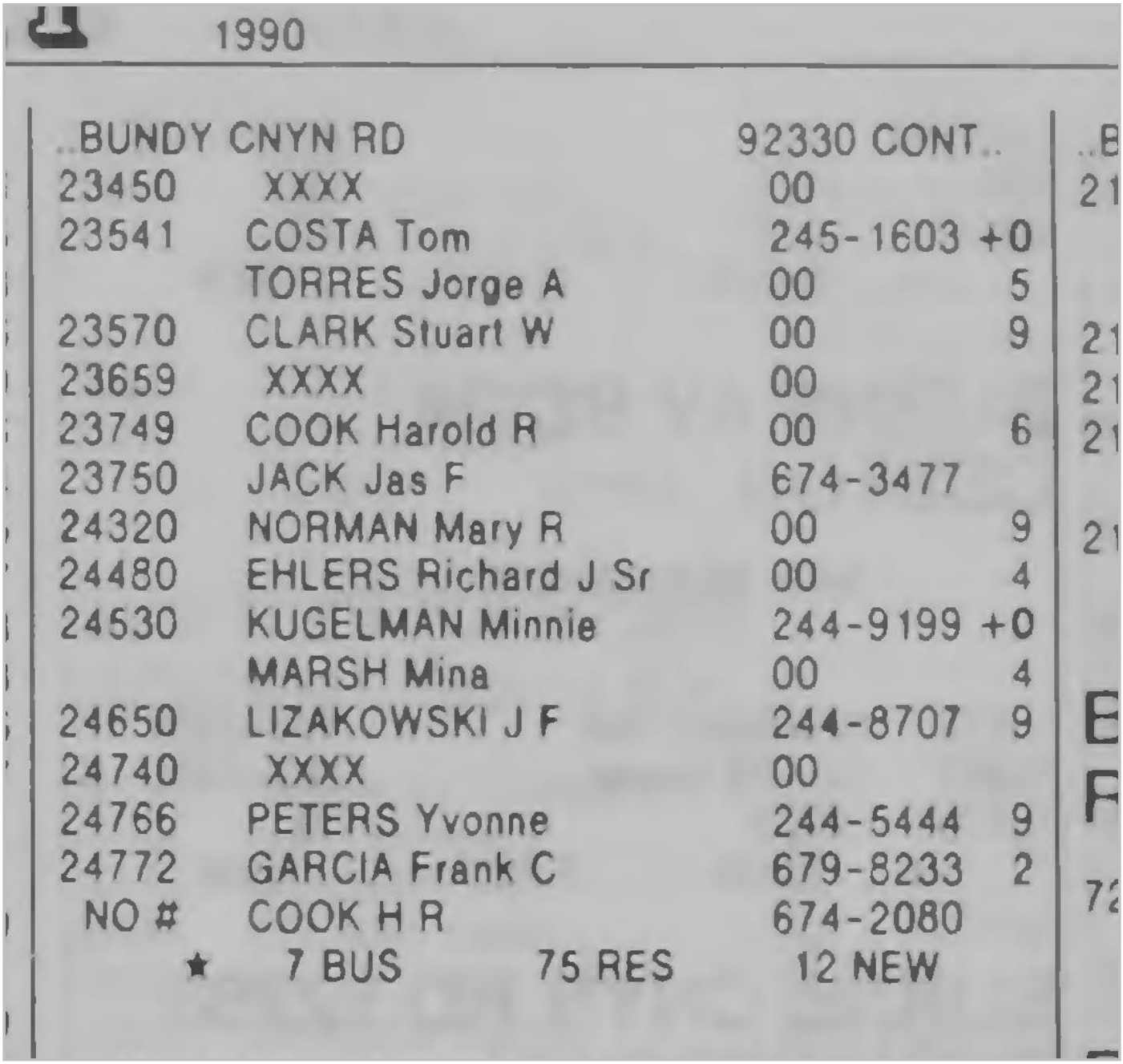


BUNDY CNYN RD 92330
LAKE ELSINORE

21120	TOLLESON Alsie L	00	
21138	XXXX	00	
21235	COLLISTER Gary	674-7206	5
	SULLIVAN Edrietta	674-6248	+0
21255	SMITH R V	674-6432	3
21263	HATCH Bernard	674-1654	
	HATCH Bertha	674-1654	
21275	MCCURDY Willard	674-5694	2
21285	WOOTTON Danl	674-8157	7
21295	CANNON M	674-1373	9
	FRIZZELL Donna E	00	+0
	HANEY Jerry	674-1373	9
21311	XXXX	00	
21335	ZAJAC Gnge	00	5
21340	SMITH J Harold	674-8094	7
21370	GREENLEE J R Jr	674-8321	7
21375	SCARPETTA Martino B	00	6
21400	JACKSON Rosemary P	00	4
	LUBAHN A	674-8980	9
	PEREZ Steven B	00	5
21420	WASHBURN Douglas	00	+0
21429	PAULE Ronda	00	+0
21485	GODDARD David W	00	4
	KIM Sang C	00	4
21490	DUONG Lam	245-1688	+0
21521	KERR Russ	674-9692	6
21551	WILLETTE Paula	674-5476	6
	WILLETTE Wally	674-5476	
21562	XXXX	00	
21571	GUTIERREZ Frank	674-2498	
	SANTOS Jose M	00	+0
21572	★DISCOUNT MINI STRG	245-1471	+0
	★MILLER LEE CONSTR	674-4964	9
	SHERMAN Arthur	245-1471	+0
21641	COOPER Heather	00	
21646	XXXX	00	
21680	CALDWELL Morris W	674-3093	9
21730	CALDWELL Kristen	674-7230	9
21765	TORCHIA James	674-4382	1
21821	SALMON Thomas L Jr	00	
21823	XXXX	00	
21990	HAYNES Chas H	674-2919	3
22220	REINA Cynthia M	00	9
22241	★A L P ENTP IRON DIV	245-1566	+0
	★CANYON DEVELOPMENT	674-6681	5
22313	XXXX	00	
22460	LEHR Judy	674-2220	
	LEHR Pat	674-2220	
	★LEHRCO	674-9631	7
22557	DELACRUZ Eugenio	674-8127	5
	USTARIZ German	674-3567	
	USTARIZ Hugo	674-8822	9
22751	OLSON Jean	674-2380	
	OLSON Richard M	674-2380	
22761	XXXX	00	
22843	★A&R CONSTRUCTION	674-9288	3
23150	CALOIA J A	674-2492	
23260	HANSEN Roger L	674-5086	5
23263	PENNER Esther A	00	7
23302	DERMER J	674-4086	2
23400	SMETS Augusta	674-7625	
	SMETS Frank	674-7625	
23411	★BUNDY CANYON SCHOOL	674-1254	+0
	THORNTON John T	00	5
	WALKER Larry Pastr	674-1254	4
	WALKER Phillip	674-2074	2

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BUNDY CANYON RD 1990



1990

..BUNDY CNYN RD		92330 CONT..	
23450	XXXX	00	
23541	COSTA Tom	245-1603	+0
	TORRES Jorge A	00	5
23570	CLARK Stuart W	00	9
23659	XXXX	00	
23749	COOK Harold R	00	6
23750	JACK Jas F	674-3477	
24320	NORMAN Mary R	00	9
24480	EHLERS Richard J Sr	00	4
24530	KUGELMAN Minnie	244-9199	+0
	MARSH Mina	00	4
24650	LIZAKOWSKI J F	244-8707	9
24740	XXXX	00	
24766	PETERS Yvonne	244-5444	9
24772	GARCIA Frank C	679-8233	2
NO #	COOK H R	674-2080	
★	7 BUS 75 RES	12 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BUNDY CANYON RD 1985

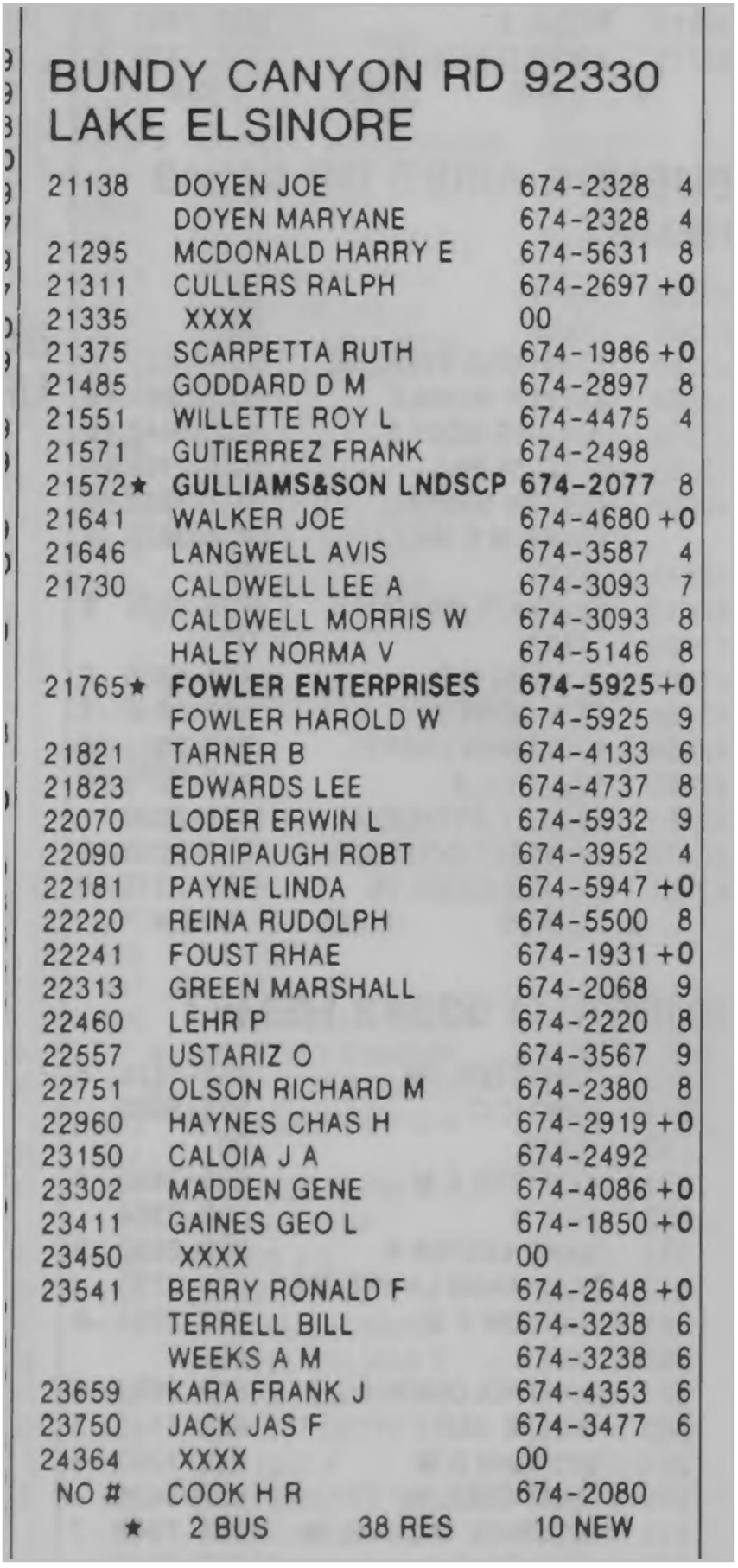
BUNDY CANYON RD 92330
LAKE ELSINORE

21120	**BUNDY FEED&PET**	**674-6655**	1
21138	BURNS JOS H	674-7303	+5
21235	COLLISTER GARY	674-7206	+5
21255	SMITH PAUL E	674-6432	3
21263	HATCH BERNARD	674-1654	1
21275	MCCURDY WILLARD	674-5694	2
21521	WOODMEN OMAHA	674-9692	+5
21551	WILLETTE WALLY	674-4475	
21571	GUTIERREZ FRANK	674-2498	
21572	XXXX	00	
21641	XXXX	00	
21646	TOPLISS CONSTANCE	674-1686	2
21730	CALDWELL LEE A	674-3093	
	CALDWELL MORRIS W	674-3093	8
21765	TORCHIA JAMES	674-4382	1
21821	XXXX	00	
21990	HAYNES CHAS H	674-2919	3
22070	XXXX	00	
22181	XXXX	00	
22220	XXXX	00	
22241	**CANYON DEVELOPMENT**	**674-6681**	+5
22313	GREEN MARSHALL	674-2068	9
22460	LEHR P	674-2220	8
22557	DELACRUZ EUGENIO	674-8127	+5
	USTARIZ GERMAN	674-3567	9
22751	OLSON RICHARD M	674-2380	8
22843	**A&R CONSTRUCTION**	**674-9288**	3
22960	XXXX	00	
23150	CALOIA J A	674-2492	
23260	HANSEN ROGER L	674-5086	+5
23263	XXXX	00	
23302	DERMER J	674-4086	2
23400	SMETS FRANK	674-7625	+5
23411	**BUNDY CYN CHRSTN SC**	**674-1254**	4
	WALKER LARRY PASTR	674-1254	4
	WALKER PHILLIP	674-2074	2
23450	XXXX	00	
23541	XXXX	00	
23659	KARA FRANK J	674-4353	2
23750	JACK JAS F	674-3477	6
24364	XXXX	00	
24630	JACKLING JOS	679-0256	3
24772	GARCIA FRANK C	679-8233	2
NO #	COOK H R	674-2080	

★ 4 BUS 40 RES 7 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BUNDY CANYON RD 1980



BUNDY CANYON RD 92330
LAKE ELSINORE

21138	DOYEN JOE	674-2328	4
	DOYEN MARYANE	674-2328	4
21295	MCDONALD HARRY E	674-5631	8
21311	CULLERS RALPH	674-2697	+0
21335	XXXX	00	
21375	SCARPETTA RUTH	674-1986	+0
21485	GODDARD D M	674-2897	8
21551	WILLETTE ROY L	674-4475	4
21571	GUTIERREZ FRANK	674-2498	
21572★	**GULLIAMS&SON LNDSCP**	**674-2077**	8
21641	WALKER JOE	674-4680	+0
21646	LANGWELL AVIS	674-3587	4
21730	CALDWELL LEE A	674-3093	7
	CALDWELL MORRIS W	674-3093	8
	HALEY NORMA V	674-5146	8
21765★	**FOWLER ENTERPRISES**	**674-5925**	+0
	FOWLER HAROLD W	674-5925	9
21821	TARNER B	674-4133	6
21823	EDWARDS LEE	674-4737	8
22070	LODER ERWIN L	674-5932	9
22090	RORIPAUGH ROBT	674-3952	4
22181	PAYNE LINDA	674-5947	+0
22220	REINA RUDOLPH	674-5500	8
22241	FOUST RHAE	674-1931	+0
22313	GREEN MARSHALL	674-2068	9
22460	LEHR P	674-2220	8
22557	USTARIZ O	674-3567	9
22751	OLSON RICHARD M	674-2380	8
22960	HAYNES CHAS H	674-2919	+0
23150	CALOIA J A	674-2492	
23302	MADDEN GENE	674-4086	+0
23411	GAINES GEO L	674-1850	+0
23450	XXXX	00	
23541	BERRY RONALD F	674-2648	+0
	TERRELL BILL	674-3238	6
	WEEKS A M	674-3238	6
23659	KARA FRANK J	674-4353	6
23750	JACK JAS F	674-3477	6
24364	XXXX	00	
NO #	COOK H R	674-2080	

★ 2 BUS 38 RES 10 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

BUNDY CANYON RD 1976

BUNDY CANYON RD 92330 LK ELSINRE

21138	DOYEN JOE	674-2328 4
	DOYEN MARYANE	674-2328 4
21551	WILLETTE ROY L	674-4475 4
21571	GUTIERREZ FRANK	674-2498
21572	MERRIFIELD JOHN JR	674-4890 5
21646	LANGWELL AVIS	674-3587 4
	MAGEE A M	674-4262+6
21730	COBURN L E	674-2495
21821	TARNER B	674-4133+6
22070	WAGONER JERRY	674-3478 5
22090	RORIPAUGH ROBT	674-3952 4
22220	XXXX	CO
22241	XXXX	CO
23150	CALOIA J A	674-2492
23411	HANSON BLAIR L	674-3204 5
23541	TERRELL BILL	674-3238+6
	WEEKS A M	674-3238+6
23659	KARA FRANK J	674-4353+6
23750	JACK JAS F	674-3477+6
24364	CENDERLLI FRANK	679-4143
24530	LAMAR FLOYD I	679-4343
25160	XXXX	CO
32880	STALEY WM V	679-3428
NO #	COOK H R	674-2080

* 0 BUS 24 RES 6 NEW

Appendix 8

Hydrology Report

Hydrology Report

Cherry Outpost

Northwest corner of Cherry St and Bundy Canyon Rd
Wildomar, CA
April 30, 2024

This Hydraulic Study has been prepared by, and under the direction of, the undersigned, a duly Registered Civil Engineer in the State of California. Except as noted, the undersigned attests to the technical information contained herein, and has judged to be acceptable the qualifications of any technical specialists providing engineering data for this report, upon which findings, conclusions, and recommendations are based.

_____

Daniela Malott, P.E.
Registered Civil Engineer No. C86581
Exp.: 03/31/25

Prepared for:

J & T Investments
139 Radio Rd.
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Prepared by:

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TAIT JOB SP8997

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Section 1 Introduction and Background

The client has retained Tait & Associates (Tait) to prepare the drainage design for the Cherry Oupost Improvement Plans. The project site is approximately 6.07 acres and it is located in the City of Wildomar, California. The project located on the northwest corner of Cherry St and Bundy Canyon Rd, adjacent to the I-15 northbound onramp in Wildomar. The proposed project Vicinity Map is provided in Figure 1 below. The Hydrology & Hydraulics Report studies the proposed condition drainage system and patterns. This study follows the requirements of the Riverside County Flood /Control and Water Conservation District (RCFCWD), the Riverside County Hydrology Manual (RCHM), dated 1978 and it was prepared for a 100-year storm event for the proposed condition. The following sections include the general project characteristics, the drainage design, criteria and methodology.

1.1 Project Description

The Cherry Outpost development is proposed for commercial uses. It includes 107-key, four-story hotel, single building pad, a split building pad, which includes a quick serve restaurant, a car wash pad, large fueling canopy, RV fueling canopy, parking areas and driveways. The proposed site includes landscaping, concrete pavement, asphalt pavement, and underground utilities that will service the proposed building. Project grading will occur on approximately 5.95± acres which comprises approximately 99% of the total site area.

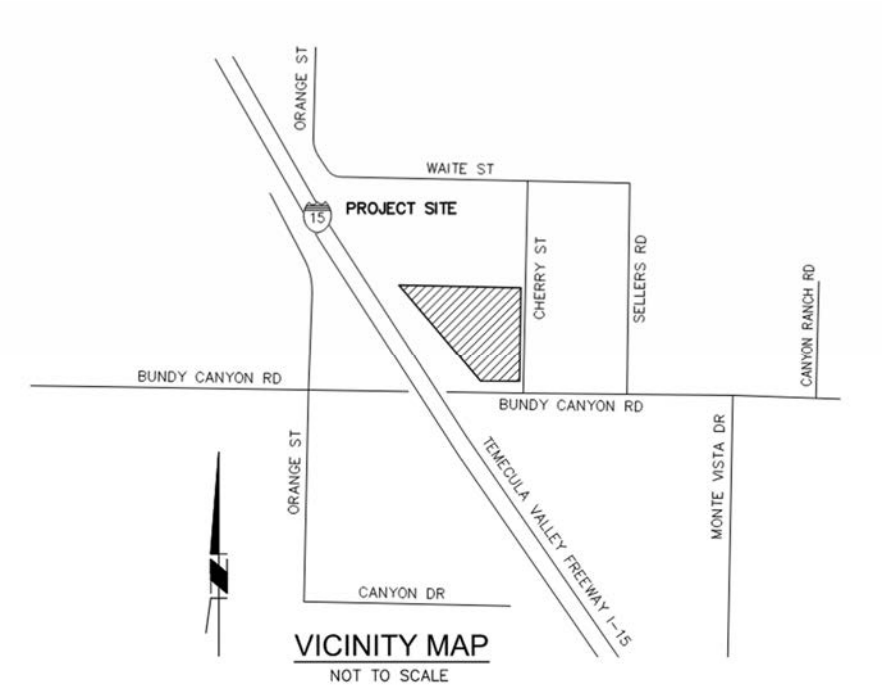

Figure 1 – Vicinity Map (Not To Scale)

Section 2 Hydrology Design Criteria, Methodology, and Analysis

2.1 Hydrology Design Criteria and Methodology

The RCHM uses the Rational Method to determine the runoff flow for watershed areas that are less than 300 to 500 acres in size. The Synthetic Unit Hydrograph is used for watershed areas larger than 300 to 500 acres. The rational method is based on the equation $Q = C \times I \times A$

where:
Q = peak discharge (cfs)
C = runoff coefficient representing the ratio of runoff to rainfall
I = the time-averaged rainfall intensity in inches per hour corresponding to the time of concentration (in/hr)
A = drainage area (acres).

The runoff coefficient is determined from the soil characteristics and the land use types. The time of concentration is the time it takes for the entire watershed to contribute runoff to the concentration point, and it is determined based on the longest flow path. The total drainage area tributary to the project outfall is 6.07 acres which is less than 300 thus only the Rational Method analysis was required. The precipitation was obtained from the NOAA Atlas 14 and Precipitation intensity-duration curves are included in Appendix A. The rational method was prepared using the Advance Engineering Software (AES) RATSCX software which is approved by Riverside County for the Rational Method.

2.2 Hydrology Analysis

The following section describes the existing and proposed drainage patterns and any required mitigation measures proposed for the proposed project.

2.2.1 Soil Conditions

Per the USDA Natural Resources Conservation Service Soil Survey (USDA NRCS), published in 2006, the project site is located within the hydrology soil group of A and C. Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. Group C. Soils having a slow infiltration rate (high runoff potential) when thoroughly wet. The project site location is shown on the USDA Soil Resource map, included in Appendix B.

2.2.2 Existing Condition Hydrology Analysis

The project site is located within Zone 3 of the RCFCD drainage system. The subject of this report, Cherry Outpost, is located on the northwest corner of Cherry St and Bundy Canyon Rd,

adjacent to the I-15 northbound onramp in Wildomar. The site is an approximately 6.07 acre parcel.

The site is an abandoned, now undeveloped parcel. A single-family residential structure (with outbuildings) and an orchard existed on the site until at least 2009. The existing site flows by sheet flow from north to south, and is bounded by the improved I-15 northbound onramp to the west, low-density residences to the north, and Cherry St to the east, and Bundy Canyon Rd to the south. There is a large existing culvert to the south of the site (but north of Bundy Canyon Rd, which drains to Lake Elsinore.

Existing Condition Hydrology calculations from this report are also Provided in Appendix C herein.

2.2.3 Proposed Condition Hydrology Analysis

The proposed project will maintain the existing drainage patterns, draining to the southeast corner of the site. Project grading will occur on approximately 5.95± acres which comprises approximately 99% of the total site area. The project will significantly increase the impervious area of the site. The post-development surface conditions are as follows:

Proposed Site (Post development)

Surface type	Runoff Index[3]	Area [sf]	Area [ac]
Impervious		189,050	4.34
Soil-A	32	34,412	0.79
Soil-C	69	35,719	0.82
Total		259,182	5.95
	Coefficient of Runoff[2]	0.76	
	Imperviousness	73%	

Stormwater runoff from the project site is directed towards bioretention areas for water quality treatment requirements. Stormwater is directed by both sheet flow, and by drainage inlets. The proposed condition flows from these management areas were determined for the 100-year 24-Hr storm event using the Rational Method. Point precipitation depths and intensities were determined using the NOAA Atlas 14.

2.2.4 Basin Design Analysis

The project proposes a surface detention basin to detain runoff increase requirements set forth by Riverside County Flood Control & Water Conservation District, the proposed detention basin has been designed with flow controls to mimic existing 100-year 24-Hr storm flow.

The detention basin will serve a dual purpose of detention and treatment. Stormwater will be allowed to infiltrate out of the basin over time. Proposed Detention basin routing calculations have been provided in Appendix F.

Section 3 Summary of Results and Conclusions

The hydrology calculations demonstrate that the proposed site is designed to meet hydraulic requirements. The existing development will be improved upon with the addition of pad buildings, and associated improvements. The site improvements include the construction of a storm drain system designed to convey the 100-year storm event. The proposed project includes stormwater quality treatment in the form of bioretention areas and surface detention basin.

Table 1: Hydrograph Summary

Condition	100-year peak flow (cfs)
Existing	8.01
Proposed	13.15
Proposed (Mitigated)	5.20

Based on the results of this study, the project mitigation measures proposed will prevent an increase in runoff. Therefore, the proposed project improvements will not have an adverse effect on the downstream storm drain system.

APPENDIX

Appendix A – NOAA Precipitation

NOAA Atlas 14, Volume 6, Version 2
Location name: Wildomar, California, USA*
Latitude: 33.6281°, Longitude: -117.2719°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)								
	1	2	5	25	50	200	500	1000
5-min	**0.996** (0.840-1.20)	**1.34** (1.13-1.63)	**1.84** (1.54-2.22)	**2.81** (2.24-3.55)	**3.26** (2.56-4.22)	**4.25** (3.13-5.80)	**4.94** (3.50-7.06)	**5.51** (3.76-8.15)
15-min	**0.576** (0.484-0.692)	**0.780** (0.652-0.940)	**1.06** (0.884-1.28)	**1.62** (1.30-2.05)	**1.89** (1.48-2.44)	**2.45** (1.81-3.35)	**2.86** (2.02-4.08)	**3.18** (2.17-4.71)
30-min	**0.450** (0.378-0.542)	**0.610** (0.512-0.736)	**0.830** (0.692-1.00)	**1.27** (1.02-1.61)	**1.48** (1.15-1.91)	**1.92** (1.42-2.62)	**2.24** (1.58-3.20)	**2.49** (1.70-3.69)
2-hr	**0.262** (0.220-0.316)	**0.344** (0.288-0.414)	**0.455** (0.380-0.550)	**0.678** (0.542-0.858)	**0.782** (0.612-1.01)	**1.00** (0.742-1.37)	**1.16** (0.822-1.66)	**1.29** (0.878-1.91)
3-hr	**0.215** (0.180-0.259)	**0.280** (0.234-0.337)	**0.367** (0.306-0.444)	**0.542** (0.434-0.686)	**0.624** (0.488-0.806)	**0.796** (0.589-1.09)	**0.918** (0.650-1.31)	**1.01** (0.692-1.50)
6-hr	**0.153** (0.129-0.185)	**0.199** (0.167-0.240)	**0.261** (0.218-0.315)	**0.382** (0.305-0.483)	**0.438** (0.342-0.565)	**0.554** (0.410-0.757)	**0.636** (0.450-0.908)	**0.700** (0.478-1.04)
12-hr	**0.099** (0.083-0.119)	**0.132** (0.111-0.160)	**0.176** (0.147-0.213)	**0.261** (0.208-0.329)	**0.298** (0.233-0.385)	**0.375** (0.277-0.512)	**0.427** (0.302-0.610)	**0.468** (0.319-0.692)
2-day	**0.040** (0.035-0.046)	**0.057** (0.050-0.066)	**0.079** (0.070-0.092)	**0.122** (0.104-0.147)	**0.141** (0.117-0.174)	**0.180** (0.142-0.233)	**0.206** (0.156-0.278)	**0.226** (0.166-0.315)
3-day	**0.029** (0.025-0.033)	**0.042** (0.037-0.049)	**0.059** (0.052-0.069)	**0.093** (0.079-0.112)	**0.108** (0.090-0.133)	**0.139** (0.110-0.180)	**0.161** (0.122-0.216)	**0.177** (0.130-0.247)
4-day	**0.023** (0.021-0.027)	**0.034** (0.030-0.040)	**0.049** (0.043-0.057)	**0.077** (0.065-0.093)	**0.090** (0.075-0.111)	**0.117** (0.092-0.151)	**0.136** (0.103-0.183)	**0.150** (0.110-0.209)
7-day	**0.015** (0.013-0.017)	**0.022** (0.020-0.026)	**0.032** (0.028-0.037)	**0.051** (0.043-0.062)	**0.060** (0.050-0.074)	**0.079** (0.063-0.103)	**0.093** (0.070-0.125)	**0.104** (0.076-0.144)
10-day	**0.011** (0.010-0.013)	**0.016** (0.014-0.019)	**0.024** (0.021-0.027)	**0.038** (0.033-0.046)	**0.045** (0.038-0.056)	**0.060** (0.048-0.078)	**0.071** (0.054-0.096)	**0.080** (0.059-0.111)
20-day	**0.006** (0.006-0.007)	**0.010** (0.008-0.011)	**0.014** (0.012-0.016)	**0.023** (0.020-0.028)	**0.028** (0.023-0.034)	**0.038** (0.030-0.049)	**0.045** (0.034-0.061)	**0.051** (0.038-0.071)
30-day	**0.005** (0.004-0.006)	**0.008** (0.007-0.009)	**0.011** (0.010-0.013)	**0.019** (0.016-0.022)	**0.022** (0.018-0.027)	**0.031** (0.024-0.040)	**0.037** (0.028-0.050)	**0.042** (0.031-0.058)
45-day	**0.004** (0.003-0.004)	**0.006** (0.005-0.007)	**0.008** (0.007-0.010)	**0.014** (0.012-0.017)	**0.017** (0.014-0.021)	**0.024** (0.019-0.031)	**0.029** (0.022-0.039)	**0.033** (0.024-0.046)
60-day	**0.003** (0.003-0.004)	**0.005** (0.004-0.006)	**0.007** (0.006-0.008)	**0.012** (0.010-0.015)	**0.015** (0.012-0.018)	**0.020** (0.016-0.026)	**0.025** (0.019-0.033)	**0.028** (0.021-0.039)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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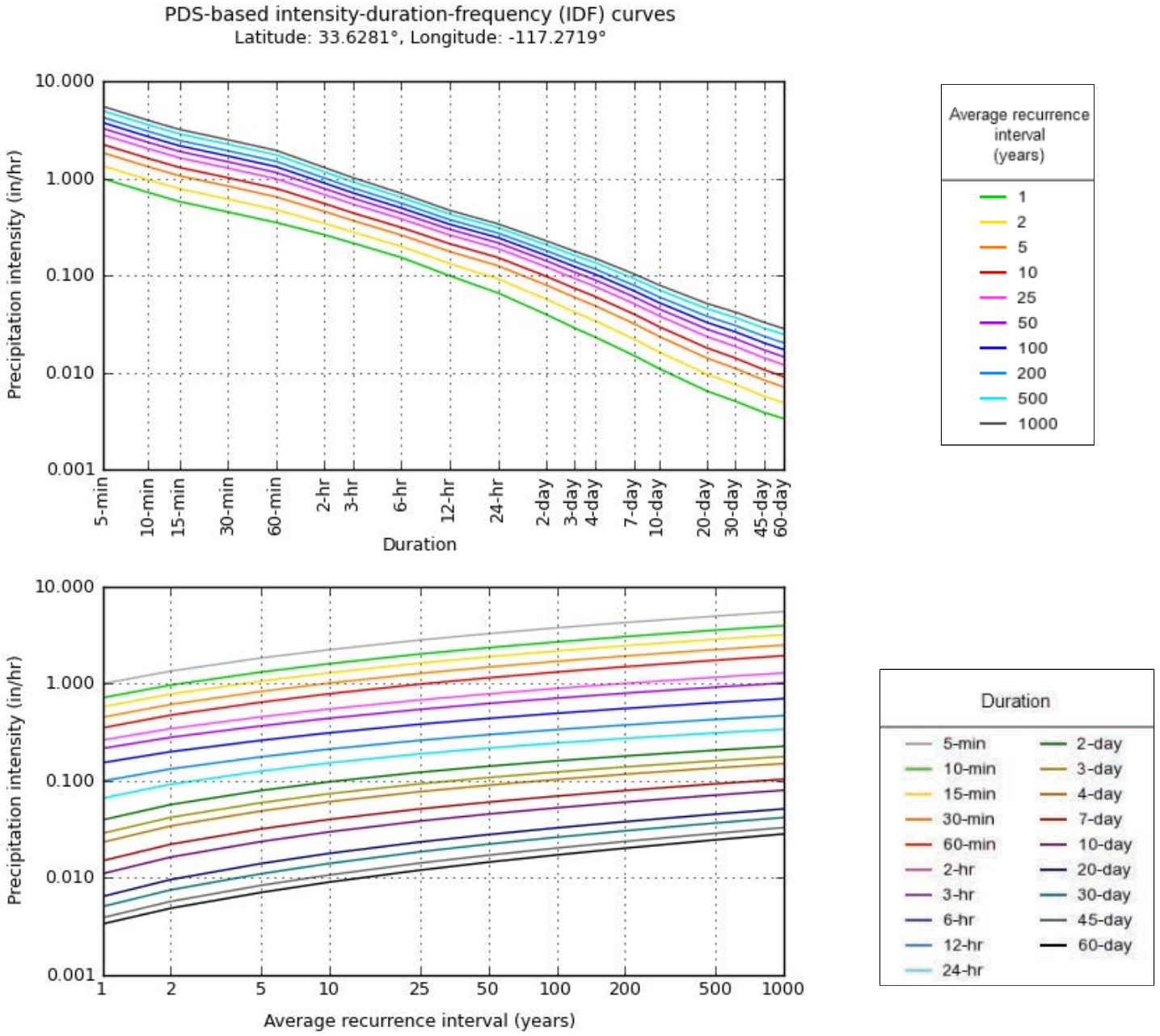
PF graphical



NOAA Atlas 14, Volume 6, Version 2

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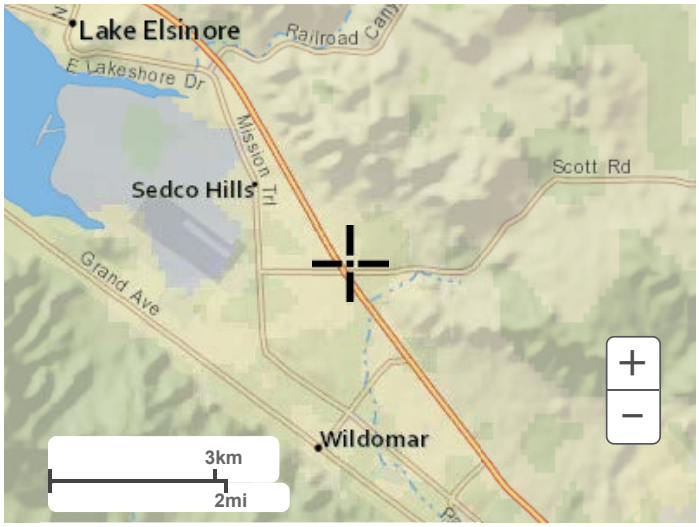
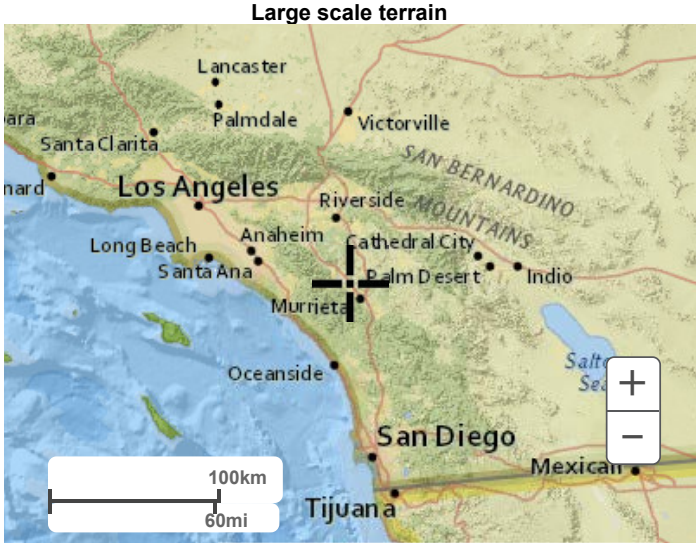
Maps & aerials

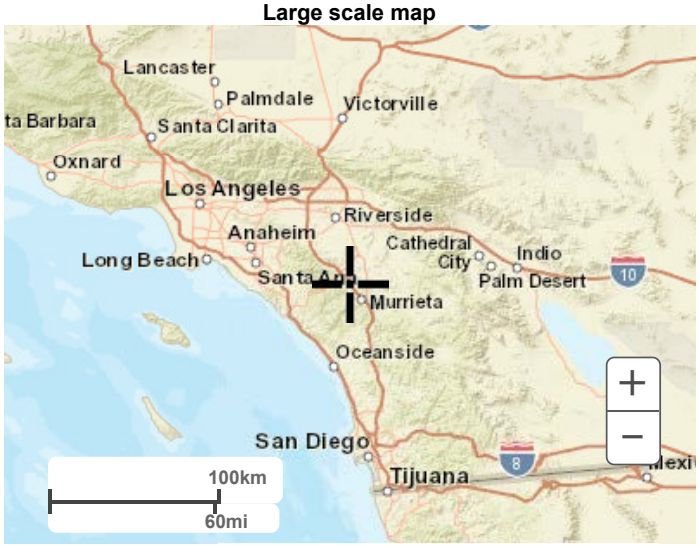
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 6, Version 2
Location name: Wildomar, California, USA*
Latitude: 33.6281°, Longitude: -117.2719°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)								
	1	2	5	10	25	50	200	500	1000
5-min	0.083 (0.070-0.100)	0.112 (0.094-0.136)	0.153 (0.128-0.185)	0.186 (0.154-0.227)	0.234 (0.187-0.296)	0.272 (0.213-0.352)	0.354 (0.261-0.483)	0.412 (0.292-0.588)	0.459 (0.313-0.679)
10-min	0.119 (0.100-0.143)	0.161 (0.135-0.194)	0.219 (0.183-0.265)	0.267 (0.221-0.326)	0.336 (0.268-0.424)	0.390 (0.305-0.504)	0.507 (0.375-0.693)	0.591 (0.418-0.843)	0.657 (0.448-0.973)
15-min	0.144 (0.121-0.173)	0.195 (0.163-0.235)	0.265 (0.221-0.320)	0.323 (0.268-0.394)	0.406 (0.324-0.513)	0.472 (0.369-0.609)	0.613 (0.453-0.838)	0.714 (0.505-1.02)	0.795 (0.542-1.18)
30-min	0.225 (0.189-0.271)	0.305 (0.256-0.368)	0.415 (0.346-0.501)	0.506 (0.419-0.618)	0.636 (0.508-0.804)	0.739 (0.577-0.955)	0.961 (0.710-1.31)	1.12 (0.792-1.60)	1.25 (0.850-1.84)
60-min	0.350 (0.293-0.421)	0.474 (0.397-0.572)	0.643 (0.537-0.778)	0.786 (0.650-0.958)	0.987 (0.788-1.25)	1.15 (0.896-1.48)	1.49 (1.10-2.04)	1.74 (1.23-2.48)	1.93 (1.32-2.86)
2-hr	0.524 (0.440-0.631)	0.688 (0.576-0.829)	0.910 (0.760-1.10)	1.10 (0.907-1.34)	1.36 (1.09-1.72)	1.57 (1.22-2.02)	2.01 (1.49-2.75)	2.32 (1.65-3.32)	2.57 (1.76-3.81)
3-hr	0.646 (0.542-0.778)	0.840 (0.703-1.01)	1.10 (0.920-1.33)	1.32 (1.09-1.61)	1.63 (1.30-2.06)	1.87 (1.46-2.42)	2.39 (1.77-3.27)	2.76 (1.95-3.94)	3.05 (2.08-4.51)
6-hr	0.918 (0.770-1.11)	1.19 (0.999-1.44)	1.56 (1.30-1.89)	1.87 (1.54-2.28)	2.29 (1.83-2.89)	2.62 (2.05-3.39)	3.32 (2.45-4.54)	3.81 (2.70-5.44)	4.19 (2.86-6.21)
12-hr	1.19 (1.00-1.44)	1.60 (1.34-1.92)	2.12 (1.77-2.57)	2.55 (2.11-3.12)	3.14 (2.51-3.97)	3.59 (2.81-4.64)	4.52 (3.34-6.17)	5.15 (3.64-7.35)	5.64 (3.85-8.34)
2-day	1.90 (1.68-2.19)	2.73 (2.41-3.16)	3.81 (3.36-4.42)	4.69 (4.10-5.48)	5.87 (4.97-7.08)	6.78 (5.62-8.34)	8.63 (6.81-11.2)	9.90 (7.50-13.3)	10.9 (7.97-15.1)
3-day	2.07 (1.83-2.39)	3.02 (2.67-3.50)	4.28 (3.77-4.96)	5.30 (4.63-6.19)	6.70 (5.67-8.07)	7.77 (6.45-9.56)	10.0 (7.89-12.9)	11.6 (8.76-15.6)	12.8 (9.36-17.8)
4-day	2.23 (1.97-2.58)	3.29 (2.90-3.80)	4.69 (4.13-5.44)	5.84 (5.10-6.82)	7.42 (6.28-8.94)	8.64 (7.17-10.6)	11.2 (8.84-14.5)	13.0 (9.86-17.5)	14.4 (10.6-20.1)
7-day	2.52 (2.23-2.91)	3.73 (3.30-4.31)	5.37 (4.73-6.22)	6.73 (5.88-7.86)	8.63 (7.30-10.4)	10.1 (8.40-12.5)	13.3 (10.5-17.2)	15.6 (11.8-21.0)	17.4 (12.8-24.3)
10-day	2.65 (2.34-3.06)	3.93 (3.47-4.55)	5.68 (5.00-6.59)	7.16 (6.25-8.36)	9.24 (7.82-11.1)	10.9 (9.04-13.4)	14.5 (11.4-18.7)	17.1 (12.9-23.0)	19.2 (14.1-26.7)
20-day	3.09 (2.73-3.57)	4.62 (4.08-5.34)	6.76 (5.95-7.83)	8.60 (7.51-10.0)	11.3 (9.53-13.6)	13.4 (11.1-16.5)	18.2 (14.4-23.6)	21.8 (16.5-29.3)	24.7 (18.1-34.3)
30-day	3.65 (3.23-4.22)	5.43 (4.79-6.28)	7.96 (7.01-9.22)	10.2 (8.88-11.9)	13.4 (11.3-16.1)	16.0 (13.3-19.7)	22.0 (17.4-28.5)	26.5 (20.1-35.7)	30.2 (22.1-42.0)
45-day	4.21 (3.72-4.86)	6.20 (5.47-7.16)	9.07 (7.98-10.5)	11.6 (10.1-13.6)	15.4 (13.0-18.5)	18.5 (15.4-22.8)	25.7 (20.2-33.2)	31.1 (23.6-41.9)	35.6 (26.1-49.6)
60-day	4.84 (4.28-5.59)	7.03 (6.20-8.12)	10.2 (9.00-11.8)	13.1 (11.4-15.3)	17.3 (14.7-20.9)	20.9 (17.4-25.7)	29.2 (23.0-37.7)	35.5 (26.9-47.8)	40.8 (29.9-56.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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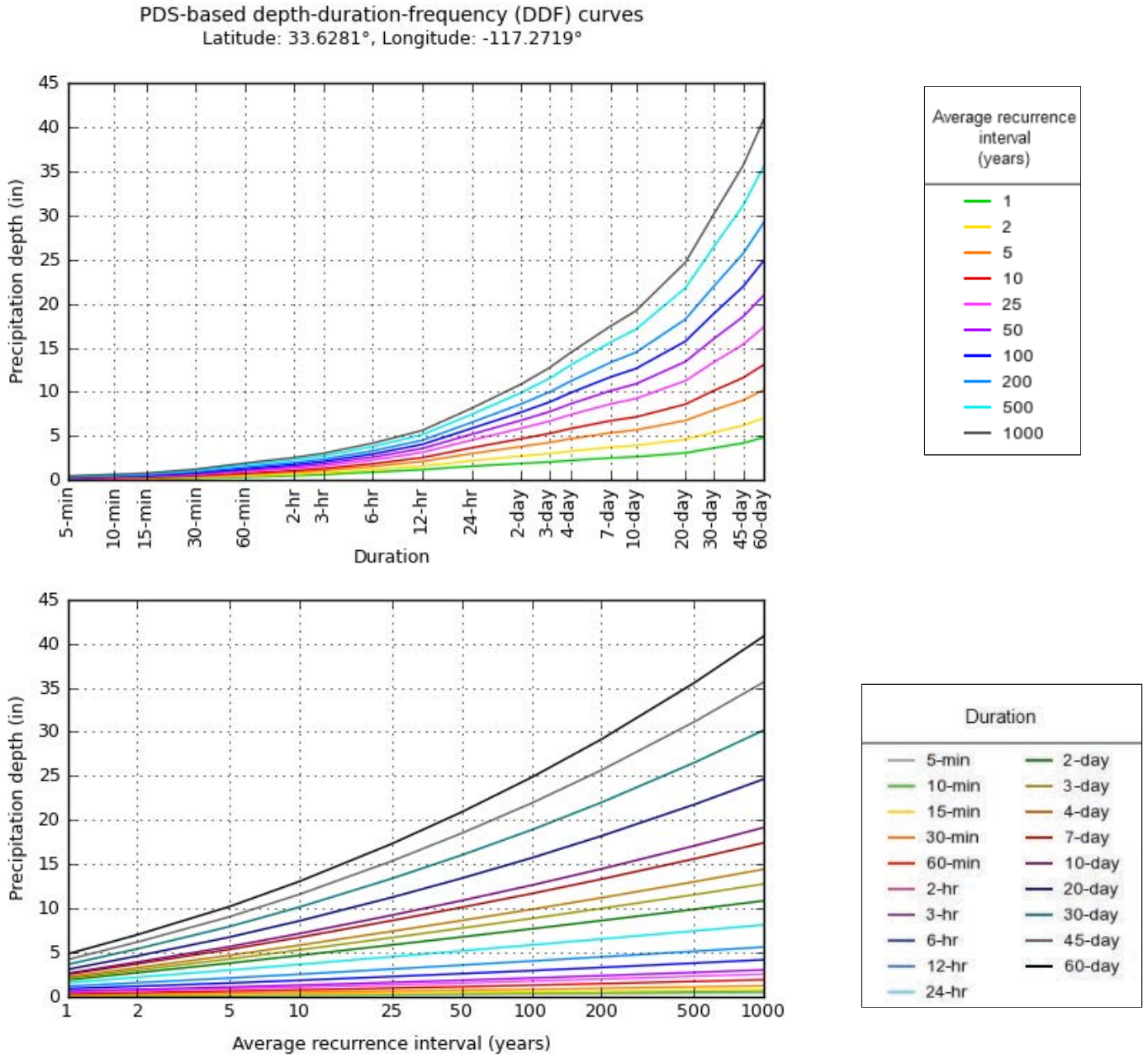
PF graphical



NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Thu Mar 9 00:37:12 2023

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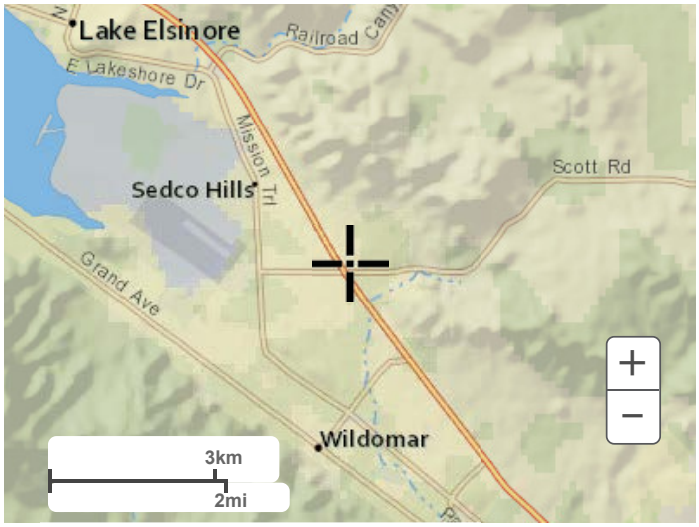
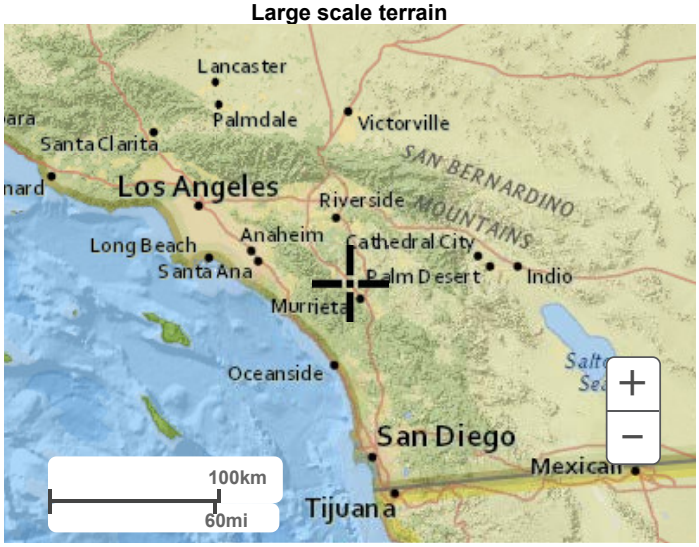
Maps & aerials

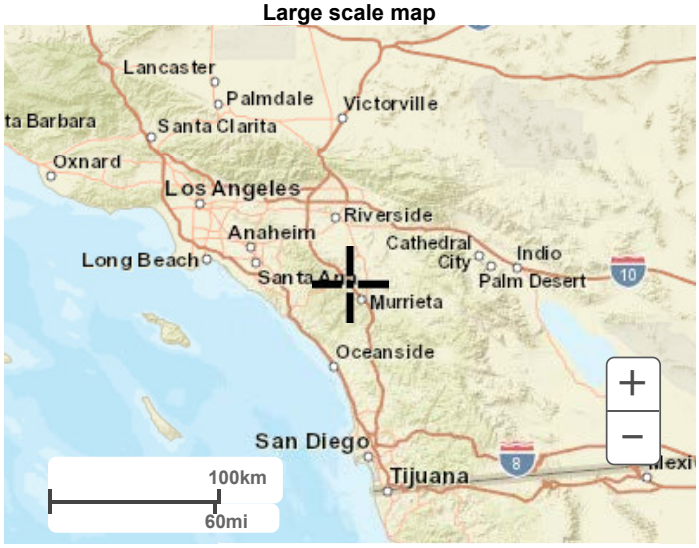
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Appendix B – Soils Maps



Map Scale: 1:1,720 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 16, Aug 30, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 14, 2022—Mar 17, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	A	3.2	41.3%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	0.9	11.7%
RaD2	Ramona sandy loam, 8 to 15 percent slopes, eroded	C	3.0	38.6%
RaD3	Ramona sandy loam, 8 to 15 percent slopes, severely eroded	C	0.5	6.9%
ReC2	Ramona very fine sandy loam, 0 to 8 percent slopes, eroded	C	0.1	1.6%
Totals for Area of Interest			**7.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

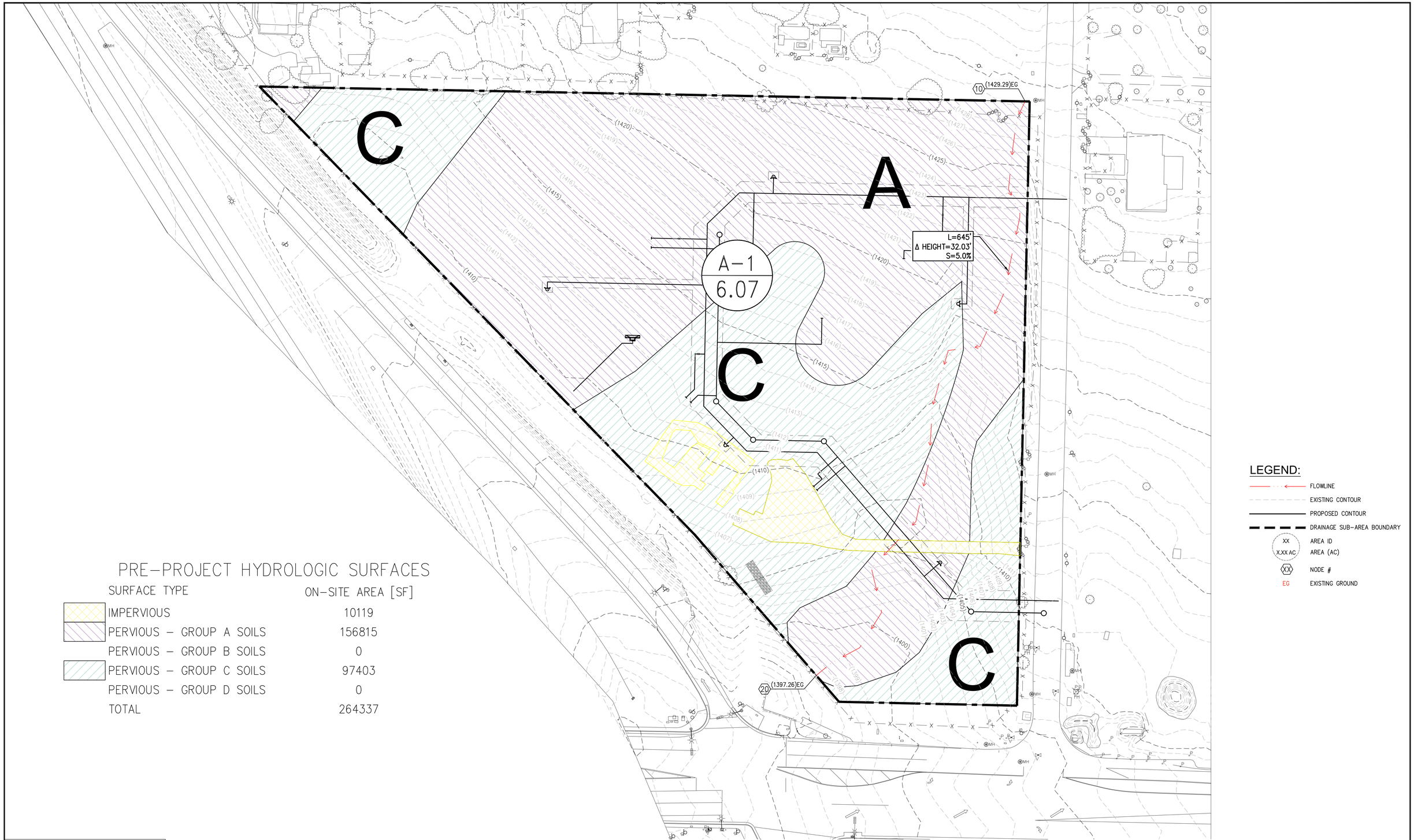
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C – Existing Hydrology Calculations



LEGEND:

- FLOWLINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE SUB-AREA BOUNDARY
- XX / X.XX AC — AREA ID / AREA (AC)
- XX — NODE #
- EG — EXISTING GROUND

PRE-PROJECT HYDROLOGIC SURFACES

SURFACE TYPE	ON-SITE AREA [SF]
IMPERVIOUS	10119
PERVIOUS - GROUP A SOILS	156815
PERVIOUS - GROUP B SOILS	0
PERVIOUS - GROUP C SOILS	97403
PERVIOUS - GROUP D SOILS	0
TOTAL	264337

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A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design hereon. In the event of discrepancies arising after city acceptance or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for acceptance by the city.

MARK	BY	DATE	REVISIONS	APPR.	DATE
ENGINEER				CITY	

CITY OF WILDOMAR
ACCEPTED BY:

Date:

Daniel A. York, Director of Public Works/ City Engineer, PE 43212

ACCEPTANCE AS TO CONFORMANCE WITH APPLICABLE CITY STANDARDS AND PRACTICES

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BENCHMARK:
Elevation = _____
Datum = _____
BENCHMARK # _____

THIS SURVEY WAS PERFORMED ON (date) BY (surveyor)
L.S. (number), EXP. (date)

SCALE: H: As Noted V: As Noted

(PP, CUP, PM, TM, etc.) (city project number)

CITY OF WILDOMAR

EXISTING CONDITIONS HYDROLOGY MAP
CHERRY OUTPOST IN THE CITY OF WILDOMAR, RIVERSIDE COUNTY

SHEET No. 1
OF 1 SHTS

```
_____________________________________________________________________________
*****************************************************************************
           RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                      (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1334

                         Analysis prepared by:

                          TAIT & ASSOCIATES INC.
                         701 N. PARKCENTER DRIVE
                        SANTA ANA, CALIFORNIA 92705


 ************************ DESCRIPTION OF STUDY *************************
* SP8997 - WILDOMAR CHERRY OUTPOST                                      *
* EXISTING CONDITION RATIONAL METHOD                                    *
* 100-YEAR STORM EVENT                                                  *
 *************************************************************************

  FILE NAME: WIL100EX.DAT
  TIME/DATE OF STUDY: 10:25 03/21/2023
-----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
-----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.600
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.786
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.680
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.310
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.3967061
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.3994898
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.310
  SLOPE OF INTENSITY DURATION CURVE = 0.3995
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     20.00 IS CODE =  21
-----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   645.00
  UPSTREAM ELEVATION(FEET) =   1429.29
  DOWNSTREAM ELEVATION(FEET) =   1397.26
  ELEVATION DIFFERENCE(FEET) =     32.03
  TC = 0.533*[(  645.00**3)/(    32.03)]**.2 =   12.913
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4146
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      3.61
  TOTAL AREA(ACRES) =      3.60   TOTAL RUNOFF(CFS) =      3.61

*****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
-----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7214
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    2.24   SUBAREA RUNOFF(CFS) =    3.91
  TOTAL AREA(ACRES) =        5.8   TOTAL RUNOFF(CFS) =       7.52
  TC(MIN.) =   12.91

*****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
-----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8515
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.02   SUBAREA RUNOFF(CFS) =    0.04
  TOTAL AREA(ACRES) =        5.9   TOTAL RUNOFF(CFS) =       7.56
  TC(MIN.) =   12.91

*****************************************************************************
```

```
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8821
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.21   SUBAREA RUNOFF(CFS) =    0.45
  TOTAL AREA(ACRES) =        6.1   TOTAL RUNOFF(CFS) =       8.01
  TC(MIN.) =   12.91
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.1  TC(MIN.) =     12.91
  PEAK FLOW RATE(CFS)   =       8.01
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS

```

```
______________________________________________________________________________
******************************************************************************

             F L O O D    R O U T I N G    A N A L Y S I S
             USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
         (c) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1334

                         Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CHERRY OUTPOST                                                        *
* 100 YR - EXISTING CONDITION                                           *
* SMALL AREA UNIT HYDROGRAPH                                            *
 ************************************************************************

  FILE NAME: 100YREXH.DAT
  TIME/DATE OF STUDY: 11:46 03/24/2023

   The Small Area Unit Hydrograph Procedures in Section J
   of the Hydrology Manual provides estimates of runoff
   hydrograph and runoff volume for watersheds whose time of
   concentration is less than 25 minutes. The PROGRAM User
   should check the applicability of using the small area unit
   hydrograph procedures, and follow the guidelines in
   Sections J and K.5 in complex watershed modeling.


******************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     20.00 IS CODE = 1.2
------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
==============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    6.07
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.385
    LOW LOSS FRACTION = 0.445
    TIME OF CONCENTRATION(MIN.) = 12.91
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    USER SPECIFIED RAINFALL VALUES ARE USED:
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.31
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.85
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.31
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.13
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.96
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.87

------------------------------------------------------------------------------
    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.56
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     1.41

------------------------------------------------------------------------------
♠
==============================================================================

                      2 4 - H O U R    S T O R M
                   R U N O F F    H Y D R O G R A P H

==============================================================================
              HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
          (Notes: Time indicated is at END of Each Unit Intervals.
                  Peak 5-minute rainfall intensity is modeled as
                  a constant value for entire 5-minute period.)
------------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        2.8       5.7       8.5      11.3
------------------------------------------------------------------------------
   0.017      0.0000      0.00  Q        .         .         .         .
   0.033      0.0000      0.00  Q        .         .         .         .
   0.050      0.0000      0.00  Q        .         .         .         .
   0.067      0.0000      0.00  Q        .         .         .         .
   0.083      0.0000      0.00  Q        .         .         .         .
   0.100      0.0000      0.02  Q        .         .         .         .
   0.117      0.0001      0.05  Q        .         .         .         .
   0.133      0.0002      0.08  Q        .         .         .         .
   0.150      0.0004      0.11  Q        .         .         .         .
   0.167      0.0006      0.14  Q        .         .         .         .
   0.183      0.0008      0.17  Q        .         .         .         .
   0.200      0.0011      0.19  Q        .         .         .         .
   0.217      0.0014      0.22  Q        .         .         .         .
   0.233      0.0017      0.25  Q        .         .         .         .
   0.250      0.0021      0.28  Q        .         .         .         .
   0.267      0.0025      0.31  VQ       .         .         .         .
   0.283      0.0030      0.34  VQ       .         .         .         .
   0.300      0.0035      0.36  VQ       .         .         .         .
   0.317      0.0040      0.37  VQ       .         .         .         .
   0.333      0.0045      0.37  VQ       .         .         .         .
   0.350      0.0050      0.37  VQ       .         .         .         .
   0.367      0.0055      0.37  VQ       .         .         .         .
   0.383      0.0060      0.37  VQ       .         .         .         .
   0.400      0.0065      0.37  VQ       .         .         .         .
   0.417      0.0070      0.37  VQ       .         .         .         .
```

0.433	0.0076	0.37	VQ	.	.	.	.
0.450	0.0081	0.37	VQ	.	.	.	.
0.467	0.0086	0.37	VQ	.	.	.	.
0.483	0.0091	0.37	VQ	.	.	.	.
0.500	0.0096	0.37	VQ	.	.	.	.
0.517	0.0101	0.37	VQ	.	.	.	.
0.533	0.0106	0.37	VQ	.	.	.	.
0.550	0.0111	0.37	VQ	.	.	.	.
0.567	0.0116	0.37	VQ	.	.	.	.
0.583	0.0121	0.37	VQ	.	.	.	.
0.600	0.0126	0.37	VQ	.	.	.	.
0.617	0.0132	0.37	VQ	.	.	.	.
0.633	0.0137	0.37	VQ	.	.	.	.
0.650	0.0142	0.37	VQ	.	.	.	.
0.667	0.0147	0.37	VQ	.	.	.	.
0.683	0.0152	0.37	VQ	.	.	.	.
0.700	0.0157	0.37	VQ	.	.	.	.
0.717	0.0162	0.37	VQ	.	.	.	.
0.733	0.0167	0.37	VQ	.	.	.	.
0.750	0.0173	0.37	VQ	.	.	.	.
0.767	0.0178	0.37	VQ	.	.	.	.
0.783	0.0183	0.37	VQ	.	.	.	.
0.800	0.0188	0.37	VQ	.	.	.	.
0.817	0.0193	0.37	VQ	.	.	.	.
0.833	0.0198	0.37	VQ	.	.	.	.
0.850	0.0204	0.37	VQ	.	.	.	.
0.867	0.0209	0.37	VQ	.	.	.	.
0.883	0.0214	0.37	VQ	.	.	.	.
0.900	0.0219	0.37	VQ	.	.	.	.
0.917	0.0224	0.37	VQ	.	.	.	.
0.933	0.0229	0.37	VQ	.	.	.	.
0.950	0.0234	0.37	VQ	.	.	.	.
0.967	0.0240	0.38	VQ	.	.	.	.
0.983	0.0245	0.38	VQ	.	.	.	.
1.000	0.0250	0.38	VQ	.	.	.	.
1.017	0.0255	0.38	VQ	.	.	.	.
1.033	0.0260	0.38	VQ	.	.	.	.
1.050	0.0266	0.38	VQ	.	.	.	.
1.067	0.0271	0.38	VQ	.	.	.	.
1.083	0.0276	0.38	VQ	.	.	.	.
1.100	0.0281	0.38	VQ	.	.	.	.
1.117	0.0286	0.38	VQ	.	.	.	.
1.133	0.0292	0.38	VQ	.	.	.	.
1.150	0.0297	0.38	VQ	.	.	.	.
1.167	0.0302	0.38	VQ	.	.	.	.
1.183	0.0307	0.38	VQ	.	.	.	.
1.200	0.0312	0.38	VQ	.	.	.	.
1.217	0.0318	0.38	VQ	.	.	.	.
1.233	0.0323	0.38	VQ	.	.	.	.
1.250	0.0328	0.38	VQ	.	.	.	.
1.267	0.0333	0.38	VQ	.	.	.	.
1.283	0.0339	0.38	VQ	.	.	.	.
1.300	0.0344	0.38	VQ	.	.	.	.
1.317	0.0349	0.38	VQ	.	.	.	.
1.333	0.0354	0.38	VQ	.	.	.	.
1.350	0.0359	0.38	VQ	.	.	.	.
1.367	0.0365	0.38	VQ	.	.	.	.
1.383	0.0370	0.38	VQ	.	.	.	.
1.400	0.0375	0.38	VQ	.	.	.	.
1.417	0.0380	0.38	VQ	.	.	.	.
1.433	0.0386	0.38	VQ	.	.	.	.
1.450	0.0391	0.38	VQ	.	.	.	.
1.467	0.0396	0.38	.Q	.	.	.	.
1.483	0.0401	0.38	.Q	.	.	.	.
1.500	0.0407	0.38	.Q	.	.	.	.
1.517	0.0412	0.38	.Q	.	.	.	.
1.533	0.0417	0.38	.Q	.	.	.	.
1.550	0.0423	0.38	.Q	.	.	.	.
1.567	0.0428	0.38	.Q	.	.	.	.
1.583	0.0433	0.38	.Q	.	.	.	.
1.600	0.0438	0.38	.Q	.	.	.	.
1.617	0.0444	0.38	.Q	.	.	.	.
1.633	0.0449	0.38	.Q	.	.	.	.
1.650	0.0454	0.38	.Q	.	.	.	.
1.667	0.0460	0.38	.Q	.	.	.	.
1.683	0.0465	0.38	.Q	.	.	.	.
1.700	0.0470	0.39	.Q	.	.	.	.
1.717	0.0476	0.39	.Q	.	.	.	.
1.733	0.0481	0.39	.Q	.	.	.	.
1.750	0.0486	0.39	.Q	.	.	.	.
1.767	0.0491	0.39	.Q	.	.	.	.
1.783	0.0497	0.39	.Q	.	.	.	.
1.800	0.0502	0.39	.Q	.	.	.	.
1.817	0.0507	0.39	.Q	.	.	.	.
1.833	0.0513	0.39	.Q	.	.	.	.
1.850	0.0518	0.39	.Q	.	.	.	.
1.867	0.0523	0.39	.Q	.	.	.	.
1.883	0.0529	0.39	.Q	.	.	.	.
1.900	0.0534	0.39	.Q	.	.	.	.
1.917	0.0539	0.39	.Q	.	.	.	.
1.933	0.0545	0.39	.Q	.	.	.	.
1.950	0.0550	0.39	.Q	.	.	.	.
1.967	0.0556	0.39	.Q	.	.	.	.
1.983	0.0561	0.39	.Q	.	.	.	.
2.000	0.0566	0.39	.Q	.	.	.	.
2.017	0.0572	0.39	.Q	.	.	.	.
2.033	0.0577	0.39	.Q	.	.	.	.
2.050	0.0582	0.39	.Q	.	.	.	.
2.067	0.0588	0.39	.Q	.	.	.	.
2.083	0.0593	0.39	.Q	.	.	.	.

2.100	0.0599	0.39	.Q	.	.	.	.
2.117	0.0604	0.39	.Q	.	.	.	.
2.133	0.0609	0.39	.Q	.	.	.	.
2.150	0.0615	0.39	.Q	.	.	.	.
2.167	0.0620	0.39	.Q	.	.	.	.
2.183	0.0625	0.39	.Q	.	.	.	.
2.200	0.0631	0.39	.Q	.	.	.	.
2.217	0.0636	0.39	.Q	.	.	.	.
2.233	0.0642	0.39	.Q	.	.	.	.
2.250	0.0647	0.39	.Q	.	.	.	.
2.267	0.0652	0.39	.Q	.	.	.	.
2.283	0.0658	0.39	.Q	.	.	.	.
2.300	0.0663	0.39	.Q	.	.	.	.
2.317	0.0669	0.39	.Q	.	.	.	.
2.333	0.0674	0.39	.Q	.	.	.	.
2.350	0.0680	0.39	.Q	.	.	.	.
2.367	0.0685	0.39	.Q	.	.	.	.
2.383	0.0690	0.39	.Q	.	.	.	.
2.400	0.0696	0.40	.Q	.	.	.	.
2.417	0.0701	0.40	.Q	.	.	.	.
2.433	0.0707	0.40	.Q	.	.	.	.
2.450	0.0712	0.40	.Q	.	.	.	.
2.467	0.0718	0.40	.Q	.	.	.	.
2.483	0.0723	0.40	.Q	.	.	.	.
2.500	0.0729	0.40	.Q	.	.	.	.
2.517	0.0734	0.40	.Q	.	.	.	.
2.533	0.0740	0.40	.Q	.	.	.	.
2.550	0.0745	0.40	.Q	.	.	.	.
2.567	0.0750	0.40	.Q	.	.	.	.
2.583	0.0756	0.40	.Q	.	.	.	.
2.600	0.0761	0.40	.Q	.	.	.	.
2.617	0.0767	0.40	.Q	.	.	.	.
2.633	0.0772	0.40	.Q	.	.	.	.
2.650	0.0778	0.40	.Q	.	.	.	.
2.667	0.0783	0.40	.QV	.	.	.	.
2.683	0.0789	0.40	.QV	.	.	.	.
2.700	0.0794	0.40	.QV	.	.	.	.
2.717	0.0800	0.40	.QV	.	.	.	.
2.733	0.0805	0.40	.QV	.	.	.	.
2.750	0.0811	0.40	.QV	.	.	.	.
2.767	0.0816	0.40	.QV	.	.	.	.
2.783	0.0822	0.40	.QV	.	.	.	.
2.800	0.0827	0.40	.QV	.	.	.	.
2.817	0.0833	0.40	.QV	.	.	.	.
2.833	0.0838	0.40	.QV	.	.	.	.
2.850	0.0844	0.40	.QV	.	.	.	.
2.867	0.0850	0.40	.QV	.	.	.	.
2.883	0.0855	0.40	.QV	.	.	.	.
2.900	0.0861	0.40	.QV	.	.	.	.
2.917	0.0866	0.40	.QV	.	.	.	.
2.933	0.0872	0.40	.QV	.	.	.	.
2.950	0.0877	0.40	.QV	.	.	.	.
2.967	0.0883	0.40	.QV	.	.	.	.
2.983	0.0888	0.40	.QV	.	.	.	.
3.000	0.0894	0.40	.QV	.	.	.	.
3.017	0.0900	0.40	.QV	.	.	.	.
3.033	0.0905	0.40	.QV	.	.	.	.
3.050	0.0911	0.40	.QV	.	.	.	.
3.067	0.0916	0.40	.QV	.	.	.	.
3.083	0.0922	0.40	.QV	.	.	.	.
3.100	0.0927	0.40	.QV	.	.	.	.
3.117	0.0933	0.41	.QV	.	.	.	.
3.133	0.0939	0.41	.QV	.	.	.	.
3.150	0.0944	0.41	.QV	.	.	.	.
3.167	0.0950	0.41	.QV	.	.	.	.
3.183	0.0955	0.41	.QV	.	.	.	.
3.200	0.0961	0.41	.QV	.	.	.	.
3.217	0.0967	0.41	.QV	.	.	.	.
3.233	0.0972	0.41	.QV	.	.	.	.
3.250	0.0978	0.41	.QV	.	.	.	.
3.267	0.0983	0.41	.QV	.	.	.	.
3.283	0.0989	0.41	.QV	.	.	.	.
3.300	0.0995	0.41	.QV	.	.	.	.
3.317	0.1000	0.41	.QV	.	.	.	.
3.333	0.1006	0.41	.QV	.	.	.	.
3.350	0.1012	0.41	.QV	.	.	.	.
3.367	0.1017	0.41	.QV	.	.	.	.
3.383	0.1023	0.41	.QV	.	.	.	.
3.400	0.1029	0.41	.QV	.	.	.	.
3.417	0.1034	0.41	.QV	.	.	.	.
3.433	0.1040	0.41	.QV	.	.	.	.
3.450	0.1046	0.41	.QV	.	.	.	.
3.467	0.1051	0.41	.QV	.	.	.	.
3.483	0.1057	0.41	.QV	.	.	.	.
3.500	0.1063	0.41	.QV	.	.	.	.
3.517	0.1068	0.41	.QV	.	.	.	.
3.533	0.1074	0.41	.QV	.	.	.	.
3.550	0.1080	0.41	.QV	.	.	.	.
3.567	0.1085	0.41	.QV	.	.	.	.
3.583	0.1091	0.41	.QV	.	.	.	.
3.600	0.1097	0.41	.QV	.	.	.	.
3.617	0.1102	0.41	.QV	.	.	.	.
3.633	0.1108	0.41	.QV	.	.	.	.
3.650	0.1114	0.41	.QV	.	.	.	.
3.667	0.1119	0.41	.QV	.	.	.	.
3.683	0.1125	0.42	.QV	.	.	.	.
3.700	0.1131	0.42	.QV	.	.	.	.
3.717	0.1137	0.42	.QV	.	.	.	.
3.733	0.1142	0.42	.QV	.	.	.	.
3.750	0.1148	0.42	.QV	.	.	.	.

3.767	0.1154	0.42	.QV	.	.	.	.
3.783	0.1160	0.42	.QV	.	.	.	.
3.800	0.1165	0.42	.QV	.	.	.	.
3.817	0.1171	0.42	.QV	.	.	.	.
3.833	0.1177	0.42	.Q V	.	.	.	.
3.850	0.1183	0.42	.Q V	.	.	.	.
3.867	0.1188	0.42	.Q V	.	.	.	.
3.883	0.1194	0.42	.Q V	.	.	.	.
3.900	0.1200	0.42	.Q V	.	.	.	.
3.917	0.1206	0.42	.Q V	.	.	.	.
3.933	0.1211	0.42	.Q V	.	.	.	.
3.950	0.1217	0.42	.Q V	.	.	.	.
3.967	0.1223	0.42	.Q V	.	.	.	.
3.983	0.1229	0.42	.Q V	.	.	.	.
4.000	0.1235	0.42	.Q V	.	.	.	.
4.017	0.1240	0.42	.Q V	.	.	.	.
4.033	0.1246	0.42	.Q V	.	.	.	.
4.050	0.1252	0.42	.Q V	.	.	.	.
4.067	0.1258	0.42	.Q V	.	.	.	.
4.083	0.1264	0.42	.Q V	.	.	.	.
4.100	0.1269	0.42	.Q V	.	.	.	.
4.117	0.1275	0.42	.Q V	.	.	.	.
4.133	0.1281	0.42	.Q V	.	.	.	.
4.150	0.1287	0.42	.Q V	.	.	.	.
4.167	0.1293	0.42	.Q V	.	.	.	.
4.183	0.1299	0.42	.Q V	.	.	.	.
4.200	0.1304	0.42	.Q V	.	.	.	.
4.217	0.1310	0.42	.Q V	.	.	.	.
4.233	0.1316	0.42	.Q V	.	.	.	.
4.250	0.1322	0.42	.Q V	.	.	.	.
4.267	0.1328	0.43	.Q V	.	.	.	.
4.283	0.1334	0.43	.Q V	.	.	.	.
4.300	0.1340	0.43	.Q V	.	.	.	.
4.317	0.1345	0.43	.Q V	.	.	.	.
4.333	0.1351	0.43	.Q V	.	.	.	.
4.350	0.1357	0.43	.Q V	.	.	.	.
4.367	0.1363	0.43	.Q V	.	.	.	.
4.383	0.1369	0.43	.Q V	.	.	.	.
4.400	0.1375	0.43	.Q V	.	.	.	.
4.417	0.1381	0.43	.Q V	.	.	.	.
4.433	0.1387	0.43	.Q V	.	.	.	.
4.450	0.1392	0.43	.Q V	.	.	.	.
4.467	0.1398	0.43	.Q V	.	.	.	.
4.483	0.1404	0.43	.Q V	.	.	.	.
4.500	0.1410	0.43	.Q V	.	.	.	.
4.517	0.1416	0.43	.Q V	.	.	.	.
4.533	0.1422	0.43	.Q V	.	.	.	.
4.550	0.1428	0.43	.Q V	.	.	.	.
4.567	0.1434	0.43	.Q V	.	.	.	.
4.583	0.1440	0.43	.Q V	.	.	.	.
4.600	0.1446	0.43	.Q V	.	.	.	.
4.617	0.1452	0.43	.Q V	.	.	.	.
4.633	0.1458	0.43	.Q V	.	.	.	.
4.650	0.1464	0.43	.Q V	.	.	.	.
4.667	0.1470	0.43	.Q V	.	.	.	.
4.683	0.1476	0.43	.Q V	.	.	.	.
4.700	0.1481	0.43	.Q V	.	.	.	.
4.717	0.1487	0.43	.Q V	.	.	.	.
4.733	0.1493	0.43	.Q V	.	.	.	.
4.750	0.1499	0.43	.Q V	.	.	.	.
4.767	0.1505	0.43	.Q V	.	.	.	.
4.783	0.1511	0.43	.Q V	.	.	.	.
4.800	0.1517	0.43	.Q V	.	.	.	.
4.817	0.1523	0.43	.Q V	.	.	.	.
4.833	0.1529	0.44	.Q V	.	.	.	.
4.850	0.1535	0.44	.Q V	.	.	.	.
4.867	0.1541	0.44	.Q V	.	.	.	.
4.883	0.1547	0.44	.Q V	.	.	.	.
4.900	0.1553	0.44	.Q V	.	.	.	.
4.917	0.1559	0.44	.Q V	.	.	.	.
4.933	0.1565	0.44	.Q V	.	.	.	.
4.950	0.1571	0.44	.Q V	.	.	.	.
4.967	0.1577	0.44	.Q V	.	.	.	.
4.983	0.1584	0.44	.Q V	.	.	.	.
5.000	0.1590	0.44	.Q V	.	.	.	.
5.017	0.1596	0.44	.Q V	.	.	.	.
5.033	0.1602	0.44	.Q V	.	.	.	.
5.050	0.1608	0.44	.Q V	.	.	.	.
5.067	0.1614	0.44	.Q V	.	.	.	.
5.083	0.1620	0.44	.Q V	.	.	.	.
5.100	0.1626	0.44	.Q V	.	.	.	.
5.117	0.1632	0.44	.Q V	.	.	.	.
5.133	0.1638	0.44	.Q V	.	.	.	.
5.150	0.1644	0.44	.Q V	.	.	.	.
5.167	0.1650	0.44	.Q V	.	.	.	.
5.183	0.1656	0.44	.Q V	.	.	.	.
5.200	0.1663	0.44	.Q V	.	.	.	.
5.217	0.1669	0.44	.Q V	.	.	.	.
5.233	0.1675	0.44	.Q V	.	.	.	.
5.250	0.1681	0.44	.Q V	.	.	.	.
5.267	0.1687	0.44	.Q V	.	.	.	.
5.283	0.1693	0.44	.Q V	.	.	.	.
5.300	0.1699	0.44	.Q V	.	.	.	.
5.317	0.1705	0.45	.Q V	.	.	.	.
5.333	0.1711	0.45	.Q V	.	.	.	.
5.350	0.1718	0.45	.Q V	.	.	.	.
5.367	0.1724	0.45	.Q V	.	.	.	.
5.383	0.1730	0.45	.Q V	.	.	.	.
5.400	0.1736	0.45	.Q V	.	.	.	.
5.417	0.1742	0.45	.Q V	.	.	.	.

5.433	0.1748	0.45	.Q	V	.	.	.	.
5.450	0.1755	0.45	.Q	V	.	.	.	.
5.467	0.1761	0.45	.Q	V	.	.	.	.
5.483	0.1767	0.45	.Q	V	.	.	.	.
5.500	0.1773	0.45	.Q	V	.	.	.	.
5.517	0.1779	0.45	.Q	V	.	.	.	.
5.533	0.1786	0.45	.Q	V	.	.	.	.
5.550	0.1792	0.45	.Q	V	.	.	.	.
5.567	0.1798	0.45	.Q	V	.	.	.	.
5.583	0.1804	0.45	.Q	V	.	.	.	.
5.600	0.1810	0.45	.Q	V	.	.	.	.
5.617	0.1817	0.45	.Q	V	.	.	.	.
5.633	0.1823	0.45	.Q	V	.	.	.	.
5.650	0.1829	0.45	.Q	V	.	.	.	.
5.667	0.1835	0.45	.Q	V	.	.	.	.
5.683	0.1842	0.45	.Q	V	.	.	.	.
5.700	0.1848	0.45	.Q	V	.	.	.	.
5.717	0.1854	0.45	.Q	V	.	.	.	.
5.733	0.1860	0.45	.Q	V	.	.	.	.
5.750	0.1867	0.45	.Q	V	.	.	.	.
5.767	0.1873	0.45	.Q	V	.	.	.	.
5.783	0.1879	0.46	.Q	V	.	.	.	.
5.800	0.1885	0.46	.Q	V	.	.	.	.
5.817	0.1892	0.46	.Q	V	.	.	.	.
5.833	0.1898	0.46	.Q	V	.	.	.	.
5.850	0.1904	0.46	.Q	V	.	.	.	.
5.867	0.1911	0.46	.Q	V	.	.	.	.
5.883	0.1917	0.46	.Q	V	.	.	.	.
5.900	0.1923	0.46	.Q	V	.	.	.	.
5.917	0.1930	0.46	.Q	V	.	.	.	.
5.933	0.1936	0.46	.Q	V	.	.	.	.
5.950	0.1942	0.46	.Q	V	.	.	.	.
5.967	0.1948	0.46	.Q	V	.	.	.	.
5.983	0.1955	0.46	.Q	V	.	.	.	.
6.000	0.1961	0.46	.Q	V	.	.	.	.
6.017	0.1968	0.46	.Q	V	.	.	.	.
6.033	0.1974	0.46	.Q	V	.	.	.	.
6.050	0.1980	0.46	.Q	V	.	.	.	.
6.067	0.1987	0.46	.Q	V	.	.	.	.
6.083	0.1993	0.46	.Q	V	.	.	.	.
6.100	0.1999	0.46	.Q	V	.	.	.	.
6.117	0.2006	0.46	.Q	V	.	.	.	.
6.133	0.2012	0.46	.Q	V	.	.	.	.
6.150	0.2018	0.46	.Q	V	.	.	.	.
6.167	0.2025	0.46	.Q	V	.	.	.	.
6.183	0.2031	0.46	.Q	V	.	.	.	.
6.200	0.2038	0.46	.Q	V	.	.	.	.
6.217	0.2044	0.47	.Q	V	.	.	.	.
6.233	0.2050	0.47	.Q	V	.	.	.	.
6.250	0.2057	0.47	.Q	V	.	.	.	.
6.267	0.2063	0.47	.Q	V	.	.	.	.
6.283	0.2070	0.47	.Q	V	.	.	.	.
6.300	0.2076	0.47	.Q	V	.	.	.	.
6.317	0.2083	0.47	.Q	V	.	.	.	.
6.333	0.2089	0.47	.Q	V	.	.	.	.
6.350	0.2096	0.47	.Q	V	.	.	.	.
6.367	0.2102	0.47	.Q	V	.	.	.	.
6.383	0.2108	0.47	.Q	V	.	.	.	.
6.400	0.2115	0.47	.Q	V	.	.	.	.
6.417	0.2121	0.47	.Q	V	.	.	.	.
6.433	0.2128	0.47	.Q	V	.	.	.	.
6.450	0.2134	0.47	.Q	V	.	.	.	.
6.467	0.2141	0.47	.Q	V	.	.	.	.
6.483	0.2147	0.47	.Q	V	.	.	.	.
6.500	0.2154	0.47	.Q	V	.	.	.	.
6.517	0.2160	0.47	.Q	V	.	.	.	.
6.533	0.2167	0.47	.Q	V	.	.	.	.
6.550	0.2173	0.47	.Q	V	.	.	.	.
6.567	0.2180	0.47	.Q	V	.	.	.	.
6.583	0.2186	0.47	.Q	V	.	.	.	.
6.600	0.2193	0.47	.Q	V	.	.	.	.
6.617	0.2199	0.47	.Q	V	.	.	.	.
6.633	0.2206	0.48	.Q	V	.	.	.	.
6.650	0.2213	0.48	.Q	V	.	.	.	.
6.667	0.2219	0.48	.Q	V	.	.	.	.
6.683	0.2226	0.48	.Q	V	.	.	.	.
6.700	0.2232	0.48	.Q	V	.	.	.	.
6.717	0.2239	0.48	.Q	V	.	.	.	.
6.733	0.2245	0.48	.Q	V	.	.	.	.
6.750	0.2252	0.48	.Q	V	.	.	.	.
6.767	0.2259	0.48	.Q	V	.	.	.	.
6.783	0.2265	0.48	.Q	V	.	.	.	.
6.800	0.2272	0.48	.Q	V	.	.	.	.
6.817	0.2279	0.48	.Q	V	.	.	.	.
6.833	0.2285	0.48	.Q	V	.	.	.	.
6.850	0.2292	0.48	.Q	V	.	.	.	.
6.867	0.2298	0.48	.Q	V	.	.	.	.
6.883	0.2305	0.48	.Q	V	.	.	.	.
6.900	0.2312	0.48	.Q	V	.	.	.	.
6.917	0.2318	0.48	.Q	V	.	.	.	.
6.933	0.2325	0.48	.Q	V	.	.	.	.
6.950	0.2332	0.48	.Q	V	.	.	.	.
6.967	0.2338	0.48	.Q	V	.	.	.	.
6.983	0.2345	0.48	.Q	V	.	.	.	.
7.000	0.2352	0.48	.Q	V	.	.	.	.
7.017	0.2358	0.48	.Q	V	.	.	.	.
7.033	0.2365	0.49	.Q	V	.	.	.	.
7.050	0.2372	0.49	.Q	V	.	.	.	.
7.067	0.2378	0.49	.Q	V	.	.	.	.
7.083	0.2385	0.49	.Q	V	.	.	.	.

7.100	0.2392	0.49	.Q	V	.	.	.	.
7.117	0.2399	0.49	.Q	V	.	.	.	.
7.133	0.2405	0.49	.Q	V	.	.	.	.
7.150	0.2412	0.49	.Q	V	.	.	.	.
7.167	0.2419	0.49	.Q	V	.	.	.	.
7.183	0.2426	0.49	.Q	V	.	.	.	.
7.200	0.2432	0.49	.Q	V	.	.	.	.
7.217	0.2439	0.49	.Q	V	.	.	.	.
7.233	0.2446	0.49	.Q	V	.	.	.	.
7.250	0.2453	0.49	.Q	V	.	.	.	.
7.267	0.2459	0.49	.Q	V	.	.	.	.
7.283	0.2466	0.49	.Q	V	.	.	.	.
7.300	0.2473	0.49	.Q	V	.	.	.	.
7.317	0.2480	0.49	.Q	V	.	.	.	.
7.333	0.2487	0.49	.Q	V	.	.	.	.
7.350	0.2493	0.49	.Q	V	.	.	.	.
7.367	0.2500	0.49	.Q	V	.	.	.	.
7.383	0.2507	0.49	.Q	V	.	.	.	.
7.400	0.2514	0.50	.Q	V	.	.	.	.
7.417	0.2521	0.50	.Q	V	.	.	.	.
7.433	0.2528	0.50	.Q	V	.	.	.	.
7.450	0.2534	0.50	.Q	V	.	.	.	.
7.467	0.2541	0.50	.Q	V	.	.	.	.
7.483	0.2548	0.50	.Q	V	.	.	.	.
7.500	0.2555	0.50	.Q	V	.	.	.	.
7.517	0.2562	0.50	.Q	V	.	.	.	.
7.533	0.2569	0.50	.Q	V	.	.	.	.
7.550	0.2576	0.50	.Q	V	.	.	.	.
7.567	0.2583	0.50	.Q	V	.	.	.	.
7.583	0.2589	0.50	.Q	V	.	.	.	.
7.600	0.2596	0.50	.Q	V	.	.	.	.
7.617	0.2603	0.50	.Q	V	.	.	.	.
7.633	0.2610	0.50	.Q	V	.	.	.	.
7.650	0.2617	0.50	.Q	V	.	.	.	.
7.667	0.2624	0.50	.Q	V	.	.	.	.
7.683	0.2631	0.50	.Q	V	.	.	.	.
7.700	0.2638	0.51	.Q	V	.	.	.	.
7.717	0.2645	0.51	.Q	V	.	.	.	.
7.733	0.2652	0.51	.Q	V	.	.	.	.
7.750	0.2659	0.51	.Q	V	.	.	.	.
7.767	0.2666	0.51	.Q	V	.	.	.	.
7.783	0.2673	0.51	.Q	V	.	.	.	.
7.800	0.2680	0.51	.Q	V	.	.	.	.
7.817	0.2687	0.51	.Q	V	.	.	.	.
7.833	0.2694	0.51	.Q	V	.	.	.	.
7.850	0.2701	0.51	.Q	V	.	.	.	.
7.867	0.2708	0.51	.Q	V	.	.	.	.
7.883	0.2715	0.51	.Q	V	.	.	.	.
7.900	0.2722	0.51	.Q	V	.	.	.	.
7.917	0.2729	0.51	.Q	V	.	.	.	.
7.933	0.2736	0.51	.Q	V	.	.	.	.
7.950	0.2743	0.51	.Q	V	.	.	.	.
7.967	0.2750	0.51	.Q	V	.	.	.	.
7.983	0.2757	0.51	.Q	V	.	.	.	.
8.000	0.2764	0.51	.Q	V	.	.	.	.
8.017	0.2771	0.52	.Q	V	.	.	.	.
8.033	0.2779	0.52	.Q	V	.	.	.	.
8.050	0.2786	0.52	.Q	V	.	.	.	.
8.067	0.2793	0.52	.Q	V	.	.	.	.
8.083	0.2800	0.52	.Q	V	.	.	.	.
8.100	0.2807	0.52	.Q	V	.	.	.	.
8.117	0.2814	0.52	.Q	V	.	.	.	.
8.133	0.2821	0.52	.Q	V	.	.	.	.
8.150	0.2828	0.52	.Q	V	.	.	.	.
8.167	0.2836	0.52	.Q	V	.	.	.	.
8.183	0.2843	0.52	.Q	V	.	.	.	.
8.200	0.2850	0.52	.Q	V	.	.	.	.
8.217	0.2857	0.52	.Q	V	.	.	.	.
8.233	0.2864	0.52	.Q	V	.	.	.	.
8.250	0.2871	0.52	.Q	V	.	.	.	.
8.267	0.2879	0.52	.Q	V	.	.	.	.
8.283	0.2886	0.52	.Q	V	.	.	.	.
8.300	0.2893	0.52	.Q	V	.	.	.	.
8.317	0.2900	0.52	.Q	V	.	.	.	.
8.333	0.2907	0.52	.Q	V	.	.	.	.
8.350	0.2915	0.53	.Q	V	.	.	.	.
8.367	0.2922	0.53	.Q	V	.	.	.	.
8.383	0.2929	0.53	.Q	V	.	.	.	.
8.400	0.2936	0.53	.Q	V	.	.	.	.
8.417	0.2944	0.53	.Q	V	.	.	.	.
8.433	0.2951	0.53	.Q	V	.	.	.	.
8.450	0.2958	0.53	.Q	V	.	.	.	.
8.467	0.2966	0.53	.Q	V	.	.	.	.
8.483	0.2973	0.53	.Q	V	.	.	.	.
8.500	0.2980	0.53	.Q	V	.	.	.	.
8.517	0.2988	0.53	.Q	V	.	.	.	.
8.533	0.2995	0.53	.Q	V	.	.	.	.
8.550	0.3002	0.53	.Q	V	.	.	.	.
8.567	0.3010	0.53	.Q	V	.	.	.	.
8.583	0.3017	0.53	.Q	V	.	.	.	.
8.600	0.3024	0.53	.Q	V	.	.	.	.
8.617	0.3032	0.53	.Q	V	.	.	.	.
8.633	0.3039	0.53	.Q	V	.	.	.	.
8.650	0.3046	0.54	.Q	V	.	.	.	.
8.667	0.3054	0.54	.Q	V	.	.	.	.
8.683	0.3061	0.54	.Q	V	.	.	.	.
8.700	0.3069	0.54	.Q	V	.	.	.	.
8.717	0.3076	0.54	.Q	V	.	.	.	.
8.733	0.3083	0.54	.Q	V	.	.	.	.
8.750	0.3091	0.54	.Q	V	.	.	.	.

8.767	0.3098	0.54	.Q	V	.	.	.	.
8.783	0.3106	0.54	.Q	V	.	.	.	.
8.800	0.3113	0.54	.Q	V	.	.	.	.
8.817	0.3121	0.54	.Q	V	.	.	.	.
8.833	0.3128	0.54	.Q	V	.	.	.	.
8.850	0.3136	0.54	.Q	V	.	.	.	.
8.867	0.3143	0.54	.Q	V	.	.	.	.
8.883	0.3151	0.55	.Q	V	.	.	.	.
8.900	0.3158	0.55	.Q	V	.	.	.	.
8.917	0.3166	0.55	.Q	V	.	.	.	.
8.933	0.3173	0.55	.Q	V	.	.	.	.
8.950	0.3181	0.55	.Q	V	.	.	.	.
8.967	0.3188	0.55	.Q	V	.	.	.	.
8.983	0.3196	0.55	.Q	V	.	.	.	.
9.000	0.3204	0.55	.Q	V	.	.	.	.
9.017	0.3211	0.55	.Q	V	.	.	.	.
9.033	0.3219	0.55	.Q	V	.	.	.	.
9.050	0.3226	0.55	.Q	V	.	.	.	.
9.067	0.3234	0.55	.Q	V	.	.	.	.
9.083	0.3241	0.55	.Q	V	.	.	.	.
9.100	0.3249	0.55	.Q	V	.	.	.	.
9.117	0.3257	0.55	.Q	V	.	.	.	.
9.133	0.3264	0.55	.Q	V	.	.	.	.
9.150	0.3272	0.55	.Q	V	.	.	.	.
9.167	0.3280	0.55	.Q	V	.	.	.	.
9.183	0.3287	0.56	.Q	V	.	.	.	.
9.200	0.3295	0.56	.Q	V	.	.	.	.
9.217	0.3303	0.56	.Q	V	.	.	.	.
9.233	0.3310	0.56	.Q	V	.	.	.	.
9.250	0.3318	0.56	.Q	V	.	.	.	.
9.267	0.3326	0.56	.Q	V	.	.	.	.
9.283	0.3333	0.56	.Q	V	.	.	.	.
9.300	0.3341	0.56	.Q	V	.	.	.	.
9.317	0.3349	0.56	.Q	V	.	.	.	.
9.333	0.3357	0.56	.Q	V	.	.	.	.
9.350	0.3364	0.56	.Q	V	.	.	.	.
9.367	0.3372	0.56	.Q	V	.	.	.	.
9.383	0.3380	0.57	.Q	V	.	.	.	.
9.400	0.3388	0.57	.Q	V	.	.	.	.
9.417	0.3396	0.57	.Q	V	.	.	.	.
9.433	0.3403	0.57	. Q	V	.	.	.	.
9.450	0.3411	0.57	. Q	V	.	.	.	.
9.467	0.3419	0.57	. Q	V	.	.	.	.
9.483	0.3427	0.57	. Q	V	.	.	.	.
9.500	0.3435	0.57	. Q	V	.	.	.	.
9.517	0.3443	0.57	. Q	V	.	.	.	.
9.533	0.3450	0.57	. Q	V	.	.	.	.
9.550	0.3458	0.57	. Q	V	.	.	.	.
9.567	0.3466	0.57	. Q	V	.	.	.	.
9.583	0.3474	0.57	. Q	V	.	.	.	.
9.600	0.3482	0.57	. Q	V	.	.	.	.
9.617	0.3490	0.57	. Q	V	.	.	.	.
9.633	0.3498	0.58	. Q	V	.	.	.	.
9.650	0.3506	0.58	. Q	V	.	.	.	.
9.667	0.3514	0.58	. Q	V	.	.	.	.
9.683	0.3522	0.58	. Q	V	.	.	.	.
9.700	0.3530	0.58	. Q	V	.	.	.	.
9.717	0.3538	0.58	. Q	V	.	.	.	.
9.733	0.3546	0.58	. Q	V	.	.	.	.
9.750	0.3554	0.58	. Q	V	.	.	.	.
9.767	0.3562	0.58	. Q	V	.	.	.	.
9.783	0.3570	0.58	. Q	V	.	.	.	.
9.800	0.3578	0.58	. Q	V	.	.	.	.
9.817	0.3586	0.58	. Q	V	.	.	.	.
9.833	0.3594	0.59	. Q	V	.	.	.	.
9.850	0.3602	0.59	. Q	V	.	.	.	.
9.867	0.3610	0.59	. Q	V	.	.	.	.
9.883	0.3618	0.59	. Q	V	.	.	.	.
9.900	0.3626	0.59	. Q	V	.	.	.	.
9.917	0.3634	0.59	. Q	V	.	.	.	.
9.933	0.3642	0.59	. Q	V	.	.	.	.
9.950	0.3650	0.59	. Q	V	.	.	.	.
9.967	0.3659	0.59	. Q	V	.	.	.	.
9.983	0.3667	0.59	. Q	V	.	.	.	.
10.000	0.3675	0.59	. Q	V	.	.	.	.
10.017	0.3683	0.59	. Q	V	.	.	.	.
10.033	0.3691	0.59	. Q	V	.	.	.	.
10.050	0.3699	0.59	. Q	V	.	.	.	.
10.067	0.3708	0.60	. Q	V	.	.	.	.
10.083	0.3716	0.60	. Q	V	.	.	.	.
10.100	0.3724	0.60	. Q	V	.	.	.	.
10.117	0.3732	0.60	. Q	V	.	.	.	.
10.133	0.3740	0.60	. Q	V	.	.	.	.
10.150	0.3749	0.60	. Q	V	.	.	.	.
10.167	0.3757	0.60	. Q	V	.	.	.	.
10.183	0.3765	0.60	. Q	V	.	.	.	.
10.200	0.3774	0.60	. Q	V	.	.	.	.
10.217	0.3782	0.60	. Q	V	.	.	.	.
10.233	0.3790	0.61	. Q	V	.	.	.	.
10.250	0.3799	0.61	. Q	V	.	.	.	.
10.267	0.3807	0.61	. Q	V	.	.	.	.
10.283	0.3815	0.61	. Q	V	.	.	.	.
10.300	0.3824	0.61	. Q	V	.	.	.	.
10.317	0.3832	0.61	. Q	V	.	.	.	.
10.333	0.3841	0.61	. Q	V	.	.	.	.
10.350	0.3849	0.61	. Q	V	.	.	.	.
10.367	0.3857	0.61	. Q	V	.	.	.	.
10.383	0.3866	0.61	. Q	V	.	.	.	.
10.400	0.3874	0.61	. Q	V	.	.	.	.
10.417	0.3883	0.61	. Q	V	.	.	.	.

10.433	0.3891	0.61	. Q	V.	.	.	.
10.450	0.3899	0.61	. Q	V.	.	.	.
10.467	0.3908	0.62	. Q	V.	.	.	.
10.483	0.3916	0.62	. Q	V	.	.	.
10.500	0.3925	0.62	. Q	V	.	.	.
10.517	0.3933	0.62	. Q	V	.	.	.
10.533	0.3942	0.62	. Q	V	.	.	.
10.550	0.3951	0.62	. Q	V	.	.	.
10.567	0.3959	0.62	. Q	V	.	.	.
10.583	0.3968	0.62	. Q	V	.	.	.
10.600	0.3976	0.63	. Q	V	.	.	.
10.617	0.3985	0.63	. Q	V	.	.	.
10.633	0.3994	0.63	. Q	V	.	.	.
10.650	0.4002	0.63	. Q	V	.	.	.
10.667	0.4011	0.63	. Q	V	.	.	.
10.683	0.4020	0.63	. Q	V	.	.	.
10.700	0.4028	0.63	. Q	V	.	.	.
10.717	0.4037	0.63	. Q	V	.	.	.
10.733	0.4046	0.63	. Q	V	.	.	.
10.750	0.4054	0.63	. Q	V	.	.	.
10.767	0.4063	0.63	. Q	V	.	.	.
10.783	0.4072	0.63	. Q	V	.	.	.
10.800	0.4081	0.63	. Q	V	.	.	.
10.817	0.4089	0.63	. Q	V	.	.	.
10.833	0.4098	0.64	. Q	V	.	.	.
10.850	0.4107	0.64	. Q	V	.	.	.
10.867	0.4116	0.64	. Q	V	.	.	.
10.883	0.4124	0.64	. Q	V	.	.	.
10.900	0.4133	0.64	. Q	V	.	.	.
10.917	0.4142	0.64	. Q	V	.	.	.
10.933	0.4151	0.64	. Q	V	.	.	.
10.950	0.4160	0.64	. Q	V	.	.	.
10.967	0.4169	0.65	. Q	V	.	.	.
10.983	0.4178	0.65	. Q	V	.	.	.
11.000	0.4187	0.65	. Q	V	.	.	.
11.017	0.4196	0.65	. Q	V	.	.	.
11.033	0.4205	0.65	. Q	V	.	.	.
11.050	0.4214	0.65	. Q	V	.	.	.
11.067	0.4223	0.65	. Q	V	.	.	.
11.083	0.4232	0.65	. Q	V	.	.	.
11.100	0.4241	0.66	. Q	V	.	.	.
11.117	0.4250	0.66	. Q	V	.	.	.
11.133	0.4259	0.66	. Q	V	.	.	.
11.150	0.4268	0.66	. Q	V	.	.	.
11.167	0.4277	0.66	. Q	V	.	.	.
11.183	0.4286	0.66	. Q	V	.	.	.
11.200	0.4295	0.66	. Q	V	.	.	.
11.217	0.4304	0.66	. Q	.V	.	.	.
11.233	0.4313	0.66	. Q	.V	.	.	.
11.250	0.4322	0.66	. Q	.V	.	.	.
11.267	0.4331	0.66	. Q	.V	.	.	.
11.283	0.4341	0.66	. Q	.V	.	.	.
11.300	0.4350	0.67	. Q	.V	.	.	.
11.317	0.4359	0.67	. Q	.V	.	.	.
11.333	0.4368	0.67	. Q	.V	.	.	.
11.350	0.4377	0.67	. Q	.V	.	.	.
11.367	0.4387	0.67	. Q	.V	.	.	.
11.383	0.4396	0.67	. Q	.V	.	.	.
11.400	0.4405	0.68	. Q	.V	.	.	.
11.417	0.4415	0.68	. Q	.V	.	.	.
11.433	0.4424	0.68	. Q	.V	.	.	.
11.450	0.4433	0.68	. Q	.V	.	.	.
11.467	0.4443	0.68	. Q	.V	.	.	.
11.483	0.4452	0.68	. Q	.V	.	.	.
11.500	0.4461	0.68	. Q	.V	.	.	.
11.517	0.4471	0.69	. Q	.V	.	.	.
11.533	0.4480	0.69	. Q	.V	.	.	.
11.550	0.4490	0.69	. Q	.V	.	.	.
11.567	0.4499	0.69	. Q	.V	.	.	.
11.583	0.4509	0.69	. Q	.V	.	.	.
11.600	0.4518	0.69	. Q	.V	.	.	.
11.617	0.4528	0.69	. Q	.V	.	.	.
11.633	0.4537	0.69	. Q	.V	.	.	.
11.650	0.4547	0.69	. Q	.V	.	.	.
11.667	0.4556	0.69	. Q	.V	.	.	.
11.683	0.4566	0.69	. Q	.V	.	.	.
11.700	0.4575	0.69	. Q	.V	.	.	.
11.717	0.4585	0.70	. Q	.V	.	.	.
11.733	0.4595	0.70	. Q	.V	.	.	.
11.750	0.4604	0.70	. Q	.V	.	.	.
11.767	0.4614	0.70	. Q	.V	.	.	.
11.783	0.4624	0.70	. Q	.V	.	.	.
11.800	0.4633	0.70	. Q	.V	.	.	.
11.817	0.4643	0.71	. Q	.V	.	.	.
11.833	0.4653	0.71	. Q	.V	.	.	.
11.850	0.4663	0.71	. Q	.V	.	.	.
11.867	0.4672	0.71	. Q	.V	.	.	.
11.883	0.4682	0.71	. Q	.V	.	.	.
11.900	0.4692	0.72	. Q	.V	.	.	.
11.917	0.4702	0.72	. Q	. V	.	.	.
11.933	0.4712	0.72	. Q	. V	.	.	.
11.950	0.4722	0.72	. Q	. V	.	.	.
11.967	0.4732	0.72	. Q	. V	.	.	.
11.983	0.4742	0.72	. Q	. V	.	.	.
12.000	0.4752	0.72	. Q	. V	.	.	.
12.017	0.4762	0.72	. Q	. V	.	.	.
12.033	0.4772	0.72	. Q	. V	.	.	.
12.050	0.4782	0.73	. Q	. V	.	.	.
12.067	0.4792	0.73	. Q	. V	.	.	.
12.083	0.4802	0.73	. Q	. V	.	.	.

12.100	0.4812	0.73	. Q	. V	.	.	.
12.117	0.4822	0.73	. Q	. V	.	.	.
12.133	0.4832	0.73	. Q	. V	.	.	.
12.150	0.4842	0.73	. Q	. V	.	.	.
12.167	0.4852	0.73	. Q	. V	.	.	.
12.183	0.4862	0.73	. Q	. V	.	.	.
12.200	0.4872	0.73	. Q	. V	.	.	.
12.217	0.4882	0.73	. Q	. V	.	.	.
12.233	0.4892	0.73	. Q	. V	.	.	.
12.250	0.4902	0.73	. Q	. V	.	.	.
12.267	0.4912	0.73	. Q	. V	.	.	.
12.283	0.4922	0.73	. Q	. V	.	.	.
12.300	0.4932	0.73	. Q	. V	.	.	.
12.317	0.4942	0.73	. Q	. V	.	.	.
12.333	0.4952	0.73	. Q	. V	.	.	.
12.350	0.4963	0.73	. Q	. V	.	.	.
12.367	0.4973	0.73	. Q	. V	.	.	.
12.383	0.4983	0.73	. Q	. V	.	.	.
12.400	0.4993	0.73	. Q	. V	.	.	.
12.417	0.5003	0.73	. Q	. V	.	.	.
12.433	0.5013	0.74	. Q	. V	.	.	.
12.450	0.5023	0.74	. Q	. V	.	.	.
12.467	0.5033	0.74	. Q	. V	.	.	.
12.483	0.5043	0.74	. Q	. V	.	.	.
12.500	0.5054	0.74	. Q	. V	.	.	.
12.517	0.5064	0.74	. Q	. V	.	.	.
12.533	0.5074	0.74	. Q	. V	.	.	.
12.550	0.5084	0.74	. Q	. V	.	.	.
12.567	0.5095	0.74	. Q	. V	.	.	.
12.583	0.5105	0.75	. Q	. V	.	.	.
12.600	0.5115	0.75	. Q	. V	.	.	.
12.617	0.5126	0.75	. Q	. V	.	.	.
12.633	0.5136	0.75	. Q	. V	.	.	.
12.650	0.5146	0.76	. Q	. V	.	.	.
12.667	0.5157	0.76	. Q	. V	.	.	.
12.683	0.5167	0.76	. Q	. V	.	.	.
12.700	0.5178	0.76	. Q	. V	.	.	.
12.717	0.5188	0.77	. Q	. V	.	.	.
12.733	0.5199	0.77	. Q	. V	.	.	.
12.750	0.5210	0.77	. Q	. V	.	.	.
12.767	0.5220	0.77	. Q	. V	.	.	.
12.783	0.5231	0.78	. Q	. V	.	.	.
12.800	0.5242	0.78	. Q	. V	.	.	.
12.817	0.5253	0.78	. Q	. V	.	.	.
12.833	0.5263	0.78	. Q	. V	.	.	.
12.850	0.5274	0.78	. Q	. V	.	.	.
12.867	0.5285	0.78	. Q	. V	.	.	.
12.883	0.5296	0.79	. Q	. V	.	.	.
12.900	0.5307	0.79	. Q	. V	.	.	.
12.917	0.5317	0.79	. Q	. V	.	.	.
12.933	0.5328	0.79	. Q	. V	.	.	.
12.950	0.5339	0.79	. Q	. V	.	.	.
12.967	0.5350	0.79	. Q	. V	.	.	.
12.983	0.5361	0.79	. Q	. V	.	.	.
13.000	0.5372	0.80	. Q	. V	.	.	.
13.017	0.5383	0.80	. Q	. V	.	.	.
13.033	0.5394	0.80	. Q	. V	.	.	.
13.050	0.5405	0.80	. Q	. V	.	.	.
13.067	0.5416	0.81	. Q	. V	.	.	.
13.083	0.5427	0.81	. Q	. V	.	.	.
13.100	0.5439	0.81	. Q	. V	.	.	.
13.117	0.5450	0.82	. Q	. V	.	.	.
13.133	0.5461	0.82	. Q	. V	.	.	.
13.150	0.5472	0.82	. Q	. V	.	.	.
13.167	0.5484	0.83	. Q	. V	.	.	.
13.183	0.5495	0.83	. Q	. V	.	.	.
13.200	0.5507	0.83	. Q	. V	.	.	.
13.217	0.5518	0.84	. Q	. V	.	.	.
13.233	0.5530	0.84	. Q	. V	.	.	.
13.250	0.5541	0.84	. Q	. V	.	.	.
13.267	0.5553	0.84	. Q	. V	.	.	.
13.283	0.5565	0.84	. Q	. V	.	.	.
13.300	0.5576	0.84	. Q	. V	.	.	.
13.317	0.5588	0.85	. Q	. V	.	.	.
13.333	0.5599	0.85	. Q	. V	.	.	.
13.350	0.5611	0.85	. Q	. V	.	.	.
13.367	0.5623	0.85	. Q	. V	.	.	.
13.383	0.5635	0.85	. Q	. V	.	.	.
13.400	0.5646	0.85	. Q	. V	.	.	.
13.417	0.5658	0.86	. Q	. V	.	.	.
13.433	0.5670	0.86	. Q	. V	.	.	.
13.450	0.5682	0.86	. Q	. V	.	.	.
13.467	0.5694	0.87	. Q	. V	.	.	.
13.483	0.5706	0.87	. Q	. V	.	.	.
13.500	0.5718	0.87	. Q	. V	.	.	.
13.517	0.5730	0.88	. Q	. V	.	.	.
13.533	0.5742	0.88	. Q	. V	.	.	.
13.550	0.5754	0.89	. Q	. V	.	.	.
13.567	0.5767	0.89	. Q	. V	.	.	.
13.583	0.5779	0.89	. Q	. V	.	.	.
13.600	0.5791	0.90	. Q	. V	.	.	.
13.617	0.5804	0.90	. Q	. V	.	.	.
13.633	0.5816	0.91	. Q	. V	.	.	.
13.650	0.5829	0.91	. Q	. V	.	.	.
13.667	0.5841	0.91	. Q	. V	.	.	.
13.683	0.5854	0.91	. Q	. V	.	.	.
13.700	0.5866	0.91	. Q	. V	.	.	.
13.717	0.5879	0.92	. Q	. V	.	.	.
13.733	0.5892	0.92	. Q	. V	.	.	.
13.750	0.5904	0.92	. Q	. V	.	.	.

13.767	0.5917	0.92	.	Q	.	V	.	.	.	
13.783	0.5930	0.93	.	Q	.	V	.	.	.	
13.800	0.5943	0.93	.	Q	.	V	.	.	.	
13.817	0.5955	0.93	.	Q	.	V	.	.	.	
13.833	0.5968	0.93	.	Q	.	V	.	.	.	
13.850	0.5981	0.93	.	Q	.	V	.	.	.	
13.867	0.5994	0.94	.	Q	.	V	.	.	.	
13.883	0.6007	0.94	.	Q	.	V	.	.	.	
13.900	0.6020	0.95	.	Q	.	V	.	.	.	
13.917	0.6033	0.95	.	Q	.	V	.	.	.	
13.933	0.6046	0.96	.	Q	.	V	.	.	.	
13.950	0.6060	0.96	.	Q	.	V	.	.	.	
13.967	0.6073	0.97	.	Q	.	V	.	.	.	
13.983	0.6086	0.97	.	Q	.	V	.	.	.	
14.000	0.6100	0.98	.	Q	.	V	.	.	.	
14.017	0.6114	0.98	.	Q	.	V	.	.	.	
14.033	0.6127	0.99	.	Q	.	V	.	.	.	
14.050	0.6141	0.99	.	Q	.	V	.	.	.	
14.067	0.6155	1.00	.	Q	.	V	.	.	.	
14.083	0.6168	1.00	.	Q	.	V	.	.	.	
14.100	0.6182	1.00	.	Q	.	V	.	.	.	
14.117	0.6196	1.00	.	Q	.	V	.	.	.	
14.133	0.6210	0.99	.	Q	.	V	.	.	.	
14.150	0.6223	0.99	.	Q	.	V	.	.	.	
14.167	0.6237	0.99	.	Q	.	V	.	.	.	
14.183	0.6250	0.99	.	Q	.	V	.	.	.	
14.200	0.6264	0.99	.	Q	.	V	.	.	.	
14.217	0.6278	0.98	.	Q	.	V	.	.	.	
14.233	0.6291	0.98	.	Q	.	V	.	.	.	
14.250	0.6305	0.98	.	Q	.	V	.	.	.	
14.267	0.6318	0.98	.	Q	.	V	.	.	.	
14.283	0.6331	0.97	.	Q	.	V	.	.	.	
14.300	0.6345	0.98	.	Q	.	V	.	.	.	
14.317	0.6358	0.99	.	Q	.	V	.	.	.	
14.333	0.6372	0.99	.	Q	.	V	.	.	.	
14.350	0.6386	1.00	.	Q	.	V	.	.	.	
14.367	0.6400	1.01	.	Q	.	V	.	.	.	
14.383	0.6414	1.01	.	Q	.	V	.	.	.	
14.400	0.6428	1.02	.	Q	.	V	.	.	.	
14.417	0.6442	1.03	.	Q	.	V	.	.	.	
14.433	0.6456	1.03	.	Q	.	V	.	.	.	
14.450	0.6470	1.04	.	Q	.	V	.	.	.	
14.467	0.6485	1.05	.	Q	.	V	.	.	.	
14.483	0.6499	1.05	.	Q	.	V	.	.	.	
14.500	0.6514	1.06	.	Q	.	V	.	.	.	
14.517	0.6529	1.06	.	Q	.	V	.	.	.	
14.533	0.6543	1.07	.	Q	.	V	.	.	.	
14.550	0.6558	1.07	.	Q	.	V	.	.	.	
14.567	0.6573	1.08	.	Q	.	V	.	.	.	
14.583	0.6588	1.08	.	Q	.	V	.	.	.	
14.600	0.6603	1.09	.	Q	.	V	.	.	.	
14.617	0.6618	1.09	.	Q	.	V	.	.	.	
14.633	0.6633	1.09	.	Q	.	V	.	.	.	
14.650	0.6648	1.10	.	Q	.	V	.	.	.	
14.667	0.6663	1.10	.	Q	.	V	.	.	.	
14.683	0.6678	1.11	.	Q	.	V	.	.	.	
14.700	0.6694	1.11	.	Q	.	V	.	.	.	
14.717	0.6709	1.12	.	Q	.	V	.	.	.	
14.733	0.6725	1.13	.	Q	.	V	.	.	.	
14.750	0.6740	1.14	.	Q	.	V	.	.	.	
14.767	0.6756	1.15	.	Q	.	V	.	.	.	
14.783	0.6772	1.16	.	Q	.	V	.	.	.	
14.800	0.6788	1.17	.	Q	.	V	.	.	.	
14.817	0.6805	1.18	.	Q	.	V	.	.	.	
14.833	0.6821	1.19	.	Q	.	V	.	.	.	
14.850	0.6837	1.20	.	Q	.	V	.	.	.	
14.867	0.6854	1.21	.	Q	.	V	.	.	.	
14.883	0.6871	1.22	.	Q	.	V	.	.	.	
14.900	0.6888	1.23	.	Q	.	V	.	.	.	
14.917	0.6905	1.25	.	Q	.	V	.	.	.	
14.933	0.6923	1.26	.	Q	.	V	.	.	.	
14.950	0.6940	1.26	.	Q	.	V	.	.	.	
14.967	0.6957	1.27	.	Q	.	V	.	.	.	
14.983	0.6975	1.28	.	Q	.	V	.	.	.	
15.000	0.6993	1.28	.	Q	.	V	.	.	.	
15.017	0.7010	1.29	.	Q	.	V	.	.	.	
15.033	0.7028	1.30	.	Q	.	V	.	.	.	
15.050	0.7046	1.31	.	Q	.	V	.	.	.	
15.067	0.7064	1.31	.	Q	.	V	.	.	.	
15.083	0.7083	1.32	.	Q	.	V	.	.	.	
15.100	0.7101	1.33	.	Q	.	V	.	.	.	
15.117	0.7119	1.33	.	Q	.	V	.	.	.	
15.133	0.7138	1.34	.	Q	.	V	.	.	.	
15.150	0.7156	1.35	.	Q	.	V	.	.	.	
15.167	0.7175	1.37	.	Q	.	V	.	.	.	
15.183	0.7194	1.39	.	Q	.	V	.	.	.	
15.200	0.7214	1.41	.	Q	.	V	.	.	.	
15.217	0.7233	1.43	.	Q	.	V	.	.	.	
15.233	0.7253	1.45	.	Q	.	V	.	.	.	
15.250	0.7274	1.47	.	Q	.	V	.	.	.	
15.267	0.7294	1.49	.	Q	.	V	.	.	.	
15.283	0.7315	1.51	.	Q	.	V	.	.	.	
15.300	0.7336	1.53	.	Q	.	V	.	.	.	
15.317	0.7357	1.55	.	Q	.	V	.	.	.	
15.333	0.7379	1.57	.	Q	.	V	.	.	.	
15.350	0.7401	1.59	.	Q	.	V	.	.	.	
15.367	0.7423	1.61	.	Q	.	V	.	.	.	
15.383	0.7446	1.67	.	Q	.	V	.	.	.	
15.400	0.7469	1.72	.	Q	.	V	.	.	.	
15.417	0.7494	1.77	.	Q	.	V	.	.	.	

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15.433    0.7519    1.82  .    Q   .       V.        .        .
15.450    0.7545    1.87  .    Q   .       V.        .        .
15.467    0.7571    1.92  .    Q   .       V.        .        .
15.483    0.7598    1.98  .    Q   .       V.        .        .
15.500    0.7626    2.03  .     Q  .       V.        .        .
15.517    0.7655    2.08  .     Q  .       V.        .        .
15.533    0.7684    2.13  .     Q  .       V.        .        .
15.550    0.7714    2.18  .     Q  .       V.        .        .
15.567    0.7745    2.23  .     Q  .       V.        .        .
15.583    0.7777    2.30  .      Q .       V.        .        .
15.600    0.7810    2.38  .      Q .       V.        .        .
15.617    0.7844    2.47  .      Q .        V        .        .
15.633    0.7879    2.55  .       Q.        V        .        .
15.650    0.7915    2.64  .       Q.        V        .        .
15.667    0.7953    2.72  .       Q.        V        .        .
15.683    0.7991    2.81  .       Q.        V        .        .
15.700    0.8031    2.89  .        Q        V        .        .
15.717    0.8072    2.98  .        Q        V        .        .
15.733    0.8114    3.06  .        Q        V        .        .
15.750    0.8158    3.15  .        .Q       V        .        .
15.767    0.8202    3.24  .        .Q       V        .        .
15.783    0.8248    3.32  .        .Q       .V       .        .
15.800    0.8295    3.40  .        .Q       .V       .        .
15.817    0.8343    3.47  .        . Q      .V       .        .
15.833    0.8391    3.53  .        . Q      .V       .        .
15.850    0.8441    3.60  .        . Q      .V       .        .
15.867    0.8491    3.67  .        . Q      .V       .        .
15.883    0.8543    3.73  .        .  Q     .V       .        .
15.900    0.8595    3.80  .        .  Q     .V       .        .
15.917    0.8648    3.87  .        .  Q     . V      .        .
15.933    0.8703    3.93  .        .  Q     . V      .        .
15.950    0.8758    4.00  .        .   Q    . V      .        .
15.967    0.8814    4.07  .        .   Q    . V      .        .
15.983    0.8871    4.14  .        .   Q    . V      .        .
16.000    0.8929    4.20  .        .   Q    . V      .        .
16.017    0.8991    4.51  .        .    Q   . V      .        .
16.033    0.9060    5.06  .        .     Q  .  V     .        .
16.050    0.9138    5.61  .        .       Q.  V     .        .
16.067    0.9223    6.16  .        .        .Q V     .        .
16.083    0.9315    6.71  .        .         .  Q     .        .
16.100    0.9415    7.26  .        .         .   VQ   .        .
16.117    0.9523    7.81  .        .         .   V  Q .        .
16.133    0.9638    8.36  .        .         .   V    Q.      .
16.150    0.9761    8.91  .        .         .   V     .Q     .
16.167    0.9891    9.46  .        .         .    V    .  Q   .
16.183    1.0029   10.01  .        .         .    V    .    Q .
16.200    1.0174   10.56  .        .         .     V   .      Q.
16.217    1.0330   11.34  .        .         .     V   .       Q
16.233    1.0481   10.95  .        .         .     V   .      Q .
16.250    1.0623   10.30  .        .         .      V  .    Q   .
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16.267    1.0756    9.65  .        .         .     V  .   Q     .
16.283    1.0880    8.99  .        .         .     V  .Q        .
16.300    1.0995    8.34  .        .         .      VQ.         .
16.317    1.1101    7.69  .        .         .     QV .         .
16.333    1.1198    7.03  .        .         .   Q  V .         .
16.350    1.1285    6.38  .        .         . Q    V .         .
16.367    1.1364    5.73  .        .         Q      V.          .
16.383    1.1434    5.08  .        .      Q  .      V.          .
16.400    1.1495    4.42  .        .    Q    .      V.          .
16.417    1.1547    3.77  .        .  Q      .      V.          .
16.433    1.1590    3.12  .        .Q        .      V.          .
16.450    1.1629    2.83  .       Q.         .      V.          .
16.467    1.1667    2.72  .       Q.         .      V.          .
16.483    1.1702    2.61  .       Q.         .      V.          .
16.500    1.1737    2.49  .      Q .         .       V          .
16.517    1.1770    2.38  .      Q .         .       V          .
16.533    1.1801    2.27  .      Q .         .       V          .
16.550    1.1831    2.16  .     Q  .         .       V          .
16.567    1.1859    2.05  .     Q  .         .       V          .
16.583    1.1885    1.93  .    Q   .         .       V          .
16.600    1.1910    1.82  .    Q   .         .       V          .
16.617    1.1934    1.71  .    Q   .         .       V          .
16.633    1.1956    1.60  .   Q    .         .       V          .
16.650    1.1977    1.49  .   Q    .         .       V          .
16.667    1.1996    1.44  .   Q    .         .       V          .
16.683    1.2016    1.42  .   Q    .         .       V          .
16.700    1.2035    1.40  .  Q     .         .       V          .
16.717    1.2054    1.38  .  Q     .         .       V          .
16.733    1.2073    1.36  .  Q     .         .       V          .
16.750    1.2091    1.33  .  Q     .         .       V          .
16.767    1.2109    1.31  .  Q     .         .       V          .
16.783    1.2127    1.29  .  Q     .         .       .V         .
16.800    1.2145    1.27  .  Q     .         .       .V         .
16.817    1.2162    1.25  .  Q     .         .       .V         .
16.833    1.2179    1.23  .  Q     .         .       .V         .
16.850    1.2195    1.20  .  Q     .         .       .V         .
16.867    1.2212    1.18  .  Q     .         .       .V         .
16.883    1.2228    1.17  .  Q     .         .       .V         .
16.900    1.2244    1.16  .  Q     .         .       .V         .
16.917    1.2259    1.14  .  Q     .         .       .V         .
16.933    1.2275    1.13  . Q      .         .       .V         .
16.950    1.2290    1.12  . Q      .         .       .V         .
16.967    1.2306    1.10  . Q      .         .       .V         .
16.983    1.2321    1.09  . Q      .         .       .V         .
17.000    1.2335    1.08  . Q      .         .       .V         .
17.017    1.2350    1.07  . Q      .         .       .V         .
17.033    1.2365    1.05  . Q      .         .       .V         .
17.050    1.2379    1.04  . Q      .         .       .V         .
17.067    1.2393    1.03  . Q      .         .       .V         .
17.083    1.2407    1.01  . Q      .         .       .V         .
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17.100	1.2421	1.01	.	Q	.	.	.V	.
17.117	1.2435	1.01	.	Q	.	.	.V	.
17.133	1.2449	1.00	.	Q	.	.	.V	.
17.150	1.2462	1.00	.	Q	.	.	.V	.
17.167	1.2476	1.00	.	Q	.	.	.V	.
17.183	1.2490	0.99	.	Q	.	.	.V	.
17.200	1.2503	0.99	.	Q	.	.	.V	.
17.217	1.2517	0.98	.	Q	.	.	. V	.
17.233	1.2530	0.98	.	Q	.	.	. V	.
17.250	1.2544	0.98	.	Q	.	.	. V	.
17.267	1.2557	0.97	.	Q	.	.	. V	.
17.283	1.2571	0.97	.	Q	.	.	. V	.
17.300	1.2584	0.97	.	Q	.	.	. V	.
17.317	1.2597	0.96	.	Q	.	.	. V	.
17.333	1.2610	0.95	.	Q	.	.	. V	.
17.350	1.2623	0.95	.	Q	.	.	. V	.
17.367	1.2636	0.94	.	Q	.	.	. V	.
17.383	1.2649	0.93	.	Q	.	.	. V	.
17.400	1.2662	0.93	.	Q	.	.	. V	.
17.417	1.2674	0.92	.	Q	.	.	. V	.
17.433	1.2687	0.91	.	Q	.	.	. V	.
17.450	1.2700	0.91	.	Q	.	.	. V	.
17.467	1.2712	0.90	.	Q	.	.	. V	.
17.483	1.2724	0.89	.	Q	.	.	. V	.
17.500	1.2736	0.89	.	Q	.	.	. V	.
17.517	1.2749	0.88	.	Q	.	.	. V	.
17.533	1.2761	0.88	.	Q	.	.	. V	.
17.550	1.2773	0.87	.	Q	.	.	. V	.
17.567	1.2785	0.86	.	Q	.	.	. V	.
17.583	1.2796	0.86	.	Q	.	.	. V	.
17.600	1.2808	0.85	.	Q	.	.	. V	.
17.617	1.2820	0.85	.	Q	.	.	. V	.
17.633	1.2831	0.84	.	Q	.	.	. V	.
17.650	1.2843	0.84	.	Q	.	.	. V	.
17.667	1.2855	0.83	.	Q	.	.	. V	.
17.683	1.2866	0.83	.	Q	.	.	. V	.
17.700	1.2877	0.82	.	Q	.	.	. V	.
17.717	1.2889	0.82	.	Q	.	.	. V	.
17.733	1.2900	0.81	.	Q	.	.	. V	.
17.750	1.2911	0.81	.	Q	.	.	. V	.
17.767	1.2922	0.80	.	Q	.	.	. V	.
17.783	1.2933	0.80	.	Q	.	.	. V	.
17.800	1.2944	0.80	.	Q	.	.	. V	.
17.817	1.2955	0.79	.	Q	.	.	. V	.
17.833	1.2966	0.79	.	Q	.	.	. V	.
17.850	1.2977	0.78	.	Q	.	.	. V	.
17.867	1.2987	0.78	.	Q	.	.	. V	.
17.883	1.2998	0.78	.	Q	.	.	. V	.
17.900	1.3009	0.77	.	Q	.	.	. V	.
17.917	1.3019	0.77	.	Q	.	.	. V	.
17.933	1.3030	0.76	.	Q	.	.	. V	.
17.950	1.3040	0.76	.	Q	.	.	. V	.
17.967	1.3051	0.76	.	Q	.	.	. V	.
17.983	1.3061	0.75	.	Q	.	.	. V	.
18.000	1.3071	0.75	.	Q	.	.	. V	.
18.017	1.3082	0.75	.	Q	.	.	. V	.
18.033	1.3092	0.74	.	Q	.	.	. V	.
18.050	1.3102	0.74	.	Q	.	.	. V	.
18.067	1.3112	0.74	.	Q	.	.	. V	.
18.083	1.3122	0.73	.	Q	.	.	. V	.
18.100	1.3132	0.73	.	Q	.	.	. V	.
18.117	1.3142	0.73	.	Q	.	.	. V	.
18.133	1.3152	0.72	.	Q	.	.	. V	.
18.150	1.3162	0.72	.	Q	.	.	. V	.
18.167	1.3172	0.72	.	Q	.	.	. V	.
18.183	1.3182	0.72	.	Q	.	.	. V	.
18.200	1.3192	0.72	.	Q	.	.	. V	.
18.217	1.3202	0.72	.	Q	.	.	. V	.
18.233	1.3211	0.71	.	Q	.	.	. V	.
18.250	1.3221	0.71	.	Q	.	.	. V	.
18.267	1.3231	0.71	.	Q	.	.	. V	.
18.283	1.3241	0.71	.	Q	.	.	. V	.
18.300	1.3251	0.71	.	Q	.	.	. V	.
18.317	1.3260	0.71	.	Q	.	.	. V	.
18.333	1.3270	0.71	.	Q	.	.	. V	.
18.350	1.3280	0.71	.	Q	.	.	. V	.
18.367	1.3290	0.71	.	Q	.	.	. V	.
18.383	1.3299	0.70	.	Q	.	.	. V	.
18.400	1.3309	0.70	.	Q	.	.	. V	.
18.417	1.3319	0.70	.	Q	.	.	. V	.
18.433	1.3328	0.70	.	Q	.	.	. V	.
18.450	1.3338	0.69	.	Q	.	.	. V	.
18.467	1.3347	0.69	.	Q	.	.	. V	.
18.483	1.3357	0.69	.	Q	.	.	. V	.
18.500	1.3366	0.69	.	Q	.	.	. V	.
18.517	1.3376	0.68	.	Q	.	.	. V	.
18.533	1.3385	0.68	.	Q	.	.	. V	.
18.550	1.3395	0.68	.	Q	.	.	. V	.
18.567	1.3404	0.68	.	Q	.	.	. V	.
18.583	1.3413	0.67	.	Q	.	.	. V	.
18.600	1.3422	0.67	.	Q	.	.	. V	.
18.617	1.3432	0.67	.	Q	.	.	. V	.
18.633	1.3441	0.67	.	Q	.	.	. V	.
18.650	1.3450	0.67	.	Q	.	.	. V	.
18.667	1.3459	0.66	.	Q	.	.	. V	.
18.683	1.3468	0.66	.	Q	.	.	. V	.
18.700	1.3477	0.66	.	Q	.	.	. V	.
18.717	1.3486	0.66	.	Q	.	.	. V	.
18.733	1.3495	0.65	.	Q	.	.	. V	.
18.750	1.3504	0.65	.	Q	.	.	. V	.

18.767	1.3513	0.65	.	Q	.	.	.	V	.
18.783	1.3522	0.65	.	Q	.	.	.	V	.
18.800	1.3531	0.65	.	Q	.	.	.	V	.
18.817	1.3540	0.64	.	Q	.	.	.	V	.
18.833	1.3549	0.64	.	Q	.	.	.	V	.
18.850	1.3558	0.64	.	Q	.	.	.	V	.
18.867	1.3566	0.64	.	Q	.	.	.	V	.
18.883	1.3575	0.64	.	Q	.	.	.	V	.
18.900	1.3584	0.63	.	Q	.	.	.	V	.
18.917	1.3593	0.63	.	Q	.	.	.	V	.
18.933	1.3601	0.63	.	Q	.	.	.	V	.
18.950	1.3610	0.63	.	Q	.	.	.	V	.
18.967	1.3619	0.63	.	Q	.	.	.	V	.
18.983	1.3627	0.62	.	Q	.	.	.	V	.
19.000	1.3636	0.62	.	Q	.	.	.	V	.
19.017	1.3644	0.62	.	Q	.	.	.	V	.
19.033	1.3653	0.62	.	Q	.	.	.	V	.
19.050	1.3661	0.62	.	Q	.	.	.	V	.
19.067	1.3670	0.61	.	Q	.	.	.	V	.
19.083	1.3678	0.61	.	Q	.	.	.	V	.
19.100	1.3687	0.61	.	Q	.	.	.	V	.
19.117	1.3695	0.61	.	Q	.	.	.	V	.
19.133	1.3703	0.61	.	Q	.	.	.	V	.
19.150	1.3712	0.61	.	Q	.	.	.	V	.
19.167	1.3720	0.60	.	Q	.	.	.	V	.
19.183	1.3728	0.60	.	Q	.	.	.	V	.
19.200	1.3737	0.60	.	Q	.	.	.	V	.
19.217	1.3745	0.60	.	Q	.	.	.	V	.
19.233	1.3753	0.60	.	Q	.	.	.	V	.
19.250	1.3761	0.60	.	Q	.	.	.	V	.
19.267	1.3769	0.59	.	Q	.	.	.	V	.
19.283	1.3778	0.59	.	Q	.	.	.	V	.
19.300	1.3786	0.59	.	Q	.	.	.	V	.
19.317	1.3794	0.59	.	Q	.	.	.	V	.
19.333	1.3802	0.59	.	Q	.	.	.	V	.
19.350	1.3810	0.59	.	Q	.	.	.	V	.
19.367	1.3818	0.58	.	Q	.	.	.	V	.
19.383	1.3826	0.58	.	Q	.	.	.	V	.
19.400	1.3834	0.58	.	Q	.	.	.	V	.
19.417	1.3842	0.58	.	Q	.	.	.	V	.
19.433	1.3850	0.58	.	Q	.	.	.	V	.
19.450	1.3858	0.58	.	Q	.	.	.	V	.
19.467	1.3866	0.58	.	Q	.	.	.	V	.
19.483	1.3874	0.57	.	Q	.	.	.	V	.
19.500	1.3882	0.57	.	Q	.	.	.	V	.
19.517	1.3890	0.57	.	Q	.	.	.	V	.
19.533	1.3897	0.57	.	Q	.	.	.	V	.
19.550	1.3905	0.57	.	Q	.	.	.	V	.
19.567	1.3913	0.57	.	Q	.	.	.	V	.
19.583	1.3921	0.57	.	Q	.	.	.	V	.
19.600	1.3929	0.56	.	Q	.	.	.	V	.
19.617	1.3936	0.56	.	Q	.	.	.	V	.
19.633	1.3944	0.56	.	Q	.	.	.	V	.
19.650	1.3952	0.56	.	Q	.	.	.	V	.
19.667	1.3959	0.56	.	Q	.	.	.	V	.
19.683	1.3967	0.56	.	Q	.	.	.	V	.
19.700	1.3975	0.56	.	Q	.	.	.	V	.
19.717	1.3982	0.55	.	Q	.	.	.	V	.
19.733	1.3990	0.55	.	Q	.	.	.	V	.
19.750	1.3998	0.55	.	Q	.	.	.	V	.
19.767	1.4005	0.55	.	Q	.	.	.	V	.
19.783	1.4013	0.55	.	Q	.	.	.	V	.
19.800	1.4020	0.55	.	Q	.	.	.	V	.
19.817	1.4028	0.55	.	Q	.	.	.	V	.
19.833	1.4035	0.55	.	Q	.	.	.	V	.
19.850	1.4043	0.54	.	Q	.	.	.	V	.
19.867	1.4050	0.54	.	Q	.	.	.	V	.
19.883	1.4058	0.54	.	Q	.	.	.	V	.
19.900	1.4065	0.54	.	Q	.	.	.	V	.
19.917	1.4073	0.54	.	Q	.	.	.	V	.
19.933	1.4080	0.54	.	Q	.	.	.	V	.
19.950	1.4087	0.54	.	Q	.	.	.	V	.
19.967	1.4095	0.54	.	Q	.	.	.	V	.
19.983	1.4102	0.53	.	Q	.	.	.	V	.
20.000	1.4110	0.53	.	Q	.	.	.	V	.
20.017	1.4117	0.53	.	Q	.	.	.	V	.
20.033	1.4124	0.53	.	Q	.	.	.	V	.
20.050	1.4131	0.53	.	Q	.	.	.	V	.
20.067	1.4139	0.53	.	Q	.	.	.	V	.
20.083	1.4146	0.53	.	Q	.	.	.	V	.
20.100	1.4153	0.53	.	Q	.	.	.	V	.
20.117	1.4160	0.52	.	Q	.	.	.	V	.
20.133	1.4168	0.52	.	Q	.	.	.	V	.
20.150	1.4175	0.52	.	Q	.	.	.	V	.
20.167	1.4182	0.52	.	Q	.	.	.	V	.
20.183	1.4189	0.52	.	Q	.	.	.	V	.
20.200	1.4196	0.52	.	Q	.	.	.	V	.
20.217	1.4204	0.52	.	Q	.	.	.	V	.
20.233	1.4211	0.52	.	Q	.	.	.	V	.
20.250	1.4218	0.52	.	Q	.	.	.	V	.
20.267	1.4225	0.52	.	Q	.	.	.	V	.
20.283	1.4232	0.51	.	Q	.	.	.	V	.
20.300	1.4239	0.51	.	Q	.	.	.	V	.
20.317	1.4246	0.51	.	Q	.	.	.	V	.
20.333	1.4253	0.51	.	Q	.	.	.	V	.
20.350	1.4260	0.51	.	Q	.	.	.	V	.
20.367	1.4267	0.51	.	Q	.	.	.	V	.
20.383	1.4274	0.51	.	Q	.	.	.	V	.
20.400	1.4281	0.51	.	Q	.	.	.	V	.
20.417	1.4288	0.51	.	Q	.	.	.	V	.

20.433	1.4295	0.50	.Q	.	.	.	V	.
20.450	1.4302	0.50	.Q	.	.	.	V	.
20.467	1.4309	0.50	.Q	.	.	.	V	.
20.483	1.4316	0.50	.Q	.	.	.	V	.
20.500	1.4323	0.50	.Q	.	.	.	V	.
20.517	1.4330	0.50	.Q	.	.	.	V	.
20.533	1.4336	0.50	.Q	.	.	.	V	.
20.550	1.4343	0.50	.Q	.	.	.	V	.
20.567	1.4350	0.50	.Q	.	.	.	V	.
20.583	1.4357	0.50	.Q	.	.	.	V	.
20.600	1.4364	0.50	.Q	.	.	.	V	.
20.617	1.4371	0.49	.Q	.	.	.	V	.
20.633	1.4377	0.49	.Q	.	.	.	V	.
20.650	1.4384	0.49	.Q	.	.	.	V	.
20.667	1.4391	0.49	.Q	.	.	.	V	.
20.683	1.4398	0.49	.Q	.	.	.	V	.
20.700	1.4404	0.49	.Q	.	.	.	V	.
20.717	1.4411	0.49	.Q	.	.	.	V	.
20.733	1.4418	0.49	.Q	.	.	.	V	.
20.750	1.4425	0.49	.Q	.	.	.	V	.
20.767	1.4431	0.49	.Q	.	.	.	V	.
20.783	1.4438	0.48	.Q	.	.	.	V	.
20.800	1.4445	0.48	.Q	.	.	.	V	.
20.817	1.4451	0.48	.Q	.	.	.	V	.
20.833	1.4458	0.48	.Q	.	.	.	V	.
20.850	1.4465	0.48	.Q	.	.	.	V	.
20.867	1.4471	0.48	.Q	.	.	.	V	.
20.883	1.4478	0.48	.Q	.	.	.	V	.
20.900	1.4484	0.48	.Q	.	.	.	V	.
20.917	1.4491	0.48	.Q	.	.	.	V	.
20.933	1.4498	0.48	.Q	.	.	.	V	.
20.950	1.4504	0.48	.Q	.	.	.	V	.
20.967	1.4511	0.48	.Q	.	.	.	V	.
20.983	1.4517	0.47	.Q	.	.	.	V	.
21.000	1.4524	0.47	.Q	.	.	.	V	.
21.017	1.4530	0.47	.Q	.	.	.	V	.
21.033	1.4537	0.47	.Q	.	.	.	V	.
21.050	1.4543	0.47	.Q	.	.	.	V	.
21.067	1.4550	0.47	.Q	.	.	.	V	.
21.083	1.4556	0.47	.Q	.	.	.	V	.
21.100	1.4563	0.47	.Q	.	.	.	V	.
21.117	1.4569	0.47	.Q	.	.	.	V	.
21.133	1.4576	0.47	.Q	.	.	.	V	.
21.150	1.4582	0.47	.Q	.	.	.	V	.
21.167	1.4588	0.47	.Q	.	.	.	V	.
21.183	1.4595	0.46	.Q	.	.	.	V	.
21.200	1.4601	0.46	.Q	.	.	.	V	.
21.217	1.4608	0.46	.Q	.	.	.	V	.
21.233	1.4614	0.46	.Q	.	.	.	V	.
21.250	1.4620	0.46	.Q	.	.	.	V	.
21.267	1.4627	0.46	.Q	.	.	.	V	.
21.283	1.4633	0.46	.Q	.	.	.	V	.
21.300	1.4639	0.46	.Q	.	.	.	V	.
21.317	1.4646	0.46	.Q	.	.	.	V	.
21.333	1.4652	0.46	.Q	.	.	.	V	.
21.350	1.4658	0.46	.Q	.	.	.	V	.
21.367	1.4664	0.46	.Q	.	.	.	V	.
21.383	1.4671	0.46	.Q	.	.	.	V	.
21.400	1.4677	0.45	.Q	.	.	.	V	.
21.417	1.4683	0.45	.Q	.	.	.	V	.
21.433	1.4690	0.45	.Q	.	.	.	V	.
21.450	1.4696	0.45	.Q	.	.	.	V	.
21.467	1.4702	0.45	.Q	.	.	.	V	.
21.483	1.4708	0.45	.Q	.	.	.	V	.
21.500	1.4714	0.45	.Q	.	.	.	V	.
21.517	1.4721	0.45	.Q	.	.	.	V	.
21.533	1.4727	0.45	.Q	.	.	.	V	.
21.550	1.4733	0.45	.Q	.	.	.	V	.
21.567	1.4739	0.45	.Q	.	.	.	V	.
21.583	1.4745	0.45	.Q	.	.	.	V	.
21.600	1.4751	0.45	.Q	.	.	.	V	.
21.617	1.4758	0.45	.Q	.	.	.	V	.
21.633	1.4764	0.44	.Q	.	.	.	V	.
21.650	1.4770	0.44	.Q	.	.	.	V	.
21.667	1.4776	0.44	.Q	.	.	.	V	.
21.683	1.4782	0.44	.Q	.	.	.	V	.
21.700	1.4788	0.44	.Q	.	.	.	V	.
21.717	1.4794	0.44	.Q	.	.	.	V	.
21.733	1.4800	0.44	.Q	.	.	.	V	.
21.750	1.4806	0.44	.Q	.	.	.	V	.
21.767	1.4812	0.44	.Q	.	.	.	V	.
21.783	1.4818	0.44	.Q	.	.	.	V	.
21.800	1.4825	0.44	.Q	.	.	.	V	.
21.817	1.4831	0.44	.Q	.	.	.	V	.
21.833	1.4837	0.44	.Q	.	.	.	V	.
21.850	1.4843	0.44	.Q	.	.	.	V	.
21.867	1.4849	0.44	.Q	.	.	.	V	.
21.883	1.4855	0.44	.Q	.	.	.	V	.
21.900	1.4861	0.43	.Q	.	.	.	V	.
21.917	1.4867	0.43	.Q	.	.	.	V	.
21.933	1.4872	0.43	.Q	.	.	.	V	.
21.950	1.4878	0.43	.Q	.	.	.	V	.
21.967	1.4884	0.43	.Q	.	.	.	V	.
21.983	1.4890	0.43	.Q	.	.	.	V	.
22.000	1.4896	0.43	.Q	.	.	.	V	.
22.017	1.4902	0.43	.Q	.	.	.	V	.
22.033	1.4908	0.43	.Q	.	.	.	V	.
22.050	1.4914	0.43	.Q	.	.	.	V	.
22.067	1.4920	0.43	.Q	.	.	.	V	.
22.083	1.4926	0.43	.Q	.	.	.	V	.

22.100	1.4932	0.43	.Q	.	.	.	V .
22.117	1.4938	0.43	.Q	.	.	.	V .
22.133	1.4943	0.43	.Q	.	.	.	V .
22.150	1.4949	0.43	.Q	.	.	.	V .
22.167	1.4955	0.42	.Q	.	.	.	V .
22.183	1.4961	0.42	.Q	.	.	.	V .
22.200	1.4967	0.42	.Q	.	.	.	V .
22.217	1.4973	0.42	.Q	.	.	.	V .
22.233	1.4978	0.42	.Q	.	.	.	V .
22.250	1.4984	0.42	.Q	.	.	.	V .
22.267	1.4990	0.42	.Q	.	.	.	V .
22.283	1.4996	0.42	.Q	.	.	.	V .
22.300	1.5002	0.42	.Q	.	.	.	V .
22.317	1.5007	0.42	.Q	.	.	.	V .
22.333	1.5013	0.42	.Q	.	.	.	V .
22.350	1.5019	0.42	.Q	.	.	.	V .
22.367	1.5025	0.42	.Q	.	.	.	V .
22.383	1.5030	0.42	.Q	.	.	.	V .
22.400	1.5036	0.42	.Q	.	.	.	V .
22.417	1.5042	0.42	.Q	.	.	.	V .
22.433	1.5048	0.42	.Q	.	.	.	V .
22.450	1.5053	0.41	.Q	.	.	.	V .
22.467	1.5059	0.41	.Q	.	.	.	V .
22.483	1.5065	0.41	.Q	.	.	.	V .
22.500	1.5070	0.41	.Q	.	.	.	V .
22.517	1.5076	0.41	.Q	.	.	.	V .
22.533	1.5082	0.41	.Q	.	.	.	V .
22.550	1.5087	0.41	.Q	.	.	.	V .
22.567	1.5093	0.41	.Q	.	.	.	V .
22.583	1.5099	0.41	.Q	.	.	.	V .
22.600	1.5104	0.41	.Q	.	.	.	V .
22.617	1.5110	0.41	.Q	.	.	.	V .
22.633	1.5116	0.41	.Q	.	.	.	V .
22.650	1.5121	0.41	.Q	.	.	.	V .
22.667	1.5127	0.41	.Q	.	.	.	V .
22.683	1.5132	0.41	.Q	.	.	.	V .
22.700	1.5138	0.41	.Q	.	.	.	V .
22.717	1.5144	0.41	.Q	.	.	.	V .
22.733	1.5149	0.41	.Q	.	.	.	V .
22.750	1.5155	0.40	.Q	.	.	.	V .
22.767	1.5160	0.40	.Q	.	.	.	V .
22.783	1.5166	0.40	.Q	.	.	.	V .
22.800	1.5171	0.40	.Q	.	.	.	V .
22.817	1.5177	0.40	.Q	.	.	.	V .
22.833	1.5183	0.40	.Q	.	.	.	V .
22.850	1.5188	0.40	.Q	.	.	.	V .
22.867	1.5194	0.40	.Q	.	.	.	V .
22.883	1.5199	0.40	.Q	.	.	.	V .
22.900	1.5205	0.40	.Q	.	.	.	V .
22.917	1.5210	0.40	.Q	.	.	.	V .
22.933	1.5216	0.40	.Q	.	.	.	V .
22.950	1.5221	0.40	.Q	.	.	.	V .
22.967	1.5227	0.40	.Q	.	.	.	V .
22.983	1.5232	0.40	.Q	.	.	.	V .
23.000	1.5238	0.40	.Q	.	.	.	V .
23.017	1.5243	0.40	.Q	.	.	.	V .
23.033	1.5249	0.40	.Q	.	.	.	V .
23.050	1.5254	0.40	.Q	.	.	.	V.
23.067	1.5259	0.40	.Q	.	.	.	V.
23.083	1.5265	0.39	.Q	.	.	.	V.
23.100	1.5270	0.39	.Q	.	.	.	V.
23.117	1.5276	0.39	.Q	.	.	.	V.
23.133	1.5281	0.39	.Q	.	.	.	V.
23.150	1.5287	0.39	.Q	.	.	.	V.
23.167	1.5292	0.39	.Q	.	.	.	V.
23.183	1.5297	0.39	.Q	.	.	.	V.
23.200	1.5303	0.39	.Q	.	.	.	V.
23.217	1.5308	0.39	.Q	.	.	.	V.
23.233	1.5313	0.39	.Q	.	.	.	V.
23.250	1.5319	0.39	.Q	.	.	.	V.
23.267	1.5324	0.39	.Q	.	.	.	V.
23.283	1.5330	0.39	.Q	.	.	.	V.
23.300	1.5335	0.39	.Q	.	.	.	V.
23.317	1.5340	0.39	.Q	.	.	.	V.
23.333	1.5346	0.39	.Q	.	.	.	V.
23.350	1.5351	0.39	.Q	.	.	.	V.
23.367	1.5356	0.39	.Q	.	.	.	V.
23.383	1.5362	0.39	.Q	.	.	.	V.
23.400	1.5367	0.39	.Q	.	.	.	V.
23.417	1.5372	0.39	.Q	.	.	.	V.
23.433	1.5378	0.39	.Q	.	.	.	V.
23.450	1.5383	0.38	.Q	.	.	.	V.
23.467	1.5388	0.38	.Q	.	.	.	V.
23.483	1.5393	0.38	.Q	.	.	.	V.
23.500	1.5399	0.38	.Q	.	.	.	V.
23.517	1.5404	0.38	.Q	.	.	.	V.
23.533	1.5409	0.38	.Q	.	.	.	V.
23.550	1.5415	0.38	.Q	.	.	.	V.
23.567	1.5420	0.38	.Q	.	.	.	V.
23.583	1.5425	0.38	.Q	.	.	.	V.
23.600	1.5430	0.38	.Q	.	.	.	V.
23.617	1.5436	0.38	.Q	.	.	.	V.
23.633	1.5441	0.38	.Q	.	.	.	V.
23.650	1.5446	0.38	.Q	.	.	.	V.
23.667	1.5451	0.38	.Q	.	.	.	V.
23.683	1.5456	0.38	.Q	.	.	.	V.
23.700	1.5462	0.38	.Q	.	.	.	V.
23.717	1.5467	0.38	.Q	.	.	.	V.
23.733	1.5472	0.38	.Q	.	.	.	V.
23.750	1.5477	0.38	.Q	.	.	.	V.

```
  23.767      1.5482      0.38  .Q        .         .         .        V.
  23.783      1.5488      0.38  .Q        .         .         .        V.
  23.800      1.5493      0.38  .Q        .         .         .        V.
  23.817      1.5498      0.38  .Q        .         .         .        V.
  23.833      1.5503      0.37  .Q        .         .         .        V.
  23.850      1.5508      0.37  .Q        .         .         .        V.
  23.867      1.5513      0.37  .Q        .         .         .        V.
  23.883      1.5519      0.37  .Q        .         .         .        V.
  23.900      1.5524      0.37  .Q        .         .         .        V.
  23.917      1.5529      0.37  .Q        .         .         .        V.
  23.933      1.5534      0.37  .Q        .         .         .        V.
  23.950      1.5539      0.37  .Q        .         .         .        V.
  23.967      1.5544      0.37  .Q        .         .         .        V.
  23.983      1.5549      0.37  .Q        .         .         .        V.
  24.000      1.5554      0.37  .Q        .         .         .        V.
--------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated               Duration
       Peak Flow Rate                    (minutes)
   ======================              =========
             0%                         1441.0
            10%                          655.0
            20%                          290.0
            30%                          185.0
            40%                          110.0
            50%                           95.0
            60%                           75.0
            70%                           55.0
            80%                           35.0
            90%                           20.0


********************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  11
--------------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
================================================================================

           STREAM HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
       (Notes: Time indicated is at END of Each Unit Intervals.
               Peak 5-minute rainfall intensity is modeled as
               a constant value for entire 5-minute period.)
--------------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        5.0      10.0      15.0      20.0
--------------------------------------------------------------------------------
   0.017      0.0000      0.00  Q         .         .         .         .
   0.033      0.0000      0.00  Q         .         .         .         .
   0.050      0.0000      0.00  Q         .         .         .         .
   0.067      0.0000      0.00  Q         .         .         .         .
   0.083      0.0000      0.00  Q         .         .         .         .
   0.100      0.0000      0.02  Q         .         .         .         .
   0.117      0.0001      0.05  Q         .         .         .         .
   0.133      0.0002      0.08  Q         .         .         .         .
   0.150      0.0004      0.11  Q         .         .         .         .
   0.167      0.0006      0.14  Q         .         .         .         .
   0.183      0.0008      0.17  Q         .         .         .         .
   0.200      0.0011      0.19  Q         .         .         .         .
   0.217      0.0014      0.22  Q         .         .         .         .
   0.233      0.0017      0.25  Q         .         .         .         .
   0.250      0.0021      0.28  Q         .         .         .         .
   0.267      0.0025      0.31  Q         .         .         .         .
   0.283      0.0030      0.34  Q         .         .         .         .
   0.300      0.0035      0.36  Q         .         .         .         .
   0.317      0.0040      0.37  Q         .         .         .         .
   0.333      0.0045      0.37  Q         .         .         .         .
   0.350      0.0050      0.37  Q         .         .         .         .
   0.367      0.0055      0.37  Q         .         .         .         .
   0.383      0.0060      0.37  Q         .         .         .         .
   0.400      0.0065      0.37  Q         .         .         .         .
   0.417      0.0070      0.37  Q         .         .         .         .
   0.433      0.0076      0.37  Q         .         .         .         .
   0.450      0.0081      0.37  Q         .         .         .         .
   0.467      0.0086      0.37  Q         .         .         .         .
   0.483      0.0091      0.37  Q         .         .         .         .
   0.500      0.0096      0.37  Q         .         .         .         .
   0.517      0.0101      0.37  Q         .         .         .         .
   0.533      0.0106      0.37  Q         .         .         .         .
   0.550      0.0111      0.37  Q         .         .         .         .
   0.567      0.0116      0.37  Q         .         .         .         .
   0.583      0.0121      0.37  Q         .         .         .         .
   0.600      0.0126      0.37  Q         .         .         .         .
   0.617      0.0132      0.37  Q         .         .         .         .
   0.633      0.0137      0.37  Q         .         .         .         .
   0.650      0.0142      0.37  Q         .         .         .         .
   0.667      0.0147      0.37  Q         .         .         .         .
   0.683      0.0152      0.37  Q         .         .         .         .
   0.700      0.0157      0.37  Q         .         .         .         .
   0.717      0.0162      0.37  Q         .         .         .         .
   0.733      0.0167      0.37  Q         .         .         .         .
   0.750      0.0173      0.37  Q         .         .         .         .
   0.767      0.0178      0.37  Q         .         .         .         .
   0.783      0.0183      0.37  Q         .         .         .         .
   0.800      0.0188      0.37  Q         .         .         .         .
   0.817      0.0193      0.37  Q         .         .         .         .
   0.833      0.0198      0.37  Q         .         .         .         .
   0.850      0.0204      0.37  Q         .         .         .         .
   0.867      0.0209      0.37  Q         .         .         .         .
```

0.883	0.0214	0.37	Q	.	.	.	.
0.900	0.0219	0.37	Q	.	.	.	.
0.917	0.0224	0.37	Q	.	.	.	.
0.933	0.0229	0.37	Q	.	.	.	.
0.950	0.0234	0.37	Q	.	.	.	.
0.967	0.0240	0.38	Q	.	.	.	.
0.983	0.0245	0.38	Q	.	.	.	.
1.000	0.0250	0.38	Q	.	.	.	.
1.017	0.0255	0.38	Q	.	.	.	.
1.033	0.0260	0.38	Q	.	.	.	.
1.050	0.0266	0.38	Q	.	.	.	.
1.067	0.0271	0.38	Q	.	.	.	.
1.083	0.0276	0.38	Q	.	.	.	.
1.100	0.0281	0.38	Q	.	.	.	.
1.117	0.0286	0.38	Q	.	.	.	.
1.133	0.0292	0.38	Q	.	.	.	.
1.150	0.0297	0.38	Q	.	.	.	.
1.167	0.0302	0.38	Q	.	.	.	.
1.183	0.0307	0.38	Q	.	.	.	.
1.200	0.0312	0.38	Q	.	.	.	.
1.217	0.0318	0.38	Q	.	.	.	.
1.233	0.0323	0.38	Q	.	.	.	.
1.250	0.0328	0.38	Q	.	.	.	.
1.267	0.0333	0.38	Q	.	.	.	.
1.283	0.0339	0.38	Q	.	.	.	.
1.300	0.0344	0.38	Q	.	.	.	.
1.317	0.0349	0.38	Q	.	.	.	.
1.333	0.0354	0.38	Q	.	.	.	.
1.350	0.0359	0.38	Q	.	.	.	.
1.367	0.0365	0.38	Q	.	.	.	.
1.383	0.0370	0.38	Q	.	.	.	.
1.400	0.0375	0.38	Q	.	.	.	.
1.417	0.0380	0.38	Q	.	.	.	.
1.433	0.0386	0.38	Q	.	.	.	.
1.450	0.0391	0.38	Q	.	.	.	.
1.467	0.0396	0.38	QV	.	.	.	.
1.483	0.0401	0.38	QV	.	.	.	.
1.500	0.0407	0.38	QV	.	.	.	.
1.517	0.0412	0.38	QV	.	.	.	.
1.533	0.0417	0.38	QV	.	.	.	.
1.550	0.0423	0.38	QV	.	.	.	.
1.567	0.0428	0.38	QV	.	.	.	.
1.583	0.0433	0.38	QV	.	.	.	.
1.600	0.0438	0.38	QV	.	.	.	.
1.617	0.0444	0.38	QV	.	.	.	.
1.633	0.0449	0.38	QV	.	.	.	.
1.650	0.0454	0.38	QV	.	.	.	.
1.667	0.0460	0.38	QV	.	.	.	.
1.683	0.0465	0.38	QV	.	.	.	.
1.700	0.0470	0.39	QV	.	.	.	.
1.717	0.0476	0.39	QV	.	.	.	.
1.733	0.0481	0.39	QV	.	.	.	.
1.750	0.0486	0.39	QV	.	.	.	.
1.767	0.0491	0.39	QV	.	.	.	.
1.783	0.0497	0.39	QV	.	.	.	.
1.800	0.0502	0.39	QV	.	.	.	.
1.817	0.0507	0.39	QV	.	.	.	.
1.833	0.0513	0.39	QV	.	.	.	.
1.850	0.0518	0.39	QV	.	.	.	.
1.867	0.0523	0.39	QV	.	.	.	.
1.883	0.0529	0.39	QV	.	.	.	.
1.900	0.0534	0.39	QV	.	.	.	.
1.917	0.0539	0.39	QV	.	.	.	.
1.933	0.0545	0.39	QV	.	.	.	.
1.950	0.0550	0.39	QV	.	.	.	.
1.967	0.0556	0.39	QV	.	.	.	.
1.983	0.0561	0.39	QV	.	.	.	.
2.000	0.0566	0.39	QV	.	.	.	.
2.017	0.0572	0.39	QV	.	.	.	.
2.033	0.0577	0.39	QV	.	.	.	.
2.050	0.0582	0.39	QV	.	.	.	.
2.067	0.0588	0.39	QV	.	.	.	.
2.083	0.0593	0.39	QV	.	.	.	.
2.100	0.0599	0.39	QV	.	.	.	.
2.117	0.0604	0.39	QV	.	.	.	.
2.133	0.0609	0.39	QV	.	.	.	.
2.150	0.0615	0.39	QV	.	.	.	.
2.167	0.0620	0.39	QV	.	.	.	.
2.183	0.0625	0.39	QV	.	.	.	.
2.200	0.0631	0.39	QV	.	.	.	.
2.217	0.0636	0.39	QV	.	.	.	.
2.233	0.0642	0.39	QV	.	.	.	.
2.250	0.0647	0.39	QV	.	.	.	.
2.267	0.0652	0.39	QV	.	.	.	.
2.283	0.0658	0.39	QV	.	.	.	.
2.300	0.0663	0.39	QV	.	.	.	.
2.317	0.0669	0.39	QV	.	.	.	.
2.333	0.0674	0.39	QV	.	.	.	.
2.350	0.0680	0.39	QV	.	.	.	.
2.367	0.0685	0.39	QV	.	.	.	.
2.383	0.0690	0.39	QV	.	.	.	.
2.400	0.0696	0.40	QV	.	.	.	.
2.417	0.0701	0.40	QV	.	.	.	.
2.433	0.0707	0.40	QV	.	.	.	.
2.450	0.0712	0.40	QV	.	.	.	.
2.467	0.0718	0.40	QV	.	.	.	.
2.483	0.0723	0.40	QV	.	.	.	.
2.500	0.0729	0.40	QV	.	.	.	.
2.517	0.0734	0.40	QV	.	.	.	.
2.533	0.0740	0.40	QV	.	.	.	.

2.550	0.0745	0.40	QV	.	.	.	.
2.567	0.0750	0.40	QV	.	.	.	.
2.583	0.0756	0.40	QV	.	.	.	.
2.600	0.0761	0.40	QV	.	.	.	.
2.617	0.0767	0.40	QV	.	.	.	.
2.633	0.0772	0.40	QV	.	.	.	.
2.650	0.0778	0.40	QV	.	.	.	.
2.667	0.0783	0.40	Q V	.	.	.	.
2.683	0.0789	0.40	Q V	.	.	.	.
2.700	0.0794	0.40	Q V	.	.	.	.
2.717	0.0800	0.40	Q V	.	.	.	.
2.733	0.0805	0.40	Q V	.	.	.	.
2.750	0.0811	0.40	Q V	.	.	.	.
2.767	0.0816	0.40	Q V	.	.	.	.
2.783	0.0822	0.40	Q V	.	.	.	.
2.800	0.0827	0.40	Q V	.	.	.	.
2.817	0.0833	0.40	Q V	.	.	.	.
2.833	0.0838	0.40	Q V	.	.	.	.
2.850	0.0844	0.40	Q V	.	.	.	.
2.867	0.0850	0.40	Q V	.	.	.	.
2.883	0.0855	0.40	Q V	.	.	.	.
2.900	0.0861	0.40	Q V	.	.	.	.
2.917	0.0866	0.40	Q V	.	.	.	.
2.933	0.0872	0.40	Q V	.	.	.	.
2.950	0.0877	0.40	Q V	.	.	.	.
2.967	0.0883	0.40	Q V	.	.	.	.
2.983	0.0888	0.40	Q V	.	.	.	.
3.000	0.0894	0.40	Q V	.	.	.	.
3.017	0.0900	0.40	Q V	.	.	.	.
3.033	0.0905	0.40	Q V	.	.	.	.
3.050	0.0911	0.40	Q V	.	.	.	.
3.067	0.0916	0.40	Q V	.	.	.	.
3.083	0.0922	0.40	Q V	.	.	.	.
3.100	0.0927	0.40	Q V	.	.	.	.
3.117	0.0933	0.41	Q V	.	.	.	.
3.133	0.0939	0.41	Q V	.	.	.	.
3.150	0.0944	0.41	Q V	.	.	.	.
3.167	0.0950	0.41	Q V	.	.	.	.
3.183	0.0955	0.41	Q V	.	.	.	.
3.200	0.0961	0.41	Q V	.	.	.	.
3.217	0.0967	0.41	Q V	.	.	.	.
3.233	0.0972	0.41	Q V	.	.	.	.
3.250	0.0978	0.41	Q V	.	.	.	.
3.267	0.0983	0.41	Q V	.	.	.	.
3.283	0.0989	0.41	Q V	.	.	.	.
3.300	0.0995	0.41	Q V	.	.	.	.
3.317	0.1000	0.41	Q V	.	.	.	.
3.333	0.1006	0.41	Q V	.	.	.	.
3.350	0.1012	0.41	Q V	.	.	.	.
3.367	0.1017	0.41	Q V	.	.	.	.
3.383	0.1023	0.41	Q V	.	.	.	.
3.400	0.1029	0.41	Q V	.	.	.	.
3.417	0.1034	0.41	Q V	.	.	.	.
3.433	0.1040	0.41	Q V	.	.	.	.
3.450	0.1046	0.41	Q V	.	.	.	.
3.467	0.1051	0.41	Q V	.	.	.	.
3.483	0.1057	0.41	Q V	.	.	.	.
3.500	0.1063	0.41	Q V	.	.	.	.
3.517	0.1068	0.41	Q V	.	.	.	.
3.533	0.1074	0.41	Q V	.	.	.	.
3.550	0.1080	0.41	Q V	.	.	.	.
3.567	0.1085	0.41	Q V	.	.	.	.
3.583	0.1091	0.41	Q V	.	.	.	.
3.600	0.1097	0.41	Q V	.	.	.	.
3.617	0.1102	0.41	Q V	.	.	.	.
3.633	0.1108	0.41	Q V	.	.	.	.
3.650	0.1114	0.41	Q V	.	.	.	.
3.667	0.1119	0.41	Q V	.	.	.	.
3.683	0.1125	0.42	Q V	.	.	.	.
3.700	0.1131	0.42	Q V	.	.	.	.
3.717	0.1137	0.42	Q V	.	.	.	.
3.733	0.1142	0.42	Q V	.	.	.	.
3.750	0.1148	0.42	Q V	.	.	.	.
3.767	0.1154	0.42	Q V	.	.	.	.
3.783	0.1160	0.42	Q V	.	.	.	.
3.800	0.1165	0.42	Q V	.	.	.	.
3.817	0.1171	0.42	Q V	.	.	.	.
3.833	0.1177	0.42	Q V	.	.	.	.
3.850	0.1183	0.42	Q V	.	.	.	.
3.867	0.1188	0.42	Q V	.	.	.	.
3.883	0.1194	0.42	Q V	.	.	.	.
3.900	0.1200	0.42	Q V	.	.	.	.
3.917	0.1206	0.42	Q V	.	.	.	.
3.933	0.1211	0.42	Q V	.	.	.	.
3.950	0.1217	0.42	Q V	.	.	.	.
3.967	0.1223	0.42	Q V	.	.	.	.
3.983	0.1229	0.42	Q V	.	.	.	.
4.000	0.1235	0.42	Q V	.	.	.	.
4.017	0.1240	0.42	Q V	.	.	.	.
4.033	0.1246	0.42	Q V	.	.	.	.
4.050	0.1252	0.42	Q V	.	.	.	.
4.067	0.1258	0.42	Q V	.	.	.	.
4.083	0.1264	0.42	Q V	.	.	.	.
4.100	0.1269	0.42	Q V	.	.	.	.
4.117	0.1275	0.42	Q V	.	.	.	.
4.133	0.1281	0.42	Q V	.	.	.	.
4.150	0.1287	0.42	Q V	.	.	.	.
4.167	0.1293	0.42	Q V	.	.	.	.
4.183	0.1299	0.42	Q V	.	.	.	.
4.200	0.1304	0.42	Q V	.	.	.	.

4.217	0.1310	0.42	Q	V	.	.	.	.
4.233	0.1316	0.42	Q	V	.	.	.	.
4.250	0.1322	0.42	Q	V	.	.	.	.
4.267	0.1328	0.43	Q	V	.	.	.	.
4.283	0.1334	0.43	Q	V	.	.	.	.
4.300	0.1340	0.43	Q	V	.	.	.	.
4.317	0.1345	0.43	Q	V	.	.	.	.
4.333	0.1351	0.43	Q	V	.	.	.	.
4.350	0.1357	0.43	Q	V	.	.	.	.
4.367	0.1363	0.43	Q	V	.	.	.	.
4.383	0.1369	0.43	Q	V	.	.	.	.
4.400	0.1375	0.43	Q	V	.	.	.	.
4.417	0.1381	0.43	Q	V	.	.	.	.
4.433	0.1387	0.43	Q	V	.	.	.	.
4.450	0.1392	0.43	Q	V	.	.	.	.
4.467	0.1398	0.43	Q	V	.	.	.	.
4.483	0.1404	0.43	Q	V	.	.	.	.
4.500	0.1410	0.43	Q	V	.	.	.	.
4.517	0.1416	0.43	Q	V	.	.	.	.
4.533	0.1422	0.43	Q	V	.	.	.	.
4.550	0.1428	0.43	Q	V	.	.	.	.
4.567	0.1434	0.43	Q	V	.	.	.	.
4.583	0.1440	0.43	Q	V	.	.	.	.
4.600	0.1446	0.43	Q	V	.	.	.	.
4.617	0.1452	0.43	Q	V	.	.	.	.
4.633	0.1458	0.43	Q	V	.	.	.	.
4.650	0.1464	0.43	Q	V	.	.	.	.
4.667	0.1470	0.43	Q	V	.	.	.	.
4.683	0.1476	0.43	Q	V	.	.	.	.
4.700	0.1481	0.43	Q	V	.	.	.	.
4.717	0.1487	0.43	Q	V	.	.	.	.
4.733	0.1493	0.43	Q	V	.	.	.	.
4.750	0.1499	0.43	Q	V	.	.	.	.
4.767	0.1505	0.43	Q	V	.	.	.	.
4.783	0.1511	0.43	Q	V	.	.	.	.
4.800	0.1517	0.43	Q	V	.	.	.	.
4.817	0.1523	0.43	Q	V	.	.	.	.
4.833	0.1529	0.44	Q	V	.	.	.	.
4.850	0.1535	0.44	Q	V	.	.	.	.
4.867	0.1541	0.44	Q	V	.	.	.	.
4.883	0.1547	0.44	Q	V	.	.	.	.
4.900	0.1553	0.44	Q	V	.	.	.	.
4.917	0.1559	0.44	Q	V	.	.	.	.
4.933	0.1565	0.44	Q	V	.	.	.	.
4.950	0.1571	0.44	Q	V	.	.	.	.
4.967	0.1577	0.44	Q	V	.	.	.	.
4.983	0.1584	0.44	Q	V	.	.	.	.
5.000	0.1590	0.44	Q	V	.	.	.	.
5.017	0.1596	0.44	Q	V	.	.	.	.
5.033	0.1602	0.44	Q	V	.	.	.	.
5.050	0.1608	0.44	Q	V	.	.	.	.
5.067	0.1614	0.44	Q	V	.	.	.	.
5.083	0.1620	0.44	Q	V	.	.	.	.
5.100	0.1626	0.44	Q	V	.	.	.	.
5.117	0.1632	0.44	Q	V	.	.	.	.
5.133	0.1638	0.44	Q	V	.	.	.	.
5.150	0.1644	0.44	Q	V	.	.	.	.
5.167	0.1650	0.44	Q	V	.	.	.	.
5.183	0.1656	0.44	Q	V	.	.	.	.
5.200	0.1663	0.44	Q	V	.	.	.	.
5.217	0.1669	0.44	Q	V	.	.	.	.
5.233	0.1675	0.44	Q	V	.	.	.	.
5.250	0.1681	0.44	Q	V	.	.	.	.
5.267	0.1687	0.44	Q	V	.	.	.	.
5.283	0.1693	0.44	Q	V	.	.	.	.
5.300	0.1699	0.44	Q	V	.	.	.	.
5.317	0.1705	0.45	Q	V	.	.	.	.
5.333	0.1711	0.45	Q	V	.	.	.	.
5.350	0.1718	0.45	Q	V	.	.	.	.
5.367	0.1724	0.45	Q	V	.	.	.	.
5.383	0.1730	0.45	Q	V	.	.	.	.
5.400	0.1736	0.45	Q	V	.	.	.	.
5.417	0.1742	0.45	Q	V	.	.	.	.
5.433	0.1748	0.45	Q	V	.	.	.	.
5.450	0.1755	0.45	Q	V	.	.	.	.
5.467	0.1761	0.45	Q	V	.	.	.	.
5.483	0.1767	0.45	Q	V	.	.	.	.
5.500	0.1773	0.45	Q	V	.	.	.	.
5.517	0.1779	0.45	Q	V	.	.	.	.
5.533	0.1786	0.45	Q	V	.	.	.	.
5.550	0.1792	0.45	Q	V	.	.	.	.
5.567	0.1798	0.45	Q	V	.	.	.	.
5.583	0.1804	0.45	Q	V	.	.	.	.
5.600	0.1810	0.45	Q	V	.	.	.	.
5.617	0.1817	0.45	Q	V	.	.	.	.
5.633	0.1823	0.45	Q	V	.	.	.	.
5.650	0.1829	0.45	Q	V	.	.	.	.
5.667	0.1835	0.45	Q	V	.	.	.	.
5.683	0.1842	0.45	Q	V	.	.	.	.
5.700	0.1848	0.45	Q	V	.	.	.	.
5.717	0.1854	0.45	Q	V	.	.	.	.
5.733	0.1860	0.45	Q	V	.	.	.	.
5.750	0.1867	0.45	Q	V	.	.	.	.
5.767	0.1873	0.45	Q	V	.	.	.	.
5.783	0.1879	0.46	Q	V	.	.	.	.
5.800	0.1885	0.46	Q	V	.	.	.	.
5.817	0.1892	0.46	Q	V	.	.	.	.
5.833	0.1898	0.46	Q	V	.	.	.	.
5.850	0.1904	0.46	Q	V	.	.	.	.
5.867	0.1911	0.46	Q	V	.	.	.	.

5.883	0.1917	0.46	Q	V	.	.	.	.
5.900	0.1923	0.46	Q	V	.	.	.	.
5.917	0.1930	0.46	Q	V	.	.	.	.
5.933	0.1936	0.46	Q	V	.	.	.	.
5.950	0.1942	0.46	Q	V	.	.	.	.
5.967	0.1948	0.46	Q	V	.	.	.	.
5.983	0.1955	0.46	Q	V	.	.	.	.
6.000	0.1961	0.46	Q	V	.	.	.	.
6.017	0.1968	0.46	Q	V	.	.	.	.
6.033	0.1974	0.46	Q	V	.	.	.	.
6.050	0.1980	0.46	Q	V	.	.	.	.
6.067	0.1987	0.46	Q	V	.	.	.	.
6.083	0.1993	0.46	Q	V	.	.	.	.
6.100	0.1999	0.46	Q	V	.	.	.	.
6.117	0.2006	0.46	Q	V	.	.	.	.
6.133	0.2012	0.46	Q	V	.	.	.	.
6.150	0.2018	0.46	Q	V	.	.	.	.
6.167	0.2025	0.46	Q	V	.	.	.	.
6.183	0.2031	0.46	Q	V	.	.	.	.
6.200	0.2038	0.46	Q	V	.	.	.	.
6.217	0.2044	0.47	Q	V	.	.	.	.
6.233	0.2050	0.47	Q	V	.	.	.	.
6.250	0.2057	0.47	Q	V	.	.	.	.
6.267	0.2063	0.47	Q	V	.	.	.	.
6.283	0.2070	0.47	Q	V	.	.	.	.
6.300	0.2076	0.47	Q	V	.	.	.	.
6.317	0.2083	0.47	Q	V	.	.	.	.
6.333	0.2089	0.47	Q	V	.	.	.	.
6.350	0.2096	0.47	Q	V	.	.	.	.
6.367	0.2102	0.47	Q	V	.	.	.	.
6.383	0.2108	0.47	Q	V	.	.	.	.
6.400	0.2115	0.47	Q	V	.	.	.	.
6.417	0.2121	0.47	Q	V	.	.	.	.
6.433	0.2128	0.47	Q	V	.	.	.	.
6.450	0.2134	0.47	Q	V	.	.	.	.
6.467	0.2141	0.47	Q	V	.	.	.	.
6.483	0.2147	0.47	Q	V	.	.	.	.
6.500	0.2154	0.47	Q	V	.	.	.	.
6.517	0.2160	0.47	Q	V	.	.	.	.
6.533	0.2167	0.47	Q	V	.	.	.	.
6.550	0.2173	0.47	Q	V	.	.	.	.
6.567	0.2180	0.47	Q	V	.	.	.	.
6.583	0.2186	0.47	Q	V	.	.	.	.
6.600	0.2193	0.47	Q	V	.	.	.	.
6.617	0.2199	0.47	Q	V	.	.	.	.
6.633	0.2206	0.48	Q	V	.	.	.	.
6.650	0.2213	0.48	Q	V	.	.	.	.
6.667	0.2219	0.48	Q	V	.	.	.	.
6.683	0.2226	0.48	Q	V	.	.	.	.
6.700	0.2232	0.48	Q	V	.	.	.	.
6.717	0.2239	0.48	Q	V	.	.	.	.
6.733	0.2245	0.48	Q	V	.	.	.	.
6.750	0.2252	0.48	Q	V	.	.	.	.
6.767	0.2259	0.48	Q	V	.	.	.	.
6.783	0.2265	0.48	Q	V	.	.	.	.
6.800	0.2272	0.48	Q	V	.	.	.	.
6.817	0.2279	0.48	Q	V	.	.	.	.
6.833	0.2285	0.48	Q	V	.	.	.	.
6.850	0.2292	0.48	Q	V	.	.	.	.
6.867	0.2298	0.48	Q	V	.	.	.	.
6.883	0.2305	0.48	Q	V	.	.	.	.
6.900	0.2312	0.48	Q	V	.	.	.	.
6.917	0.2318	0.48	Q	V	.	.	.	.
6.933	0.2325	0.48	Q	V	.	.	.	.
6.950	0.2332	0.48	Q	V	.	.	.	.
6.967	0.2338	0.48	Q	V	.	.	.	.
6.983	0.2345	0.48	Q	V	.	.	.	.
7.000	0.2352	0.48	Q	V	.	.	.	.
7.017	0.2358	0.48	Q	V	.	.	.	.
7.033	0.2365	0.49	Q	V	.	.	.	.
7.050	0.2372	0.49	Q	V	.	.	.	.
7.067	0.2378	0.49	Q	V	.	.	.	.
7.083	0.2385	0.49	Q	V	.	.	.	.
7.100	0.2392	0.49	Q	V	.	.	.	.
7.117	0.2399	0.49	Q	V	.	.	.	.
7.133	0.2405	0.49	Q	V	.	.	.	.
7.150	0.2412	0.49	Q	V	.	.	.	.
7.167	0.2419	0.49	Q	V	.	.	.	.
7.183	0.2426	0.49	Q	V	.	.	.	.
7.200	0.2432	0.49	Q	V	.	.	.	.
7.217	0.2439	0.49	Q	V	.	.	.	.
7.233	0.2446	0.49	Q	V	.	.	.	.
7.250	0.2453	0.49	Q	V	.	.	.	.
7.267	0.2459	0.49	Q	V	.	.	.	.
7.283	0.2466	0.49	Q	V	.	.	.	.
7.300	0.2473	0.49	Q	V	.	.	.	.
7.317	0.2480	0.49	Q	V	.	.	.	.
7.333	0.2487	0.49	Q	V	.	.	.	.
7.350	0.2493	0.49	Q	V	.	.	.	.
7.367	0.2500	0.49	Q	V	.	.	.	.
7.383	0.2507	0.49	Q	V	.	.	.	.
7.400	0.2514	0.50	Q	V	.	.	.	.
7.417	0.2521	0.50	Q	V	.	.	.	.
7.433	0.2528	0.50	Q	V	.	.	.	.
7.450	0.2534	0.50	Q	V	.	.	.	.
7.467	0.2541	0.50	Q	V	.	.	.	.
7.483	0.2548	0.50	Q	V	.	.	.	.
7.500	0.2555	0.50	Q	V	.	.	.	.
7.517	0.2562	0.50	Q	V	.	.	.	.
7.533	0.2569	0.50	.Q	V	.	.	.	.

7.550	0.2576	0.50	.Q	V	.	.	.	.
7.567	0.2583	0.50	.Q	V	.	.	.	.
7.583	0.2589	0.50	.Q	V	.	.	.	.
7.600	0.2596	0.50	.Q	V	.	.	.	.
7.617	0.2603	0.50	.Q	V	.	.	.	.
7.633	0.2610	0.50	.Q	V	.	.	.	.
7.650	0.2617	0.50	.Q	V	.	.	.	.
7.667	0.2624	0.50	.Q	V	.	.	.	.
7.683	0.2631	0.50	.Q	V	.	.	.	.
7.700	0.2638	0.51	.Q	V	.	.	.	.
7.717	0.2645	0.51	.Q	V	.	.	.	.
7.733	0.2652	0.51	.Q	V	.	.	.	.
7.750	0.2659	0.51	.Q	V	.	.	.	.
7.767	0.2666	0.51	.Q	V	.	.	.	.
7.783	0.2673	0.51	.Q	V	.	.	.	.
7.800	0.2680	0.51	.Q	V	.	.	.	.
7.817	0.2687	0.51	.Q	V	.	.	.	.
7.833	0.2694	0.51	.Q	V	.	.	.	.
7.850	0.2701	0.51	.Q	V	.	.	.	.
7.867	0.2708	0.51	.Q	V	.	.	.	.
7.883	0.2715	0.51	.Q	V	.	.	.	.
7.900	0.2722	0.51	.Q	V	.	.	.	.
7.917	0.2729	0.51	.Q	V	.	.	.	.
7.933	0.2736	0.51	.Q	V	.	.	.	.
7.950	0.2743	0.51	.Q	V	.	.	.	.
7.967	0.2750	0.51	.Q	V	.	.	.	.
7.983	0.2757	0.51	.Q	V	.	.	.	.
8.000	0.2764	0.51	.Q	V	.	.	.	.
8.017	0.2771	0.52	.Q	V	.	.	.	.
8.033	0.2779	0.52	.Q	V	.	.	.	.
8.050	0.2786	0.52	.Q	V	.	.	.	.
8.067	0.2793	0.52	.Q	V	.	.	.	.
8.083	0.2800	0.52	.Q	V	.	.	.	.
8.100	0.2807	0.52	.Q	V	.	.	.	.
8.117	0.2814	0.52	.Q	V	.	.	.	.
8.133	0.2821	0.52	.Q	V	.	.	.	.
8.150	0.2828	0.52	.Q	V	.	.	.	.
8.167	0.2836	0.52	.Q	V	.	.	.	.
8.183	0.2843	0.52	.Q	V	.	.	.	.
8.200	0.2850	0.52	.Q	V	.	.	.	.
8.217	0.2857	0.52	.Q	V	.	.	.	.
8.233	0.2864	0.52	.Q	V	.	.	.	.
8.250	0.2871	0.52	.Q	V	.	.	.	.
8.267	0.2879	0.52	.Q	V	.	.	.	.
8.283	0.2886	0.52	.Q	V	.	.	.	.
8.300	0.2893	0.52	.Q	V	.	.	.	.
8.317	0.2900	0.52	.Q	V	.	.	.	.
8.333	0.2907	0.52	.Q	V	.	.	.	.
8.350	0.2915	0.53	.Q	V	.	.	.	.
8.367	0.2922	0.53	.Q	V	.	.	.	.
8.383	0.2929	0.53	.Q	V	.	.	.	.
8.400	0.2936	0.53	.Q	V	.	.	.	.
8.417	0.2944	0.53	.Q	V	.	.	.	.
8.433	0.2951	0.53	.Q	V	.	.	.	.
8.450	0.2958	0.53	.Q	V	.	.	.	.
8.467	0.2966	0.53	.Q	V	.	.	.	.
8.483	0.2973	0.53	.Q	V	.	.	.	.
8.500	0.2980	0.53	.Q	V	.	.	.	.
8.517	0.2988	0.53	.Q	V	.	.	.	.
8.533	0.2995	0.53	.Q	V	.	.	.	.
8.550	0.3002	0.53	.Q	V	.	.	.	.
8.567	0.3010	0.53	.Q	V	.	.	.	.
8.583	0.3017	0.53	.Q	V	.	.	.	.
8.600	0.3024	0.53	.Q	V	.	.	.	.
8.617	0.3032	0.53	.Q	V	.	.	.	.
8.633	0.3039	0.53	.Q	V	.	.	.	.
8.650	0.3046	0.54	.Q	V	.	.	.	.
8.667	0.3054	0.54	.Q	V	.	.	.	.
8.683	0.3061	0.54	.Q	V	.	.	.	.
8.700	0.3069	0.54	.Q	V	.	.	.	.
8.717	0.3076	0.54	.Q	V	.	.	.	.
8.733	0.3083	0.54	.Q	V	.	.	.	.
8.750	0.3091	0.54	.Q	V	.	.	.	.
8.767	0.3098	0.54	.Q	V	.	.	.	.
8.783	0.3106	0.54	.Q	V	.	.	.	.
8.800	0.3113	0.54	.Q	V	.	.	.	.
8.817	0.3121	0.54	.Q	V	.	.	.	.
8.833	0.3128	0.54	.Q	V	.	.	.	.
8.850	0.3136	0.54	.Q	V	.	.	.	.
8.867	0.3143	0.54	.Q	V	.	.	.	.
8.883	0.3151	0.55	.Q	V	.	.	.	.
8.900	0.3158	0.55	.Q	V	.	.	.	.
8.917	0.3166	0.55	.Q	V	.	.	.	.
8.933	0.3173	0.55	.Q	V	.	.	.	.
8.950	0.3181	0.55	.Q	V	.	.	.	.
8.967	0.3188	0.55	.Q	V	.	.	.	.
8.983	0.3196	0.55	.Q	V	.	.	.	.
9.000	0.3204	0.55	.Q	V	.	.	.	.
9.017	0.3211	0.55	.Q	V	.	.	.	.
9.033	0.3219	0.55	.Q	V	.	.	.	.
9.050	0.3226	0.55	.Q	V	.	.	.	.
9.067	0.3234	0.55	.Q	V	.	.	.	.
9.083	0.3241	0.55	.Q	V	.	.	.	.
9.100	0.3249	0.55	.Q	V	.	.	.	.
9.117	0.3257	0.55	.Q	V	.	.	.	.
9.133	0.3264	0.55	.Q	V	.	.	.	.
9.150	0.3272	0.55	.Q	V	.	.	.	.
9.167	0.3280	0.55	.Q	V	.	.	.	.
9.183	0.3287	0.56	.Q	V	.	.	.	.
9.200	0.3295	0.56	.Q	V	.	.	.	.

9.217	0.3303	0.56	.Q	V	.	.	.
9.233	0.3310	0.56	.Q	V	.	.	.
9.250	0.3318	0.56	.Q	V	.	.	.
9.267	0.3326	0.56	.Q	V	.	.	.
9.283	0.3333	0.56	.Q	V	.	.	.
9.300	0.3341	0.56	.Q	V	.	.	.
9.317	0.3349	0.56	.Q	V	.	.	.
9.333	0.3357	0.56	.Q	V	.	.	.
9.350	0.3364	0.56	.Q	V	.	.	.
9.367	0.3372	0.56	.Q	V	.	.	.
9.383	0.3380	0.57	.Q	V	.	.	.
9.400	0.3388	0.57	.Q	V	.	.	.
9.417	0.3396	0.57	.Q	V	.	.	.
9.433	0.3403	0.57	.Q	V	.	.	.
9.450	0.3411	0.57	.Q	V	.	.	.
9.467	0.3419	0.57	.Q	V	.	.	.
9.483	0.3427	0.57	.Q	V	.	.	.
9.500	0.3435	0.57	.Q	V	.	.	.
9.517	0.3443	0.57	.Q	V	.	.	.
9.533	0.3450	0.57	.Q	V	.	.	.
9.550	0.3458	0.57	.Q	V	.	.	.
9.567	0.3466	0.57	.Q	V	.	.	.
9.583	0.3474	0.57	.Q	V	.	.	.
9.600	0.3482	0.57	.Q	V	.	.	.
9.617	0.3490	0.57	.Q	V	.	.	.
9.633	0.3498	0.58	.Q	V	.	.	.
9.650	0.3506	0.58	.Q	V	.	.	.
9.667	0.3514	0.58	.Q	V	.	.	.
9.683	0.3522	0.58	.Q	V.	.	.	.
9.700	0.3530	0.58	.Q	V.	.	.	.
9.717	0.3538	0.58	.Q	V.	.	.	.
9.733	0.3546	0.58	.Q	V.	.	.	.
9.750	0.3554	0.58	.Q	V.	.	.	.
9.767	0.3562	0.58	.Q	V.	.	.	.
9.783	0.3570	0.58	.Q	V.	.	.	.
9.800	0.3578	0.58	.Q	V.	.	.	.
9.817	0.3586	0.58	.Q	V.	.	.	.
9.833	0.3594	0.59	.Q	V.	.	.	.
9.850	0.3602	0.59	.Q	V.	.	.	.
9.867	0.3610	0.59	.Q	V.	.	.	.
9.883	0.3618	0.59	.Q	V.	.	.	.
9.900	0.3626	0.59	.Q	V.	.	.	.
9.917	0.3634	0.59	.Q	V.	.	.	.
9.933	0.3642	0.59	.Q	V.	.	.	.
9.950	0.3650	0.59	.Q	V.	.	.	.
9.967	0.3659	0.59	.Q	V.	.	.	.
9.983	0.3667	0.59	.Q	V.	.	.	.
10.000	0.3675	0.59	.Q	V.	.	.	.
10.017	0.3683	0.59	.Q	V.	.	.	.
10.033	0.3691	0.59	.Q	V.	.	.	.
10.050	0.3699	0.59	.Q	V.	.	.	.
10.067	0.3708	0.60	.Q	V.	.	.	.
10.083	0.3716	0.60	.Q	V.	.	.	.
10.100	0.3724	0.60	.Q	V.	.	.	.
10.117	0.3732	0.60	.Q	V.	.	.	.
10.133	0.3740	0.60	.Q	V.	.	.	.
10.150	0.3749	0.60	.Q	V.	.	.	.
10.167	0.3757	0.60	.Q	V.	.	.	.
10.183	0.3765	0.60	.Q	V.	.	.	.
10.200	0.3774	0.60	.Q	V.	.	.	.
10.217	0.3782	0.60	.Q	V.	.	.	.
10.233	0.3790	0.61	.Q	V.	.	.	.
10.250	0.3799	0.61	.Q	V.	.	.	.
10.267	0.3807	0.61	.Q	V.	.	.	.
10.283	0.3815	0.61	.Q	V.	.	.	.
10.300	0.3824	0.61	.Q	V.	.	.	.
10.317	0.3832	0.61	.Q	V.	.	.	.
10.333	0.3841	0.61	.Q	V.	.	.	.
10.350	0.3849	0.61	.Q	V.	.	.	.
10.367	0.3857	0.61	.Q	V.	.	.	.
10.383	0.3866	0.61	.Q	V.	.	.	.
10.400	0.3874	0.61	.Q	V.	.	.	.
10.417	0.3883	0.61	.Q	V.	.	.	.
10.433	0.3891	0.61	.Q	V.	.	.	.
10.450	0.3899	0.61	.Q	V.	.	.	.
10.467	0.3908	0.62	.Q	V.	.	.	.
10.483	0.3916	0.62	.Q	V	.	.	.
10.500	0.3925	0.62	.Q	V	.	.	.
10.517	0.3933	0.62	.Q	V	.	.	.
10.533	0.3942	0.62	.Q	V	.	.	.
10.550	0.3951	0.62	.Q	V	.	.	.
10.567	0.3959	0.62	.Q	V	.	.	.
10.583	0.3968	0.62	.Q	V	.	.	.
10.600	0.3976	0.63	.Q	V	.	.	.
10.617	0.3985	0.63	.Q	V	.	.	.
10.633	0.3994	0.63	.Q	V	.	.	.
10.650	0.4002	0.63	.Q	V	.	.	.
10.667	0.4011	0.63	.Q	V	.	.	.
10.683	0.4020	0.63	.Q	V	.	.	.
10.700	0.4028	0.63	.Q	V	.	.	.
10.717	0.4037	0.63	.Q	V	.	.	.
10.733	0.4046	0.63	.Q	V	.	.	.
10.750	0.4054	0.63	.Q	V	.	.	.
10.767	0.4063	0.63	.Q	V	.	.	.
10.783	0.4072	0.63	.Q	V	.	.	.
10.800	0.4081	0.63	.Q	V	.	.	.
10.817	0.4089	0.63	.Q	V	.	.	.
10.833	0.4098	0.64	.Q	V	.	.	.
10.850	0.4107	0.64	.Q	V	.	.	.
10.867	0.4116	0.64	.Q	V	.	.	.

10.883	0.4124	0.64	.Q	V	.	.	.
10.900	0.4133	0.64	.Q	V	.	.	.
10.917	0.4142	0.64	.Q	V	.	.	.
10.933	0.4151	0.64	.Q	V	.	.	.
10.950	0.4160	0.64	.Q	V	.	.	.
10.967	0.4169	0.65	.Q	V	.	.	.
10.983	0.4178	0.65	.Q	V	.	.	.
11.000	0.4187	0.65	.Q	V	.	.	.
11.017	0.4196	0.65	.Q	V	.	.	.
11.033	0.4205	0.65	.Q	V	.	.	.
11.050	0.4214	0.65	.Q	V	.	.	.
11.067	0.4223	0.65	.Q	V	.	.	.
11.083	0.4232	0.65	.Q	V	.	.	.
11.100	0.4241	0.66	.Q	V	.	.	.
11.117	0.4250	0.66	.Q	V	.	.	.
11.133	0.4259	0.66	.Q	V	.	.	.
11.150	0.4268	0.66	.Q	V	.	.	.
11.167	0.4277	0.66	.Q	V	.	.	.
11.183	0.4286	0.66	.Q	V	.	.	.
11.200	0.4295	0.66	.Q	V	.	.	.
11.217	0.4304	0.66	.Q	.V	.	.	.
11.233	0.4313	0.66	.Q	.V	.	.	.
11.250	0.4322	0.66	.Q	.V	.	.	.
11.267	0.4331	0.66	.Q	.V	.	.	.
11.283	0.4341	0.66	.Q	.V	.	.	.
11.300	0.4350	0.67	.Q	.V	.	.	.
11.317	0.4359	0.67	.Q	.V	.	.	.
11.333	0.4368	0.67	.Q	.V	.	.	.
11.350	0.4377	0.67	.Q	.V	.	.	.
11.367	0.4387	0.67	.Q	.V	.	.	.
11.383	0.4396	0.67	.Q	.V	.	.	.
11.400	0.4405	0.68	.Q	.V	.	.	.
11.417	0.4415	0.68	.Q	.V	.	.	.
11.433	0.4424	0.68	.Q	.V	.	.	.
11.450	0.4433	0.68	.Q	.V	.	.	.
11.467	0.4443	0.68	.Q	.V	.	.	.
11.483	0.4452	0.68	.Q	.V	.	.	.
11.500	0.4461	0.68	.Q	.V	.	.	.
11.517	0.4471	0.69	.Q	.V	.	.	.
11.533	0.4480	0.69	.Q	.V	.	.	.
11.550	0.4490	0.69	.Q	.V	.	.	.
11.567	0.4499	0.69	.Q	.V	.	.	.
11.583	0.4509	0.69	.Q	.V	.	.	.
11.600	0.4518	0.69	.Q	.V	.	.	.
11.617	0.4528	0.69	.Q	.V	.	.	.
11.633	0.4537	0.69	.Q	.V	.	.	.
11.650	0.4547	0.69	.Q	.V	.	.	.
11.667	0.4556	0.69	.Q	.V	.	.	.
11.683	0.4566	0.69	.Q	.V	.	.	.
11.700	0.4575	0.69	.Q	.V	.	.	.
11.717	0.4585	0.70	.Q	.V	.	.	.
11.733	0.4595	0.70	.Q	.V	.	.	.
11.750	0.4604	0.70	.Q	.V	.	.	.
11.767	0.4614	0.70	.Q	.V	.	.	.
11.783	0.4624	0.70	.Q	.V	.	.	.
11.800	0.4633	0.70	.Q	.V	.	.	.
11.817	0.4643	0.71	.Q	.V	.	.	.
11.833	0.4653	0.71	.Q	.V	.	.	.
11.850	0.4663	0.71	.Q	.V	.	.	.
11.867	0.4672	0.71	.Q	.V	.	.	.
11.883	0.4682	0.71	.Q	.V	.	.	.
11.900	0.4692	0.72	.Q	.V	.	.	.
11.917	0.4702	0.72	.Q	. V	.	.	.
11.933	0.4712	0.72	.Q	. V	.	.	.
11.950	0.4722	0.72	.Q	. V	.	.	.
11.967	0.4732	0.72	.Q	. V	.	.	.
11.983	0.4742	0.72	.Q	. V	.	.	.
12.000	0.4752	0.72	.Q	. V	.	.	.
12.017	0.4762	0.72	.Q	. V	.	.	.
12.033	0.4772	0.72	.Q	. V	.	.	.
12.050	0.4782	0.73	.Q	. V	.	.	.
12.067	0.4792	0.73	.Q	. V	.	.	.
12.083	0.4802	0.73	.Q	. V	.	.	.
12.100	0.4812	0.73	.Q	. V	.	.	.
12.117	0.4822	0.73	.Q	. V	.	.	.
12.133	0.4832	0.73	.Q	. V	.	.	.
12.150	0.4842	0.73	.Q	. V	.	.	.
12.167	0.4852	0.73	.Q	. V	.	.	.
12.183	0.4862	0.73	.Q	. V	.	.	.
12.200	0.4872	0.73	.Q	. V	.	.	.
12.217	0.4882	0.73	.Q	. V	.	.	.
12.233	0.4892	0.73	.Q	. V	.	.	.
12.250	0.4902	0.73	.Q	. V	.	.	.
12.267	0.4912	0.73	.Q	. V	.	.	.
12.283	0.4922	0.73	.Q	. V	.	.	.
12.300	0.4932	0.73	.Q	. V	.	.	.
12.317	0.4942	0.73	.Q	. V	.	.	.
12.333	0.4952	0.73	.Q	. V	.	.	.
12.350	0.4963	0.73	.Q	. V	.	.	.
12.367	0.4973	0.73	.Q	. V	.	.	.
12.383	0.4983	0.73	.Q	. V	.	.	.
12.400	0.4993	0.73	.Q	. V	.	.	.
12.417	0.5003	0.73	.Q	. V	.	.	.
12.433	0.5013	0.74	.Q	. V	.	.	.
12.450	0.5023	0.74	.Q	. V	.	.	.
12.467	0.5033	0.74	.Q	. V	.	.	.
12.483	0.5043	0.74	.Q	. V	.	.	.
12.500	0.5054	0.74	.Q	. V	.	.	.
12.517	0.5064	0.74	.Q	. V	.	.	.
12.533	0.5074	0.74	.Q	. V	.	.	.

12.550	0.5084	0.74	.Q	.	V	.	.	.
12.567	0.5095	0.74	.Q	.	V	.	.	.
12.583	0.5105	0.75	.Q	.	V	.	.	.
12.600	0.5115	0.75	.Q	.	V	.	.	.
12.617	0.5126	0.75	.Q	.	V	.	.	.
12.633	0.5136	0.75	.Q	.	V	.	.	.
12.650	0.5146	0.76	.Q	.	V	.	.	.
12.667	0.5157	0.76	.Q	.	V	.	.	.
12.683	0.5167	0.76	.Q	.	V	.	.	.
12.700	0.5178	0.76	.Q	.	V	.	.	.
12.717	0.5188	0.77	.Q	.	V	.	.	.
12.733	0.5199	0.77	.Q	.	V	.	.	.
12.750	0.5210	0.77	.Q	.	V	.	.	.
12.767	0.5220	0.77	.Q	.	V	.	.	.
12.783	0.5231	0.78	.Q	.	V	.	.	.
12.800	0.5242	0.78	.Q	.	V	.	.	.
12.817	0.5253	0.78	.Q	.	V	.	.	.
12.833	0.5263	0.78	.Q	.	V	.	.	.
12.850	0.5274	0.78	.Q	.	V	.	.	.
12.867	0.5285	0.78	.Q	.	V	.	.	.
12.883	0.5296	0.79	.Q	.	V	.	.	.
12.900	0.5307	0.79	.Q	.	V	.	.	.
12.917	0.5317	0.79	.Q	.	V	.	.	.
12.933	0.5328	0.79	.Q	.	V	.	.	.
12.950	0.5339	0.79	.Q	.	V	.	.	.
12.967	0.5350	0.79	.Q	.	V	.	.	.
12.983	0.5361	0.79	.Q	.	V	.	.	.
13.000	0.5372	0.80	.Q	.	V	.	.	.
13.017	0.5383	0.80	.Q	.	V	.	.	.
13.033	0.5394	0.80	.Q	.	V	.	.	.
13.050	0.5405	0.80	.Q	.	V	.	.	.
13.067	0.5416	0.81	.Q	.	V	.	.	.
13.083	0.5427	0.81	.Q	.	V	.	.	.
13.100	0.5439	0.81	.Q	.	V	.	.	.
13.117	0.5450	0.82	.Q	.	V	.	.	.
13.133	0.5461	0.82	.Q	.	V	.	.	.
13.150	0.5472	0.82	.Q	.	V	.	.	.
13.167	0.5484	0.83	.Q	.	V	.	.	.
13.183	0.5495	0.83	.Q	.	V	.	.	.
13.200	0.5507	0.83	.Q	.	V	.	.	.
13.217	0.5518	0.84	.Q	.	V	.	.	.
13.233	0.5530	0.84	.Q	.	V	.	.	.
13.250	0.5541	0.84	.Q	.	V	.	.	.
13.267	0.5553	0.84	.Q	.	V	.	.	.
13.283	0.5565	0.84	.Q	.	V	.	.	.
13.300	0.5576	0.84	.Q	.	V	.	.	.
13.317	0.5588	0.85	.Q	.	V	.	.	.
13.333	0.5599	0.85	.Q	.	V	.	.	.
13.350	0.5611	0.85	.Q	.	V	.	.	.
13.367	0.5623	0.85	.Q	.	V	.	.	.
13.383	0.5635	0.85	.Q	.	V	.	.	.
13.400	0.5646	0.85	.Q	.	V	.	.	.
13.417	0.5658	0.86	.Q	.	V	.	.	.
13.433	0.5670	0.86	.Q	.	V	.	.	.
13.450	0.5682	0.86	.Q	.	V	.	.	.
13.467	0.5694	0.87	.Q	.	V	.	.	.
13.483	0.5706	0.87	.Q	.	V	.	.	.
13.500	0.5718	0.87	.Q	.	V	.	.	.
13.517	0.5730	0.88	.Q	.	V	.	.	.
13.533	0.5742	0.88	.Q	.	V	.	.	.
13.550	0.5754	0.89	.Q	.	V	.	.	.
13.567	0.5767	0.89	.Q	.	V	.	.	.
13.583	0.5779	0.89	.Q	.	V	.	.	.
13.600	0.5791	0.90	.Q	.	V	.	.	.
13.617	0.5804	0.90	.Q	.	V	.	.	.
13.633	0.5816	0.91	.Q	.	V	.	.	.
13.650	0.5829	0.91	.Q	.	V	.	.	.
13.667	0.5841	0.91	.Q	.	V	.	.	.
13.683	0.5854	0.91	.Q	.	V	.	.	.
13.700	0.5866	0.91	.Q	.	V	.	.	.
13.717	0.5879	0.92	.Q	.	V	.	.	.
13.733	0.5892	0.92	.Q	.	V	.	.	.
13.750	0.5904	0.92	.Q	.	V	.	.	.
13.767	0.5917	0.92	.Q	.	V	.	.	.
13.783	0.5930	0.93	.Q	.	V	.	.	.
13.800	0.5943	0.93	.Q	.	V	.	.	.
13.817	0.5955	0.93	.Q	.	V	.	.	.
13.833	0.5968	0.93	.Q	.	V	.	.	.
13.850	0.5981	0.93	.Q	.	V	.	.	.
13.867	0.5994	0.94	.Q	.	V	.	.	.
13.883	0.6007	0.94	.Q	.	V	.	.	.
13.900	0.6020	0.95	.Q	.	V	.	.	.
13.917	0.6033	0.95	.Q	.	V	.	.	.
13.933	0.6046	0.96	.Q	.	V	.	.	.
13.950	0.6060	0.96	.Q	.	V	.	.	.
13.967	0.6073	0.97	.Q	.	V	.	.	.
13.983	0.6086	0.97	.Q	.	V	.	.	.
14.000	0.6100	0.98	.Q	.	V	.	.	.
14.017	0.6114	0.98	.Q	.	V	.	.	.
14.033	0.6127	0.99	.Q	.	V	.	.	.
14.050	0.6141	0.99	.Q	.	V	.	.	.
14.067	0.6155	1.00	.Q	.	V	.	.	.
14.083	0.6168	1.00	.Q	.	V	.	.	.
14.100	0.6182	1.00	.Q	.	V	.	.	.
14.117	0.6196	1.00	.Q	.	V	.	.	.
14.133	0.6210	0.99	.Q	.	V	.	.	.
14.150	0.6223	0.99	.Q	.	V	.	.	.
14.167	0.6237	0.99	.Q	.	V	.	.	.
14.183	0.6250	0.99	.Q	.	V	.	.	.
14.200	0.6264	0.99	.Q	.	V	.	.	.

14.217	0.6278	0.98	.Q	.	V	.	.	.
14.233	0.6291	0.98	.Q	.	V	.	.	.
14.250	0.6305	0.98	.Q	.	V	.	.	.
14.267	0.6318	0.98	.Q	.	V	.	.	.
14.283	0.6331	0.97	.Q	.	V	.	.	.
14.300	0.6345	0.98	.Q	.	V	.	.	.
14.317	0.6358	0.99	.Q	.	V	.	.	.
14.333	0.6372	0.99	.Q	.	V	.	.	.
14.350	0.6386	1.00	.Q	.	V	.	.	.
14.367	0.6400	1.01	. Q	.	V	.	.	.
14.383	0.6414	1.01	. Q	.	V	.	.	.
14.400	0.6428	1.02	. Q	.	V	.	.	.
14.417	0.6442	1.03	. Q	.	V	.	.	.
14.433	0.6456	1.03	. Q	.	V	.	.	.
14.450	0.6470	1.04	. Q	.	V	.	.	.
14.467	0.6485	1.05	. Q	.	V	.	.	.
14.483	0.6499	1.05	. Q	.	V	.	.	.
14.500	0.6514	1.06	. Q	.	V	.	.	.
14.517	0.6529	1.06	. Q	.	V	.	.	.
14.533	0.6543	1.07	. Q	.	V	.	.	.
14.550	0.6558	1.07	. Q	.	V	.	.	.
14.567	0.6573	1.08	. Q	.	V	.	.	.
14.583	0.6588	1.08	. Q	.	V	.	.	.
14.600	0.6603	1.09	. Q	.	V	.	.	.
14.617	0.6618	1.09	. Q	.	V	.	.	.
14.633	0.6633	1.09	. Q	.	V	.	.	.
14.650	0.6648	1.10	. Q	.	V	.	.	.
14.667	0.6663	1.10	. Q	.	V	.	.	.
14.683	0.6678	1.11	. Q	.	V	.	.	.
14.700	0.6694	1.11	. Q	.	V	.	.	.
14.717	0.6709	1.12	. Q	.	V	.	.	.
14.733	0.6725	1.13	. Q	.	V	.	.	.
14.750	0.6740	1.14	. Q	.	V	.	.	.
14.767	0.6756	1.15	. Q	.	V	.	.	.
14.783	0.6772	1.16	. Q	.	V	.	.	.
14.800	0.6788	1.17	. Q	.	V	.	.	.
14.817	0.6805	1.18	. Q	.	V	.	.	.
14.833	0.6821	1.19	. Q	.	V	.	.	.
14.850	0.6837	1.20	. Q	.	V	.	.	.
14.867	0.6854	1.21	. Q	.	V	.	.	.
14.883	0.6871	1.22	. Q	.	V	.	.	.
14.900	0.6888	1.23	. Q	.	V	.	.	.
14.917	0.6905	1.25	. Q	.	V	.	.	.
14.933	0.6923	1.26	. Q	.	V	.	.	.
14.950	0.6940	1.26	. Q	.	V	.	.	.
14.967	0.6957	1.27	. Q	.	V	.	.	.
14.983	0.6975	1.28	. Q	.	V	.	.	.
15.000	0.6993	1.28	. Q	.	V	.	.	.
15.017	0.7010	1.29	. Q	.	V	.	.	.
15.033	0.7028	1.30	. Q	.	V	.	.	.
15.050	0.7046	1.31	. Q	.	V	.	.	.
15.067	0.7064	1.31	. Q	.	V	.	.	.
15.083	0.7083	1.32	. Q	.	V	.	.	.
15.100	0.7101	1.33	. Q	.	V	.	.	.
15.117	0.7119	1.33	. Q	.	V	.	.	.
15.133	0.7138	1.34	. Q	.	V	.	.	.
15.150	0.7156	1.35	. Q	.	V	.	.	.
15.167	0.7175	1.37	. Q	.	V	.	.	.
15.183	0.7194	1.39	. Q	.	V	.	.	.
15.200	0.7214	1.41	. Q	.	V	.	.	.
15.217	0.7233	1.43	. Q	.	V	.	.	.
15.233	0.7253	1.45	. Q	.	V	.	.	.
15.250	0.7274	1.47	. Q	.	V	.	.	.
15.267	0.7294	1.49	. Q	.	V	.	.	.
15.283	0.7315	1.51	. Q	.	V	.	.	.
15.300	0.7336	1.53	. Q	.	V	.	.	.
15.317	0.7357	1.55	. Q	.	V	.	.	.
15.333	0.7379	1.57	. Q	.	V	.	.	.
15.350	0.7401	1.59	. Q	.	V	.	.	.
15.367	0.7423	1.61	. Q	.	V	.	.	.
15.383	0.7446	1.67	. Q	.	V.	.	.	.
15.400	0.7469	1.72	. Q	.	V.	.	.	.
15.417	0.7494	1.77	. Q	.	V.	.	.	.
15.433	0.7519	1.82	. Q	.	V.	.	.	.
15.450	0.7545	1.87	. Q	.	V.	.	.	.
15.467	0.7571	1.92	. Q	.	V.	.	.	.
15.483	0.7598	1.98	. Q	.	V.	.	.	.
15.500	0.7626	2.03	. Q	.	V.	.	.	.
15.517	0.7655	2.08	. Q	.	V.	.	.	.
15.533	0.7684	2.13	. Q	.	V.	.	.	.
15.550	0.7714	2.18	. Q	.	V.	.	.	.
15.567	0.7745	2.23	. Q	.	V.	.	.	.
15.583	0.7777	2.30	. Q	.	V.	.	.	.
15.600	0.7810	2.38	. Q	.	V.	.	.	.
15.617	0.7844	2.47	. Q	.	V	.	.	.
15.633	0.7879	2.55	. Q	.	V	.	.	.
15.650	0.7915	2.64	. Q	.	V	.	.	.
15.667	0.7953	2.72	. Q	.	V	.	.	.
15.683	0.7991	2.81	. Q	.	V	.	.	.
15.700	0.8031	2.89	. Q	.	V	.	.	.
15.717	0.8072	2.98	. Q	.	V	.	.	.
15.733	0.8114	3.06	. Q	.	V	.	.	.
15.750	0.8158	3.15	. Q	.	V	.	.	.
15.767	0.8202	3.24	. Q	.	V	.	.	.
15.783	0.8248	3.32	. Q	.	.V	.	.	.
15.800	0.8295	3.40	. Q	.	.V	.	.	.
15.817	0.8343	3.47	. Q	.	.V	.	.	.
15.833	0.8391	3.53	. Q	.	.V	.	.	.
15.850	0.8441	3.60	. Q	.	.V	.	.	.
15.867	0.8491	3.67	. Q	.	.V	.	.	.

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15.883    0.8543    3.73  .     Q  .        .V       .        .
15.900    0.8595    3.80  .     Q  .        .V       .        .
15.917    0.8648    3.87  .     Q  .        . V      .        .
15.933    0.8703    3.93  .     Q  .        . V      .        .
15.950    0.8758    4.00  .      Q .        . V      .        .
15.967    0.8814    4.07  .      Q .        . V      .        .
15.983    0.8871    4.14  .      Q .        . V      .        .
16.000    0.8929    4.20  .      Q .        . V      .        .
16.017    0.8991    4.51  .       Q.        . V      .        .
16.033    0.9060    5.06  .        Q        .  V     .        .
16.050    0.9138    5.61  .        .Q       .  V     .        .
16.067    0.9223    6.16  .        . Q      .  V     .        .
16.083    0.9315    6.71  .        .  Q     .  V     .        .
16.100    0.9415    7.26  .        .   Q    .   V    .        .
16.117    0.9523    7.81  .        .    Q   .   V    .        .
16.133    0.9638    8.36  .        .     Q  .   V    .        .
16.150    0.9761    8.91  .        .      Q .   V    .        .
16.167    0.9891    9.46  .        .       Q.    V   .        .
16.183    1.0029   10.01  .        .         Q   V   .        .
16.200    1.0174   10.56  .        .          .Q   V  .        .
16.217    1.0330   11.34  .        .          . Q  V  .        .
16.233    1.0481   10.95  .        .          .Q   V  .        .
16.250    1.0623   10.30  .        .          Q     V .        .
16.267    1.0756    9.65  .        .         Q.     V .        .
16.283    1.0880    8.99  .        .       Q  .     V .        .
16.300    1.0995    8.34  .        .     Q    .      V.        .
16.317    1.1101    7.69  .        .    Q     .      V.        .
16.333    1.1198    7.03  .        .   Q      .      V.        .
16.350    1.1285    6.38  .        . Q        .      V.        .
16.367    1.1364    5.73  .        .Q         .       V.       .
16.383    1.1434    5.08  .        Q          .       V.       .
16.400    1.1495    4.42  .       Q .         .       V.       .
16.417    1.1547    3.77  .      Q  .         .       V.       .
16.433    1.1590    3.12  .     Q   .         .       V.       .
16.450    1.1629    2.83  .    Q    .         .       V.       .
16.467    1.1667    2.72  .    Q    .         .       V.       .
16.483    1.1702    2.61  .    Q    .         .       V.       .
16.500    1.1737    2.49  .   Q     .         .        V       .
16.517    1.1770    2.38  .   Q     .         .        V       .
16.533    1.1801    2.27  .   Q     .         .        V       .
16.550    1.1831    2.16  .   Q     .         .        V       .
16.567    1.1859    2.05  .   Q     .         .        V       .
16.583    1.1885    1.93  .  Q      .         .        V       .
16.600    1.1910    1.82  .  Q      .         .        V       .
16.617    1.1934    1.71  .  Q      .         .        V       .
16.633    1.1956    1.60  .  Q      .         .        V       .
16.650    1.1977    1.49  . Q       .         .        V       .
16.667    1.1996    1.44  . Q       .         .        V       .
16.683    1.2016    1.42  . Q       .         .        V       .
16.700    1.2035    1.40  . Q       .         .        V       .
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16.717    1.2054    1.38  . Q       .         .        V       .
16.733    1.2073    1.36  . Q       .         .        V       .
16.750    1.2091    1.33  . Q       .         .        V       .
16.767    1.2109    1.31  . Q       .         .        V       .
16.783    1.2127    1.29  . Q       .         .        .V      .
16.800    1.2145    1.27  . Q       .         .        .V      .
16.817    1.2162    1.25  . Q       .         .        .V      .
16.833    1.2179    1.23  . Q       .         .        .V      .
16.850    1.2195    1.20  . Q       .         .        .V      .
16.867    1.2212    1.18  . Q       .         .        .V      .
16.883    1.2228    1.17  . Q       .         .        .V      .
16.900    1.2244    1.16  . Q       .         .        .V      .
16.917    1.2259    1.14  . Q       .         .        .V      .
16.933    1.2275    1.13  . Q       .         .        .V      .
16.950    1.2290    1.12  . Q       .         .        .V      .
16.967    1.2306    1.10  . Q       .         .        .V      .
16.983    1.2321    1.09  . Q       .         .        .V      .
17.000    1.2335    1.08  . Q       .         .        .V      .
17.017    1.2350    1.07  . Q       .         .        .V      .
17.033    1.2365    1.05  . Q       .         .        .V      .
17.050    1.2379    1.04  . Q       .         .        .V      .
17.067    1.2393    1.03  . Q       .         .        .V      .
17.083    1.2407    1.01  . Q       .         .        .V      .
17.100    1.2421    1.01  . Q       .         .        .V      .
17.117    1.2435    1.01  . Q       .         .        .V      .
17.133    1.2449    1.00  . Q       .         .        .V      .
17.150    1.2462    1.00  .Q        .         .        .V      .
17.167    1.2476    1.00  .Q        .         .        .V      .
17.183    1.2490    0.99  .Q        .         .        .V      .
17.200    1.2503    0.99  .Q        .         .        .V      .
17.217    1.2517    0.98  .Q        .         .        . V     .
17.233    1.2530    0.98  .Q        .         .        . V     .
17.250    1.2544    0.98  .Q        .         .        . V     .
17.267    1.2557    0.97  .Q        .         .        . V     .
17.283    1.2571    0.97  .Q        .         .        . V     .
17.300    1.2584    0.97  .Q        .         .        . V     .
17.317    1.2597    0.96  .Q        .         .        . V     .
17.333    1.2610    0.95  .Q        .         .        . V     .
17.350    1.2623    0.95  .Q        .         .        . V     .
17.367    1.2636    0.94  .Q        .         .        . V     .
17.383    1.2649    0.93  .Q        .         .        . V     .
17.400    1.2662    0.93  .Q        .         .        . V     .
17.417    1.2674    0.92  .Q        .         .        . V     .
17.433    1.2687    0.91  .Q        .         .        . V     .
17.450    1.2700    0.91  .Q        .         .        . V     .
17.467    1.2712    0.90  .Q        .         .        . V     .
17.483    1.2724    0.89  .Q        .         .        . V     .
17.500    1.2736    0.89  .Q        .         .        . V     .
17.517    1.2749    0.88  .Q        .         .        . V     .
17.533    1.2761    0.88  .Q        .         .        . V     .
```

17.550	1.2773	0.87	.Q	.	.	.	V	.	
17.567	1.2785	0.86	.Q	.	.	.	V	.	
17.583	1.2796	0.86	.Q	.	.	.	V	.	
17.600	1.2808	0.85	.Q	.	.	.	V	.	
17.617	1.2820	0.85	.Q	.	.	.	V	.	
17.633	1.2831	0.84	.Q	.	.	.	V	.	
17.650	1.2843	0.84	.Q	.	.	.	V	.	
17.667	1.2855	0.83	.Q	.	.	.	V	.	
17.683	1.2866	0.83	.Q	.	.	.	V	.	
17.700	1.2877	0.82	.Q	.	.	.	V	.	
17.717	1.2889	0.82	.Q	.	.	.	V	.	
17.733	1.2900	0.81	.Q	.	.	.	V	.	
17.750	1.2911	0.81	.Q	.	.	.	V	.	
17.767	1.2922	0.80	.Q	.	.	.	V	.	
17.783	1.2933	0.80	.Q	.	.	.	V	.	
17.800	1.2944	0.80	.Q	.	.	.	V	.	
17.817	1.2955	0.79	.Q	.	.	.	V	.	
17.833	1.2966	0.79	.Q	.	.	.	V	.	
17.850	1.2977	0.78	.Q	.	.	.	V	.	
17.867	1.2987	0.78	.Q	.	.	.	V	.	
17.883	1.2998	0.78	.Q	.	.	.	V	.	
17.900	1.3009	0.77	.Q	.	.	.	V	.	
17.917	1.3019	0.77	.Q	.	.	.	V	.	
17.933	1.3030	0.76	.Q	.	.	.	V	.	
17.950	1.3040	0.76	.Q	.	.	.	V	.	
17.967	1.3051	0.76	.Q	.	.	.	V	.	
17.983	1.3061	0.75	.Q	.	.	.	V	.	
18.000	1.3071	0.75	.Q	.	.	.	V	.	
18.017	1.3082	0.75	.Q	.	.	.	V	.	
18.033	1.3092	0.74	.Q	.	.	.	V	.	
18.050	1.3102	0.74	.Q	.	.	.	V	.	
18.067	1.3112	0.74	.Q	.	.	.	V	.	
18.083	1.3122	0.73	.Q	.	.	.	V	.	
18.100	1.3132	0.73	.Q	.	.	.	V	.	
18.117	1.3142	0.73	.Q	.	.	.	V	.	
18.133	1.3152	0.72	.Q	.	.	.	V	.	
18.150	1.3162	0.72	.Q	.	.	.	V	.	
18.167	1.3172	0.72	.Q	.	.	.	V	.	
18.183	1.3182	0.72	.Q	.	.	.	V	.	
18.200	1.3192	0.72	.Q	.	.	.	V	.	
18.217	1.3202	0.72	.Q	.	.	.	V	.	
18.233	1.3211	0.71	.Q	.	.	.	V	.	
18.250	1.3221	0.71	.Q	.	.	.	V	.	
18.267	1.3231	0.71	.Q	.	.	.	V	.	
18.283	1.3241	0.71	.Q	.	.	.	V	.	
18.300	1.3251	0.71	.Q	.	.	.	V	.	
18.317	1.3260	0.71	.Q	.	.	.	V	.	
18.333	1.3270	0.71	.Q	.	.	.	V	.	
18.350	1.3280	0.71	.Q	.	.	.	V	.	
18.367	1.3290	0.71	.Q	.	.	.	V	.	
18.383	1.3299	0.70	.Q	.	.	.	V	.	
18.400	1.3309	0.70	.Q	.	.	.	V	.	
18.417	1.3319	0.70	.Q	.	.	.	V	.	
18.433	1.3328	0.70	.Q	.	.	.	V	.	
18.450	1.3338	0.69	.Q	.	.	.	V	.	
18.467	1.3347	0.69	.Q	.	.	.	V	.	
18.483	1.3357	0.69	.Q	.	.	.	V	.	
18.500	1.3366	0.69	.Q	.	.	.	V	.	
18.517	1.3376	0.68	.Q	.	.	.	V	.	
18.533	1.3385	0.68	.Q	.	.	.	V	.	
18.550	1.3395	0.68	.Q	.	.	.	V	.	
18.567	1.3404	0.68	.Q	.	.	.	V	.	
18.583	1.3413	0.67	.Q	.	.	.	V	.	
18.600	1.3422	0.67	.Q	.	.	.	V	.	
18.617	1.3432	0.67	.Q	.	.	.	V	.	
18.633	1.3441	0.67	.Q	.	.	.	V	.	
18.650	1.3450	0.67	.Q	.	.	.	V	.	
18.667	1.3459	0.66	.Q	.	.	.	V	.	
18.683	1.3468	0.66	.Q	.	.	.	V	.	
18.700	1.3477	0.66	.Q	.	.	.	V	.	
18.717	1.3486	0.66	.Q	.	.	.	V	.	
18.733	1.3495	0.65	.Q	.	.	.	V	.	
18.750	1.3504	0.65	.Q	.	.	.	V	.	
18.767	1.3513	0.65	.Q	.	.	.	V	.	
18.783	1.3522	0.65	.Q	.	.	.	V	.	
18.800	1.3531	0.65	.Q	.	.	.	V	.	
18.817	1.3540	0.64	.Q	.	.	.	V	.	
18.833	1.3549	0.64	.Q	.	.	.	V	.	
18.850	1.3558	0.64	.Q	.	.	.	V	.	
18.867	1.3566	0.64	.Q	.	.	.	V	.	
18.883	1.3575	0.64	.Q	.	.	.	V	.	
18.900	1.3584	0.63	.Q	.	.	.	V	.	
18.917	1.3593	0.63	.Q	.	.	.	V	.	
18.933	1.3601	0.63	.Q	.	.	.	V	.	
18.950	1.3610	0.63	.Q	.	.	.	V	.	
18.967	1.3619	0.63	.Q	.	.	.	V	.	
18.983	1.3627	0.62	.Q	.	.	.	V	.	
19.000	1.3636	0.62	.Q	.	.	.	V	.	
19.017	1.3644	0.62	.Q	.	.	.	V	.	
19.033	1.3653	0.62	.Q	.	.	.	V	.	
19.050	1.3661	0.62	.Q	.	.	.	V	.	
19.067	1.3670	0.61	.Q	.	.	.	V	.	
19.083	1.3678	0.61	.Q	.	.	.	V	.	
19.100	1.3687	0.61	.Q	.	.	.	V	.	
19.117	1.3695	0.61	.Q	.	.	.	V	.	
19.133	1.3703	0.61	.Q	.	.	.	V	.	
19.150	1.3712	0.61	.Q	.	.	.	V	.	
19.167	1.3720	0.60	.Q	.	.	.	V	.	
19.183	1.3728	0.60	.Q	.	.	.	V	.	
19.200	1.3737	0.60	.Q	.	.	.	V	.	

19.217	1.3745	0.60	.Q	.	.	.	V	.
19.233	1.3753	0.60	.Q	.	.	.	V	.
19.250	1.3761	0.60	.Q	.	.	.	V	.
19.267	1.3769	0.59	.Q	.	.	.	V	.
19.283	1.3778	0.59	.Q	.	.	.	V	.
19.300	1.3786	0.59	.Q	.	.	.	V	.
19.317	1.3794	0.59	.Q	.	.	.	V	.
19.333	1.3802	0.59	.Q	.	.	.	V	.
19.350	1.3810	0.59	.Q	.	.	.	V	.
19.367	1.3818	0.58	.Q	.	.	.	V	.
19.383	1.3826	0.58	.Q	.	.	.	V	.
19.400	1.3834	0.58	.Q	.	.	.	V	.
19.417	1.3842	0.58	.Q	.	.	.	V	.
19.433	1.3850	0.58	.Q	.	.	.	V	.
19.450	1.3858	0.58	.Q	.	.	.	V	.
19.467	1.3866	0.58	.Q	.	.	.	V	.
19.483	1.3874	0.57	.Q	.	.	.	V	.
19.500	1.3882	0.57	.Q	.	.	.	V	.
19.517	1.3890	0.57	.Q	.	.	.	V	.
19.533	1.3897	0.57	.Q	.	.	.	V	.
19.550	1.3905	0.57	.Q	.	.	.	V	.
19.567	1.3913	0.57	.Q	.	.	.	V	.
19.583	1.3921	0.57	.Q	.	.	.	V	.
19.600	1.3929	0.56	.Q	.	.	.	V	.
19.617	1.3936	0.56	.Q	.	.	.	V	.
19.633	1.3944	0.56	.Q	.	.	.	V	.
19.650	1.3952	0.56	.Q	.	.	.	V	.
19.667	1.3959	0.56	.Q	.	.	.	V	.
19.683	1.3967	0.56	.Q	.	.	.	V	.
19.700	1.3975	0.56	.Q	.	.	.	V	.
19.717	1.3982	0.55	.Q	.	.	.	V	.
19.733	1.3990	0.55	.Q	.	.	.	V	.
19.750	1.3998	0.55	.Q	.	.	.	V	.
19.767	1.4005	0.55	.Q	.	.	.	V	.
19.783	1.4013	0.55	.Q	.	.	.	V	.
19.800	1.4020	0.55	.Q	.	.	.	V	.
19.817	1.4028	0.55	.Q	.	.	.	V	.
19.833	1.4035	0.55	.Q	.	.	.	V	.
19.850	1.4043	0.54	.Q	.	.	.	V	.
19.867	1.4050	0.54	.Q	.	.	.	V	.
19.883	1.4058	0.54	.Q	.	.	.	V	.
19.900	1.4065	0.54	.Q	.	.	.	V	.
19.917	1.4073	0.54	.Q	.	.	.	V	.
19.933	1.4080	0.54	.Q	.	.	.	V	.
19.950	1.4087	0.54	.Q	.	.	.	V	.
19.967	1.4095	0.54	.Q	.	.	.	V	.
19.983	1.4102	0.53	.Q	.	.	.	V	.
20.000	1.4110	0.53	.Q	.	.	.	V	.
20.017	1.4117	0.53	.Q	.	.	.	V	.
20.033	1.4124	0.53	.Q	.	.	.	V	.
20.050	1.4131	0.53	.Q	.	.	.	V	.
20.067	1.4139	0.53	.Q	.	.	.	V	.
20.083	1.4146	0.53	.Q	.	.	.	V	.
20.100	1.4153	0.53	.Q	.	.	.	V	.
20.117	1.4160	0.52	.Q	.	.	.	V	.
20.133	1.4168	0.52	.Q	.	.	.	V	.
20.150	1.4175	0.52	.Q	.	.	.	V	.
20.167	1.4182	0.52	.Q	.	.	.	V	.
20.183	1.4189	0.52	.Q	.	.	.	V	.
20.200	1.4196	0.52	.Q	.	.	.	V	.
20.217	1.4204	0.52	.Q	.	.	.	V	.
20.233	1.4211	0.52	.Q	.	.	.	V	.
20.250	1.4218	0.52	.Q	.	.	.	V	.
20.267	1.4225	0.52	.Q	.	.	.	V	.
20.283	1.4232	0.51	.Q	.	.	.	V	.
20.300	1.4239	0.51	.Q	.	.	.	V	.
20.317	1.4246	0.51	.Q	.	.	.	V	.
20.333	1.4253	0.51	.Q	.	.	.	V	.
20.350	1.4260	0.51	.Q	.	.	.	V	.
20.367	1.4267	0.51	.Q	.	.	.	V	.
20.383	1.4274	0.51	.Q	.	.	.	V	.
20.400	1.4281	0.51	.Q	.	.	.	V	.
20.417	1.4288	0.51	.Q	.	.	.	V	.
20.433	1.4295	0.50	.Q	.	.	.	V	.
20.450	1.4302	0.50	.Q	.	.	.	V	.
20.467	1.4309	0.50	.Q	.	.	.	V	.
20.483	1.4316	0.50	.Q	.	.	.	V	.
20.500	1.4323	0.50	.Q	.	.	.	V	.
20.517	1.4330	0.50	Q	.	.	.	V	.
20.533	1.4336	0.50	Q	.	.	.	V	.
20.550	1.4343	0.50	Q	.	.	.	V	.
20.567	1.4350	0.50	Q	.	.	.	V	.
20.583	1.4357	0.50	Q	.	.	.	V	.
20.600	1.4364	0.50	Q	.	.	.	V	.
20.617	1.4371	0.49	Q	.	.	.	V	.
20.633	1.4377	0.49	Q	.	.	.	V	.
20.650	1.4384	0.49	Q	.	.	.	V	.
20.667	1.4391	0.49	Q	.	.	.	V	.
20.683	1.4398	0.49	Q	.	.	.	V	.
20.700	1.4404	0.49	Q	.	.	.	V	.
20.717	1.4411	0.49	Q	.	.	.	V	.
20.733	1.4418	0.49	Q	.	.	.	V	.
20.750	1.4425	0.49	Q	.	.	.	V	.
20.767	1.4431	0.49	Q	.	.	.	V	.
20.783	1.4438	0.48	Q	.	.	.	V	.
20.800	1.4445	0.48	Q	.	.	.	V	.
20.817	1.4451	0.48	Q	.	.	.	V	.
20.833	1.4458	0.48	Q	.	.	.	V	.
20.850	1.4465	0.48	Q	.	.	.	V	.
20.867	1.4471	0.48	Q	.	.	.	V	.

20.883	1.4478	0.48	Q	.	.	.	V	.
20.900	1.4484	0.48	Q	.	.	.	V	.
20.917	1.4491	0.48	Q	.	.	.	V	.
20.933	1.4498	0.48	Q	.	.	.	V	.
20.950	1.4504	0.48	Q	.	.	.	V	.
20.967	1.4511	0.48	Q	.	.	.	V	.
20.983	1.4517	0.47	Q	.	.	.	V	.
21.000	1.4524	0.47	Q	.	.	.	V	.
21.017	1.4530	0.47	Q	.	.	.	V	.
21.033	1.4537	0.47	Q	.	.	.	V	.
21.050	1.4543	0.47	Q	.	.	.	V	.
21.067	1.4550	0.47	Q	.	.	.	V	.
21.083	1.4556	0.47	Q	.	.	.	V	.
21.100	1.4563	0.47	Q	.	.	.	V	.
21.117	1.4569	0.47	Q	.	.	.	V	.
21.133	1.4576	0.47	Q	.	.	.	V	.
21.150	1.4582	0.47	Q	.	.	.	V	.
21.167	1.4588	0.47	Q	.	.	.	V	.
21.183	1.4595	0.46	Q	.	.	.	V	.
21.200	1.4601	0.46	Q	.	.	.	V	.
21.217	1.4608	0.46	Q	.	.	.	V	.
21.233	1.4614	0.46	Q	.	.	.	V	.
21.250	1.4620	0.46	Q	.	.	.	V	.
21.267	1.4627	0.46	Q	.	.	.	V	.
21.283	1.4633	0.46	Q	.	.	.	V	.
21.300	1.4639	0.46	Q	.	.	.	V	.
21.317	1.4646	0.46	Q	.	.	.	V	.
21.333	1.4652	0.46	Q	.	.	.	V	.
21.350	1.4658	0.46	Q	.	.	.	V	.
21.367	1.4664	0.46	Q	.	.	.	V	.
21.383	1.4671	0.46	Q	.	.	.	V	.
21.400	1.4677	0.45	Q	.	.	.	V	.
21.417	1.4683	0.45	Q	.	.	.	V	.
21.433	1.4690	0.45	Q	.	.	.	V	.
21.450	1.4696	0.45	Q	.	.	.	V	.
21.467	1.4702	0.45	Q	.	.	.	V	.
21.483	1.4708	0.45	Q	.	.	.	V	.
21.500	1.4714	0.45	Q	.	.	.	V	.
21.517	1.4721	0.45	Q	.	.	.	V	.
21.533	1.4727	0.45	Q	.	.	.	V	.
21.550	1.4733	0.45	Q	.	.	.	V	.
21.567	1.4739	0.45	Q	.	.	.	V	.
21.583	1.4745	0.45	Q	.	.	.	V	.
21.600	1.4751	0.45	Q	.	.	.	V	.
21.617	1.4758	0.45	Q	.	.	.	V	.
21.633	1.4764	0.44	Q	.	.	.	V	.
21.650	1.4770	0.44	Q	.	.	.	V	.
21.667	1.4776	0.44	Q	.	.	.	V	.
21.683	1.4782	0.44	Q	.	.	.	V	.
21.700	1.4788	0.44	Q	.	.	.	V	.
21.717	1.4794	0.44	Q	.	.	.	V	.
21.733	1.4800	0.44	Q	.	.	.	V	.
21.750	1.4806	0.44	Q	.	.	.	V	.
21.767	1.4812	0.44	Q	.	.	.	V	.
21.783	1.4818	0.44	Q	.	.	.	V	.
21.800	1.4825	0.44	Q	.	.	.	V	.
21.817	1.4831	0.44	Q	.	.	.	V	.
21.833	1.4837	0.44	Q	.	.	.	V	.
21.850	1.4843	0.44	Q	.	.	.	V	.
21.867	1.4849	0.44	Q	.	.	.	V	.
21.883	1.4855	0.44	Q	.	.	.	V	.
21.900	1.4861	0.43	Q	.	.	.	V	.
21.917	1.4867	0.43	Q	.	.	.	V	.
21.933	1.4872	0.43	Q	.	.	.	V	.
21.950	1.4878	0.43	Q	.	.	.	V	.
21.967	1.4884	0.43	Q	.	.	.	V	.
21.983	1.4890	0.43	Q	.	.	.	V	.
22.000	1.4896	0.43	Q	.	.	.	V	.
22.017	1.4902	0.43	Q	.	.	.	V	.
22.033	1.4908	0.43	Q	.	.	.	V	.
22.050	1.4914	0.43	Q	.	.	.	V	.
22.067	1.4920	0.43	Q	.	.	.	V	.
22.083	1.4926	0.43	Q	.	.	.	V	.
22.100	1.4932	0.43	Q	.	.	.	V	.
22.117	1.4938	0.43	Q	.	.	.	V	.
22.133	1.4943	0.43	Q	.	.	.	V	.
22.150	1.4949	0.43	Q	.	.	.	V	.
22.167	1.4955	0.42	Q	.	.	.	V	.
22.183	1.4961	0.42	Q	.	.	.	V	.
22.200	1.4967	0.42	Q	.	.	.	V	.
22.217	1.4973	0.42	Q	.	.	.	V	.
22.233	1.4978	0.42	Q	.	.	.	V	.
22.250	1.4984	0.42	Q	.	.	.	V	.
22.267	1.4990	0.42	Q	.	.	.	V	.
22.283	1.4996	0.42	Q	.	.	.	V	.
22.300	1.5002	0.42	Q	.	.	.	V	.
22.317	1.5007	0.42	Q	.	.	.	V	.
22.333	1.5013	0.42	Q	.	.	.	V	.
22.350	1.5019	0.42	Q	.	.	.	V	.
22.367	1.5025	0.42	Q	.	.	.	V	.
22.383	1.5030	0.42	Q	.	.	.	V	.
22.400	1.5036	0.42	Q	.	.	.	V	.
22.417	1.5042	0.42	Q	.	.	.	V	.
22.433	1.5048	0.42	Q	.	.	.	V	.
22.450	1.5053	0.41	Q	.	.	.	V	.
22.467	1.5059	0.41	Q	.	.	.	V	.
22.483	1.5065	0.41	Q	.	.	.	V	.
22.500	1.5070	0.41	Q	.	.	.	V	.
22.517	1.5076	0.41	Q	.	.	.	V	.
22.533	1.5082	0.41	Q	.	.	.	V	.

22.550	1.5087	0.41	Q	.	.	.	V .
22.567	1.5093	0.41	Q	.	.	.	V .
22.583	1.5099	0.41	Q	.	.	.	V .
22.600	1.5104	0.41	Q	.	.	.	V .
22.617	1.5110	0.41	Q	.	.	.	V .
22.633	1.5116	0.41	Q	.	.	.	V .
22.650	1.5121	0.41	Q	.	.	.	V .
22.667	1.5127	0.41	Q	.	.	.	V .
22.683	1.5132	0.41	Q	.	.	.	V .
22.700	1.5138	0.41	Q	.	.	.	V .
22.717	1.5144	0.41	Q	.	.	.	V .
22.733	1.5149	0.41	Q	.	.	.	V .
22.750	1.5155	0.40	Q	.	.	.	V .
22.767	1.5160	0.40	Q	.	.	.	V .
22.783	1.5166	0.40	Q	.	.	.	V .
22.800	1.5171	0.40	Q	.	.	.	V .
22.817	1.5177	0.40	Q	.	.	.	V .
22.833	1.5183	0.40	Q	.	.	.	V .
22.850	1.5188	0.40	Q	.	.	.	V .
22.867	1.5194	0.40	Q	.	.	.	V .
22.883	1.5199	0.40	Q	.	.	.	V .
22.900	1.5205	0.40	Q	.	.	.	V .
22.917	1.5210	0.40	Q	.	.	.	V .
22.933	1.5216	0.40	Q	.	.	.	V .
22.950	1.5221	0.40	Q	.	.	.	V .
22.967	1.5227	0.40	Q	.	.	.	V .
22.983	1.5232	0.40	Q	.	.	.	V .
23.000	1.5238	0.40	Q	.	.	.	V .
23.017	1.5243	0.40	Q	.	.	.	V .
23.033	1.5249	0.40	Q	.	.	.	V .
23.050	1.5254	0.40	Q	.	.	.	V.
23.067	1.5259	0.40	Q	.	.	.	V.
23.083	1.5265	0.39	Q	.	.	.	V.
23.100	1.5270	0.39	Q	.	.	.	V.
23.117	1.5276	0.39	Q	.	.	.	V.
23.133	1.5281	0.39	Q	.	.	.	V.
23.150	1.5287	0.39	Q	.	.	.	V.
23.167	1.5292	0.39	Q	.	.	.	V.
23.183	1.5297	0.39	Q	.	.	.	V.
23.200	1.5303	0.39	Q	.	.	.	V.
23.217	1.5308	0.39	Q	.	.	.	V.
23.233	1.5313	0.39	Q	.	.	.	V.
23.250	1.5319	0.39	Q	.	.	.	V.
23.267	1.5324	0.39	Q	.	.	.	V.
23.283	1.5330	0.39	Q	.	.	.	V.
23.300	1.5335	0.39	Q	.	.	.	V.
23.317	1.5340	0.39	Q	.	.	.	V.
23.333	1.5346	0.39	Q	.	.	.	V.
23.350	1.5351	0.39	Q	.	.	.	V.
23.367	1.5356	0.39	Q	.	.	.	V.
23.383	1.5362	0.39	Q	.	.	.	V.
23.400	1.5367	0.39	Q	.	.	.	V.
23.417	1.5372	0.39	Q	.	.	.	V.
23.433	1.5378	0.39	Q	.	.	.	V.
23.450	1.5383	0.38	Q	.	.	.	V.
23.467	1.5388	0.38	Q	.	.	.	V.
23.483	1.5393	0.38	Q	.	.	.	V.
23.500	1.5399	0.38	Q	.	.	.	V.
23.517	1.5404	0.38	Q	.	.	.	V.
23.533	1.5409	0.38	Q	.	.	.	V.
23.550	1.5415	0.38	Q	.	.	.	V.
23.567	1.5420	0.38	Q	.	.	.	V.
23.583	1.5425	0.38	Q	.	.	.	V.
23.600	1.5430	0.38	Q	.	.	.	V.
23.617	1.5436	0.38	Q	.	.	.	V.
23.633	1.5441	0.38	Q	.	.	.	V.
23.650	1.5446	0.38	Q	.	.	.	V.
23.667	1.5451	0.38	Q	.	.	.	V.
23.683	1.5456	0.38	Q	.	.	.	V.
23.700	1.5462	0.38	Q	.	.	.	V.
23.717	1.5467	0.38	Q	.	.	.	V.
23.733	1.5472	0.38	Q	.	.	.	V.
23.750	1.5477	0.38	Q	.	.	.	V.
23.767	1.5482	0.38	Q	.	.	.	V.
23.783	1.5488	0.38	Q	.	.	.	V.
23.800	1.5493	0.38	Q	.	.	.	V.
23.817	1.5498	0.38	Q	.	.	.	V.
23.833	1.5503	0.37	Q	.	.	.	V.
23.850	1.5508	0.37	Q	.	.	.	V.
23.867	1.5513	0.37	Q	.	.	.	V.
23.883	1.5519	0.37	Q	.	.	.	V.
23.900	1.5524	0.37	Q	.	.	.	V.
23.917	1.5529	0.37	Q	.	.	.	V.
23.933	1.5534	0.37	Q	.	.	.	V.
23.950	1.5539	0.37	Q	.	.	.	V.
23.967	1.5544	0.37	Q	.	.	.	V.
23.983	1.5549	0.37	Q	.	.	.	V.
24.000	1.5554	0.37	Q	.	.	.	V.

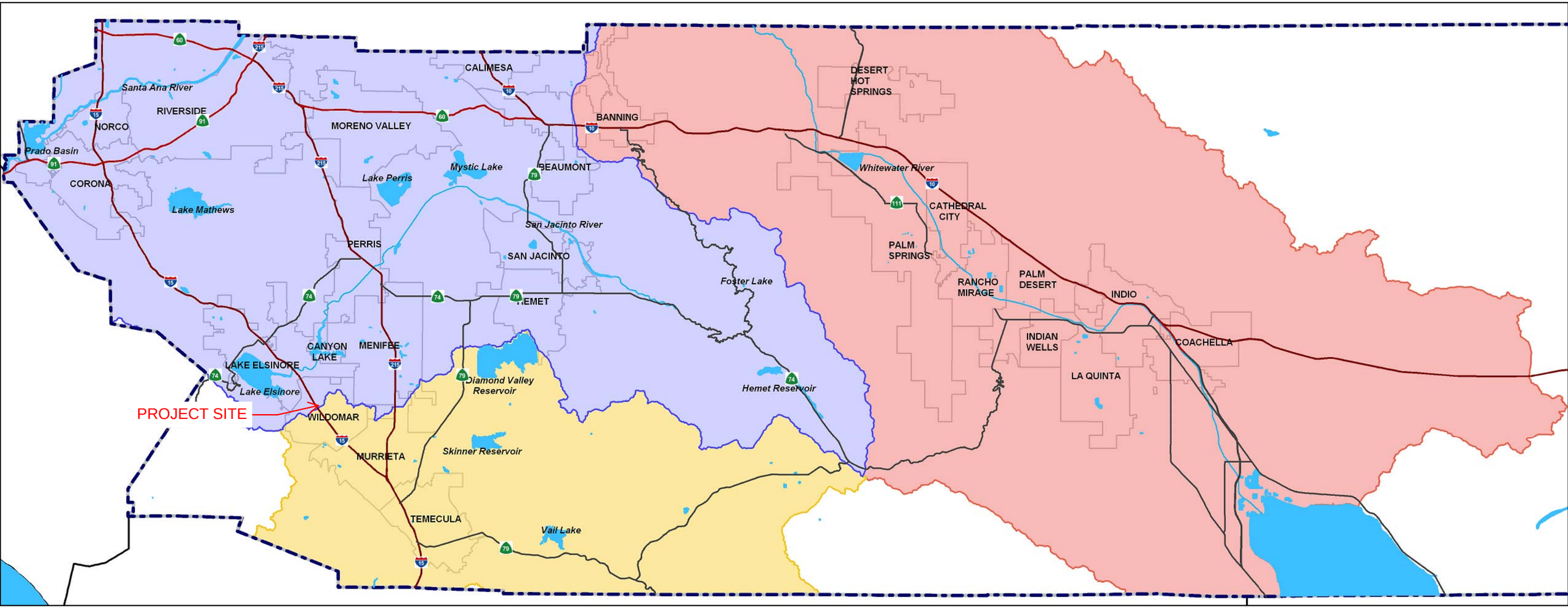
TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1441.0
10%	655.0
20%	290.0
30%	185.0

40%	110.0
50%	95.0
60%	75.0
70%	55.0
80%	35.0
90%	20.0

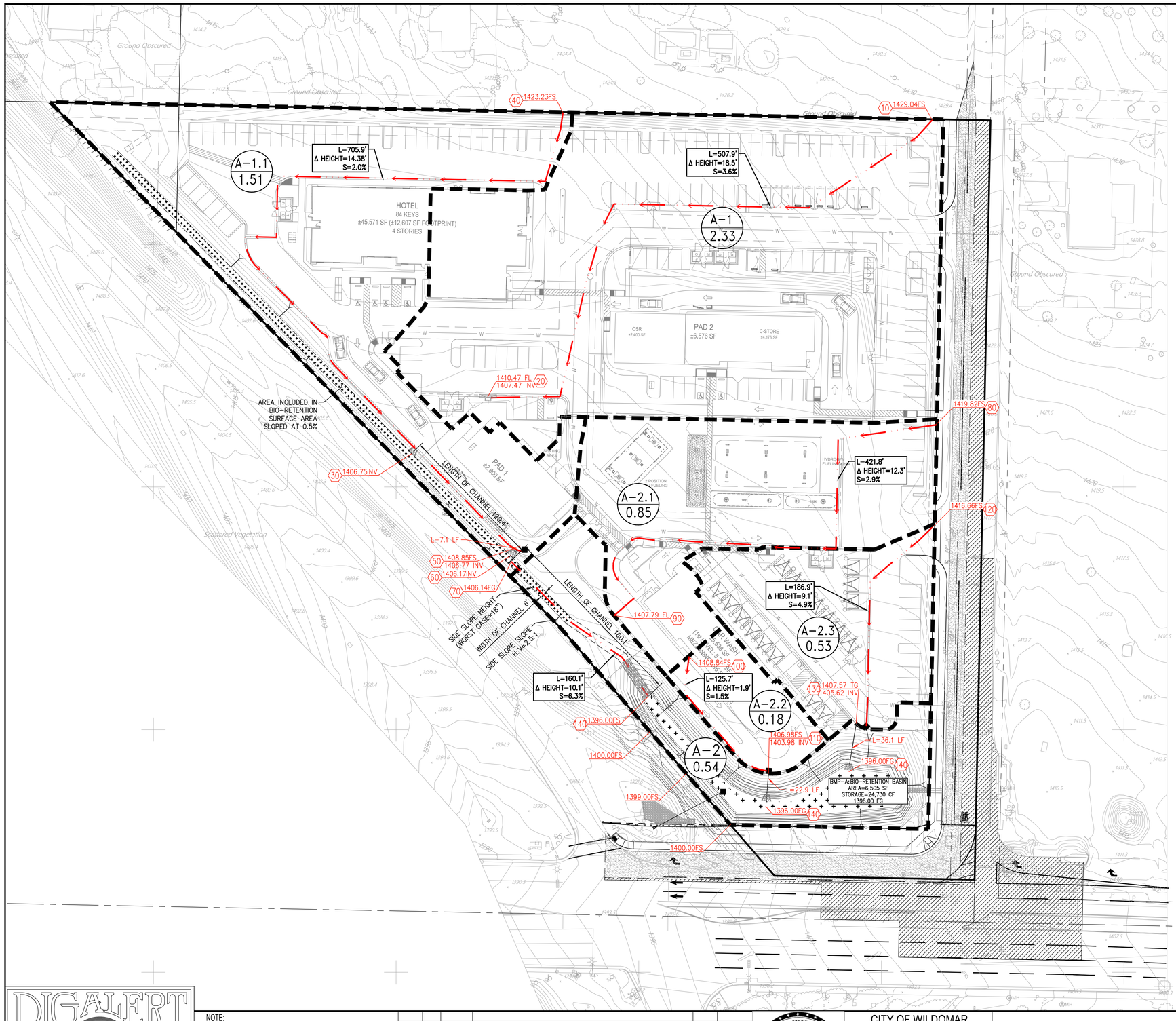
END OF FLOODSCx ROUTING ANALYSIS

Appendix D – Watershed Map


Santa Ana River
RIVERSIDE
NORCO
Prado Basin
CORONA
Lake Mathews
CALIMESA
MORENO VALLEY
Lake Perris
Mystic Lake
BEAUMONT
BANNING
San Jacinto River
PERRIS
SAN JACINTO
HEMET
Foster Lake
CANYON LAKE
MENIFEE
LAKE ELSINORE
Lake Elsinore
Diamond Valley Reservoir
Hemet Reservoir
PROJECT SITE
WILDOMAR
MURRIETA
Skinner Reservoir
TEMECULA
Vail Lake
DESERT HOT SPRINGS
Whitewater River
CATHEDRAL CITY
PALM SPRINGS
RANCHO MIRAGE
PALM DESERT
INDIO
INDIAN WELLS
LA QUINTA
COACHELLA

1113

Appendix E – Proposed Hydrology Calculations



LEGEND:

- FLOWLINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE SUB-AREA BOUNDARY
- XX — AREA ID
- X.XX AC — AREA (AC)
- XX — NODE #
- FS — FINISHED SURFACE
- INV — INVERT

DETENTION BASIN SUMMARY

BMP-#	EXISTING PEAK FLOW 100-YR STORM (CFS)	PROPOSED PEAK FLOW 100-YR STORM (CFS)	MITIGATED PEAK FLOW 100-YR STORM (CFS)	DESIGN STORAGE VOLUME (CF)
BMP-A	8.01	13.15	5.20	24,730

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A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design hereon. In the event of discrepancies arising after city acceptance or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for acceptance by the city.

MARK	BY	DATE	REVISIONS	APPR.	DATE
ENGINEER				CITY	

CITY OF WILDOMAR
ACCEPTED BY:
Date:
Daniel A. York, Director of Public Works/ City Engineer, PE 43212
ACCEPTANCE AS TO CONFORMANCE WITH APPLICABLE CITY STANDARDS AND PRACTICES

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BENCHMARK:
Elevation = _____
Datum = _____
BENCHMARK # _____

THIS SURVEY WAS PERFORMED ON (date) BY (surveyor)
L.S. (number), EXP. (date)

SCALE:
H: As Noted V: As Noted

(PP, CUP, PM, TM, etc.) (city project number)

CITY OF WILDOMAR
PROPOSED HYDROLOGY MAP
CHERRY OUTPOST IN THE CITY OF WILDOMAR, RIVERSIDE COUNTY

SHEET No. 1
OF 1 SHTS

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1334

                        Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* SP8997 - WILDOMAR CHERRY OUTPOST                                     *
* PROPOSED CONDITION RATIONAL METHOD                                   *
* 100-YEAR STORM EVENT                                                 *
 ************************************************************************

  FILE NAME: 100YRPR.DAT
  TIME/DATE OF STUDY: 15:04 04/30/2024
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.600
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.786
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.680
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.310
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.3967061
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.3994898
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.310
  SLOPE OF INTENSITY DURATION CURVE = 0.3995
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     20.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   507.90
  UPSTREAM ELEVATION(FEET) =   1429.00
  DOWNSTREAM ELEVATION(FEET) =   1410.47
  ELEVATION DIFFERENCE(FEET) =     18.53
  TC = 0.303*[(  507.90**3)/(    18.53)]**.2 =    7.104
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8568
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      4.05
  TOTAL AREA(ACRES) =      1.54   TOTAL RUNOFF(CFS) =      4.05

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4682
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.34   SUBAREA RUNOFF(CFS) =    0.49
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       4.54
  TC(MIN.) =    7.10

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7532
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       4.57
  TC(MIN.) =    7.10

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8853
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.29   SUBAREA RUNOFF(CFS) =    0.79
  TOTAL AREA(ACRES) =        2.2   TOTAL RUNOFF(CFS) =       5.35
  TC(MIN.) =    7.10

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     30.00 IS CODE =  31
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1407.47  DOWNSTREAM(FEET) =  1406.75
```

```
  FLOW LENGTH(FEET) =   129.70   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  27.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   0.91
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.35
  PIPE TRAVEL TIME(MIN.) =   2.37    Tc(MIN.) =    9.47
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     30.00 =     637.60 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     30.00 TO NODE     60.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1406.75  DOWNSTREAM(FEET) =   1406.17
  CHANNEL LENGTH THRU SUBAREA(FEET) =   120.40   CHANNEL SLOPE =  0.0048
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =       5.35
  FLOW VELOCITY(FEET/SEC.) =   1.76   FLOW DEPTH(FEET) =   0.43
  TRAVEL TIME(MIN.) =   1.14   Tc(MIN.) =   10.61
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     60.00 =     758.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE     60.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.61
  RAINFALL INTENSITY(INCH/HR) =   2.62
  TOTAL STREAM AREA(ACRES) =     2.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.35

****************************************************************************
  FLOW PROCESS FROM NODE     40.00 TO NODE     50.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   705.90
  UPSTREAM ELEVATION(FEET) =   1423.23
  DOWNSTREAM ELEVATION(FEET) =   1408.85
  ELEVATION DIFFERENCE(FEET) =     14.38
  TC = 0.303*[(  705.90**3)/(    14.38)]**.2 =    9.105
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8546
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      1.60
  TOTAL AREA(ACRES) =      0.67   TOTAL RUNOFF(CFS) =      1.60

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8841
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.33   SUBAREA RUNOFF(CFS) =    0.80
  TOTAL AREA(ACRES) =        1.0   TOTAL RUNOFF(CFS) =       2.40
  TC(MIN.) =    9.11

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4459
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.33   SUBAREA RUNOFF(CFS) =    0.41
  TOTAL AREA(ACRES) =        1.3   TOTAL RUNOFF(CFS) =       2.81
  TC(MIN.) =    9.11

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7406
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.25   SUBAREA RUNOFF(CFS) =    0.52
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       3.33
  TC(MIN.) =    9.11

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     60.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1406.77  DOWNSTREAM(FEET) =  1406.17
  FLOW LENGTH(FEET) =     7.10   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.24
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.33
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    9.16
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     60.00 =     713.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE     60.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.16
  RAINFALL INTENSITY(INCH/HR) =   2.78
  TOTAL STREAM AREA(ACRES) =     1.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.33
```

```
  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        5.35    10.61        2.617          2.18
      2        3.33     9.16        2.776          1.58

 ********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 **************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        7.95     9.16       2.776
      2        8.50    10.61       2.617

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       8.50   Tc(MIN.) =   10.61
  TOTAL AREA(ACRES) =        3.8
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     60.00 =     758.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE    140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1406.14  DOWNSTREAM(FEET) =   1396.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   160.10   CHANNEL SLOPE =  0.0633
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.50
  CHANNEL FLOW THRU SUBAREA(CFS) =       8.50
  FLOW VELOCITY(FEET/SEC.) =   4.74   FLOW DEPTH(FEET) =   0.26
  TRAVEL TIME(MIN.) =   0.56   Tc(MIN.) =   11.18
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE    140.00 =     918.10 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.18
  RAINFALL INTENSITY(INCH/HR) =   2.56
  TOTAL STREAM AREA(ACRES) =     3.76
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.50

****************************************************************************
  FLOW PROCESS FROM NODE     70.00 TO NODE    140.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   160.10
  UPSTREAM ELEVATION(FEET) =   1406.14
  DOWNSTREAM ELEVATION(FEET) =   1396.00
  ELEVATION DIFFERENCE(FEET) =     10.14
  TC = 0.709*[(  160.10**3)/(    10.14)]**.2 =    9.382
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.749
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7390
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.43   TOTAL RUNOFF(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.749
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4432
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.11   SUBAREA RUNOFF(CFS) =    0.13
  TOTAL AREA(ACRES) =        0.5   TOTAL RUNOFF(CFS) =       1.01
  TC(MIN.) =    9.38

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.38
  RAINFALL INTENSITY(INCH/HR) =   2.75
  TOTAL STREAM AREA(ACRES) =     0.54
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.01

****************************************************************************
  FLOW PROCESS FROM NODE     80.00 TO NODE     90.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.50
  UPSTREAM ELEVATION(FEET) =   1420.08
  DOWNSTREAM ELEVATION(FEET) =   1407.79
  ELEVATION DIFFERENCE(FEET) =     12.29
  TC = 0.303*[(  423.50**3)/(    12.29)]**.2 =    6.915
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8854
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.96
  TOTAL AREA(ACRES) =      0.71   TOTAL RUNOFF(CFS) =      1.96

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8571
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.16   SUBAREA RUNOFF(CFS) =    0.42
  TOTAL AREA(ACRES) =        0.9   TOTAL RUNOFF(CFS) =       2.38
  TC(MIN.) =    6.91

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4706
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.01
  TOTAL AREA(ACRES) =        0.9   TOTAL RUNOFF(CFS) =       2.39
  TC(MIN.) =    6.91

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7545
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.04
  TOTAL AREA(ACRES) =        0.9   TOTAL RUNOFF(CFS) =       2.42
  TC(MIN.) =    6.91

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE    140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1406.14  DOWNSTREAM(FEET) =   1396.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   150.08   CHANNEL SLOPE =  0.0676
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.50
  CHANNEL FLOW THRU SUBAREA(CFS) =       2.42
  FLOW VELOCITY(FEET/SEC.) =   3.04   FLOW DEPTH(FEET) =   0.12
  TRAVEL TIME(MIN.) =   0.82   Tc(MIN.) =    7.74
  LONGEST FLOWPATH FROM NODE     80.00 TO NODE    140.00 =     573.58 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.74
  RAINFALL INTENSITY(INCH/HR) =   2.97
  TOTAL STREAM AREA(ACRES) =     0.89
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.42

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    110.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   125.70
  UPSTREAM ELEVATION(FEET) =   1408.84
  DOWNSTREAM ELEVATION(FEET) =   1406.98
  ELEVATION DIFFERENCE(FEET) =      1.86
  TC = 0.303*[(  125.70**3)/(     1.86)]**.2 =    4.867
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8600
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.29
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.29

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8870
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.06   SUBAREA RUNOFF(CFS) =    0.20
  TOTAL AREA(ACRES) =        0.2   TOTAL RUNOFF(CFS) =       0.49
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4996
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.03   SUBAREA RUNOFF(CFS) =    0.04
  TOTAL AREA(ACRES) =        0.2   TOTAL RUNOFF(CFS) =       0.54
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    140.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1403.98  DOWNSTREAM(FEET) =  1396.00
  FLOW LENGTH(FEET) =    22.90   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.50
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.54
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =    5.15
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    140.00 =     148.60 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  4 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.15
  RAINFALL INTENSITY(INCH/HR) =   3.49
  TOTAL STREAM AREA(ACRES) =     0.19
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.54

****************************************************************************
  FLOW PROCESS FROM NODE    120.00 TO NODE    130.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   186.90
  UPSTREAM ELEVATION(FEET) =   1416.64
  DOWNSTREAM ELEVATION(FEET) =   1407.59
  ELEVATION DIFFERENCE(FEET) =      9.05
  TC = 0.303*[(  186.90**3)/(     9.05)]**.2 =    4.500
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8870
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      0.90
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.90

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8600
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.17   SUBAREA RUNOFF(CFS) =    0.50
  TOTAL AREA(ACRES) =        0.5   TOTAL RUNOFF(CFS) =       1.40
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4996
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.06   SUBAREA RUNOFF(CFS) =    0.11
  TOTAL AREA(ACRES) =        0.5   TOTAL RUNOFF(CFS) =       1.52
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7696
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.06   SUBAREA RUNOFF(CFS) =    0.16
  TOTAL AREA(ACRES) =        0.6   TOTAL RUNOFF(CFS) =       1.68
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    140.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1405.62  DOWNSTREAM(FEET) =  1396.00
  FLOW LENGTH(FEET) =    30.20   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.19
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.68
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =    5.16
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    140.00 =     217.10 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  5 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.16
  RAINFALL INTENSITY(INCH/HR) =   3.49
  TOTAL STREAM AREA(ACRES) =     0.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.68

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        8.50    11.18        2.563          3.76
      2        1.01     9.38        2.749          0.54
      3        2.42     7.74        2.969          0.89
      4        0.54     5.15        3.493          0.19
      5        1.68     5.16        3.491          0.58

 ******************************WARNING*********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  5 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
```

```
      1        8.30     5.15       3.493
      2        8.30     5.16       3.491
      3       11.02     7.74       2.969
      4       12.13     9.38       2.749
      5       13.15    11.18       2.563

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      13.15   Tc(MIN.) =   11.18
  TOTAL AREA(ACRES) =        6.0
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE    140.00 =     918.10 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.0  TC(MIN.) =     11.18
  PEAK FLOW RATE(CFS)   =      13.15
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Appendix F – Basin Calculations

Cherry Outpost

(Existing Condition) Small Area Hydrograph Loss Rates

Subarea	Area (acres)	Soil Type	Land Use	A_p	A_i	F_p (in/hr) Adj. Infiltration Rate	Fm	Runoff Index (RI)			ȳ Storm Event - Year 100 P_{24} (Inches) 5.87
								AMC II	AMC I	AMC III	
A-1	3.60	A	Open Brush (P)	1.00	0.00	0.660	0.660	62	42	79	1.23
A-1	2.24	C	Open Brush (P)	1.00	0.00	0.198	0.198	84	68	93	1.93
A-1	0.02	A	Commercial	0.10	0.90	0.141	0.141	32	16	52	0.02
A-1	0.21	C	Commercial	0.10	0.90	0.071	0.071	69	50	84	0.20
Total =	6.07						0.467				0.445

Cherry Outpost

(Existing Condition) Loss Rates Summary

		STORM EVENT
		100-YR
Tc	=	12.91
Area	=	6.07
ȳ	=	0.445
F_m	=	0.467

```
**************************************************************************

             F L O O D    R O U T I N G    A N A L Y S I S
             USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
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              Ver. 23.0  Release Date: 07/01/2016  License ID 1334

                          Analysis prepared by:



 ************************* DESCRIPTION OF STUDY *************************
* CHERRY OUTPOST                                                        *
* 100 YR - EXISTING CONDITION                                           *
* SMALL AREA UNIT HYDROGRAPH                                            *
 ************************************************************************

  FILE NAME: 100YREXH.DAT
  TIME/DATE OF STUDY: 07:41 01/16/2024

   The Small Area Unit Hydrograph Procedures in Section J
   of the Hydrology Manual provides estimates of runoff
   hydrograph and runoff volume for watersheds whose time of
   concentration is less than 25 minutes. The PROGRAM User
   should check the applicability of using the small area unit
   hydrograph procedures, and follow the guidelines in
   Sections J and K.5 in complex watershed modeling.


**************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     20.00 IS CODE = 1.2
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
==========================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    6.07
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.467
    LOW LOSS FRACTION = 0.445
    TIME OF CONCENTRATION(MIN.) = 12.91
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    USER SPECIFIED RAINFALL VALUES ARE USED:
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.31
```

```
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.85
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.31
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.13
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.96
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.87

--------------------------------------------------------------------------------
    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.54
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     1.43

--------------------------------------------------------------------------------
♠
================================================================================

                      2 4 - H O U R    S T O R M
                   R U N O F F    H Y D R O G R A P H

================================================================================
               HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
        (Notes: Time indicated is at END of Each Unit Intervals.
                Peak 5-minute rainfall intensity is modeled as
                a constant value for entire 5-minute period.)
--------------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        2.7       5.4       8.2      10.9
--------------------------------------------------------------------------------
   0.017      0.0000      0.00  Q        .         .         .         .
   0.033      0.0000      0.00  Q        .         .         .         .
   0.050      0.0000      0.00  Q        .         .         .         .
   0.067      0.0000      0.00  Q        .         .         .         .
   0.083      0.0000      0.00  Q        .         .         .         .
   0.100      0.0000      0.02  Q        .         .         .         .
   0.117      0.0001      0.05  Q        .         .         .         .
   0.133      0.0002      0.08  Q        .         .         .         .
   0.150      0.0004      0.11  Q        .         .         .         .
   0.167      0.0006      0.14  Q        .         .         .         .
   0.183      0.0008      0.17  Q        .         .         .         .
   0.200      0.0011      0.19  Q        .         .         .         .
   0.217      0.0014      0.22  Q        .         .         .         .
   0.233      0.0017      0.25  Q        .         .         .         .
   0.250      0.0021      0.28  VQ       .         .         .         .
   0.267      0.0025      0.31  VQ       .         .         .         .
   0.283      0.0030      0.34  VQ       .         .         .         .
   0.300      0.0035      0.36  VQ       .         .         .         .
   0.317      0.0040      0.37  VQ       .         .         .         .
   0.333      0.0045      0.37  VQ       .         .         .         .
   0.350      0.0050      0.37  VQ       .         .         .         .
   0.367      0.0055      0.37  VQ       .         .         .         .
   0.383      0.0060      0.37  VQ       .         .         .         .
   0.400      0.0065      0.37  VQ       .         .         .         .
   0.417      0.0070      0.37  VQ       .         .         .         .
```

0.433	0.0076	0.37	VQ	.	.	.	.
0.450	0.0081	0.37	VQ	.	.	.	.
0.467	0.0086	0.37	VQ	.	.	.	.
0.483	0.0091	0.37	VQ	.	.	.	.
0.500	0.0096	0.37	VQ	.	.	.	.
0.517	0.0101	0.37	VQ	.	.	.	.
0.533	0.0106	0.37	VQ	.	.	.	.
0.550	0.0111	0.37	VQ	.	.	.	.
0.567	0.0116	0.37	VQ	.	.	.	.
0.583	0.0121	0.37	VQ	.	.	.	.
0.600	0.0126	0.37	VQ	.	.	.	.
0.617	0.0132	0.37	VQ	.	.	.	.
0.633	0.0137	0.37	VQ	.	.	.	.
0.650	0.0142	0.37	VQ	.	.	.	.
0.667	0.0147	0.37	VQ	.	.	.	.
0.683	0.0152	0.37	VQ	.	.	.	.
0.700	0.0157	0.37	VQ	.	.	.	.
0.717	0.0162	0.37	VQ	.	.	.	.
0.733	0.0167	0.37	VQ	.	.	.	.
0.750	0.0173	0.37	VQ	.	.	.	.
0.767	0.0178	0.37	VQ	.	.	.	.
0.783	0.0183	0.37	VQ	.	.	.	.
0.800	0.0188	0.37	VQ	.	.	.	.
0.817	0.0193	0.37	VQ	.	.	.	.
0.833	0.0198	0.37	VQ	.	.	.	.
0.850	0.0204	0.37	VQ	.	.	.	.
0.867	0.0209	0.37	VQ	.	.	.	.
0.883	0.0214	0.37	VQ	.	.	.	.
0.900	0.0219	0.37	VQ	.	.	.	.
0.917	0.0224	0.37	VQ	.	.	.	.
0.933	0.0229	0.37	VQ	.	.	.	.
0.950	0.0234	0.37	VQ	.	.	.	.
0.967	0.0240	0.38	VQ	.	.	.	.
0.983	0.0245	0.38	VQ	.	.	.	.
1.000	0.0250	0.38	VQ	.	.	.	.
1.017	0.0255	0.38	VQ	.	.	.	.
1.033	0.0260	0.38	VQ	.	.	.	.
1.050	0.0266	0.38	VQ	.	.	.	.
1.067	0.0271	0.38	VQ	.	.	.	.
1.083	0.0276	0.38	VQ	.	.	.	.
1.100	0.0281	0.38	VQ	.	.	.	.
1.117	0.0286	0.38	VQ	.	.	.	.
1.133	0.0292	0.38	VQ	.	.	.	.
1.150	0.0297	0.38	VQ	.	.	.	.
1.167	0.0302	0.38	VQ	.	.	.	.
1.183	0.0307	0.38	VQ	.	.	.	.
1.200	0.0312	0.38	VQ	.	.	.	.
1.217	0.0318	0.38	VQ	.	.	.	.
1.233	0.0323	0.38	VQ	.	.	.	.
1.250	0.0328	0.38	VQ	.	.	.	.

1.267	0.0333	0.38	VQ	.	.	.	.
1.283	0.0339	0.38	VQ	.	.	.	.
1.300	0.0344	0.38	VQ	.	.	.	.
1.317	0.0349	0.38	VQ	.	.	.	.
1.333	0.0354	0.38	VQ	.	.	.	.
1.350	0.0359	0.38	VQ	.	.	.	.
1.367	0.0365	0.38	VQ	.	.	.	.
1.383	0.0370	0.38	VQ	.	.	.	.
1.400	0.0375	0.38	VQ	.	.	.	.
1.417	0.0380	0.38	VQ	.	.	.	.
1.433	0.0386	0.38	.Q	.	.	.	.
1.450	0.0391	0.38	.Q	.	.	.	.
1.467	0.0396	0.38	.Q	.	.	.	.
1.483	0.0401	0.38	.Q	.	.	.	.
1.500	0.0407	0.38	.Q	.	.	.	.
1.517	0.0412	0.38	.Q	.	.	.	.
1.533	0.0417	0.38	.Q	.	.	.	.
1.550	0.0423	0.38	.Q	.	.	.	.
1.567	0.0428	0.38	.Q	.	.	.	.
1.583	0.0433	0.38	.Q	.	.	.	.
1.600	0.0438	0.38	.Q	.	.	.	.
1.617	0.0444	0.38	.Q	.	.	.	.
1.633	0.0449	0.38	.Q	.	.	.	.
1.650	0.0454	0.38	.Q	.	.	.	.
1.667	0.0460	0.38	.Q	.	.	.	.
1.683	0.0465	0.38	.Q	.	.	.	.
1.700	0.0470	0.39	.Q	.	.	.	.
1.717	0.0476	0.39	.Q	.	.	.	.
1.733	0.0481	0.39	.Q	.	.	.	.
1.750	0.0486	0.39	.Q	.	.	.	.
1.767	0.0491	0.39	.Q	.	.	.	.
1.783	0.0497	0.39	.Q	.	.	.	.
1.800	0.0502	0.39	.Q	.	.	.	.
1.817	0.0507	0.39	.Q	.	.	.	.
1.833	0.0513	0.39	.Q	.	.	.	.
1.850	0.0518	0.39	.Q	.	.	.	.
1.867	0.0523	0.39	.Q	.	.	.	.
1.883	0.0529	0.39	.Q	.	.	.	.
1.900	0.0534	0.39	.Q	.	.	.	.
1.917	0.0539	0.39	.Q	.	.	.	.
1.933	0.0545	0.39	.Q	.	.	.	.
1.950	0.0550	0.39	.Q	.	.	.	.
1.967	0.0556	0.39	.Q	.	.	.	.
1.983	0.0561	0.39	.Q	.	.	.	.
2.000	0.0566	0.39	.Q	.	.	.	.
2.017	0.0572	0.39	.Q	.	.	.	.
2.033	0.0577	0.39	.Q	.	.	.	.
2.050	0.0582	0.39	.Q	.	.	.	.
2.067	0.0588	0.39	.Q	.	.	.	.
2.083	0.0593	0.39	.Q	.	.	.	.

2.100	0.0599	0.39	.Q	.	.	.	.
2.117	0.0604	0.39	.Q	.	.	.	.
2.133	0.0609	0.39	.Q	.	.	.	.
2.150	0.0615	0.39	.Q	.	.	.	.
2.167	0.0620	0.39	.Q	.	.	.	.
2.183	0.0625	0.39	.Q	.	.	.	.
2.200	0.0631	0.39	.Q	.	.	.	.
2.217	0.0636	0.39	.Q	.	.	.	.
2.233	0.0642	0.39	.Q	.	.	.	.
2.250	0.0647	0.39	.Q	.	.	.	.
2.267	0.0652	0.39	.Q	.	.	.	.
2.283	0.0658	0.39	.Q	.	.	.	.
2.300	0.0663	0.39	.Q	.	.	.	.
2.317	0.0669	0.39	.Q	.	.	.	.
2.333	0.0674	0.39	.Q	.	.	.	.
2.350	0.0680	0.39	.Q	.	.	.	.
2.367	0.0685	0.39	.Q	.	.	.	.
2.383	0.0690	0.39	.Q	.	.	.	.
2.400	0.0696	0.40	.Q	.	.	.	.
2.417	0.0701	0.40	.Q	.	.	.	.
2.433	0.0707	0.40	.Q	.	.	.	.
2.450	0.0712	0.40	.Q	.	.	.	.
2.467	0.0718	0.40	.Q	.	.	.	.
2.483	0.0723	0.40	.Q	.	.	.	.
2.500	0.0729	0.40	.Q	.	.	.	.
2.517	0.0734	0.40	.Q	.	.	.	.
2.533	0.0740	0.40	.Q	.	.	.	.
2.550	0.0745	0.40	.Q	.	.	.	.
2.567	0.0750	0.40	.Q	.	.	.	.
2.583	0.0756	0.40	.Q	.	.	.	.
2.600	0.0761	0.40	.Q	.	.	.	.
2.617	0.0767	0.40	.Q	.	.	.	.
2.633	0.0772	0.40	.QV	.	.	.	.
2.650	0.0778	0.40	.QV	.	.	.	.
2.667	0.0783	0.40	.QV	.	.	.	.
2.683	0.0789	0.40	.QV	.	.	.	.
2.700	0.0794	0.40	.QV	.	.	.	.
2.717	0.0800	0.40	.QV	.	.	.	.
2.733	0.0805	0.40	.QV	.	.	.	.
2.750	0.0811	0.40	.QV	.	.	.	.
2.767	0.0816	0.40	.QV	.	.	.	.
2.783	0.0822	0.40	.QV	.	.	.	.
2.800	0.0827	0.40	.QV	.	.	.	.
2.817	0.0833	0.40	.QV	.	.	.	.
2.833	0.0838	0.40	.QV	.	.	.	.
2.850	0.0844	0.40	.QV	.	.	.	.
2.867	0.0850	0.40	.QV	.	.	.	.
2.883	0.0855	0.40	.QV	.	.	.	.
2.900	0.0861	0.40	.QV	.	.	.	.
2.917	0.0866	0.40	.QV	.	.	.	.

2.933	0.0872	0.40	.QV	.	.	.	.
2.950	0.0877	0.40	.QV	.	.	.	.
2.967	0.0883	0.40	.QV	.	.	.	.
2.983	0.0888	0.40	.QV	.	.	.	.
3.000	0.0894	0.40	.QV	.	.	.	.
3.017	0.0900	0.40	.QV	.	.	.	.
3.033	0.0905	0.40	.QV	.	.	.	.
3.050	0.0911	0.40	.QV	.	.	.	.
3.067	0.0916	0.40	.QV	.	.	.	.
3.083	0.0922	0.40	.QV	.	.	.	.
3.100	0.0927	0.40	.QV	.	.	.	.
3.117	0.0933	0.41	.QV	.	.	.	.
3.133	0.0939	0.41	.QV	.	.	.	.
3.150	0.0944	0.41	.QV	.	.	.	.
3.167	0.0950	0.41	.QV	.	.	.	.
3.183	0.0955	0.41	.QV	.	.	.	.
3.200	0.0961	0.41	.QV	.	.	.	.
3.217	0.0967	0.41	.QV	.	.	.	.
3.233	0.0972	0.41	.QV	.	.	.	.
3.250	0.0978	0.41	.QV	.	.	.	.
3.267	0.0983	0.41	.QV	.	.	.	.
3.283	0.0989	0.41	.QV	.	.	.	.
3.300	0.0995	0.41	.QV	.	.	.	.
3.317	0.1000	0.41	.QV	.	.	.	.
3.333	0.1006	0.41	.QV	.	.	.	.
3.350	0.1012	0.41	.QV	.	.	.	.
3.367	0.1017	0.41	.QV	.	.	.	.
3.383	0.1023	0.41	.QV	.	.	.	.
3.400	0.1029	0.41	.QV	.	.	.	.
3.417	0.1034	0.41	.QV	.	.	.	.
3.433	0.1040	0.41	.QV	.	.	.	.
3.450	0.1046	0.41	.QV	.	.	.	.
3.467	0.1051	0.41	.QV	.	.	.	.
3.483	0.1057	0.41	.QV	.	.	.	.
3.500	0.1063	0.41	.QV	.	.	.	.
3.517	0.1068	0.41	.QV	.	.	.	.
3.533	0.1074	0.41	.QV	.	.	.	.
3.550	0.1080	0.41	.QV	.	.	.	.
3.567	0.1085	0.41	.QV	.	.	.	.
3.583	0.1091	0.41	.QV	.	.	.	.
3.600	0.1097	0.41	.QV	.	.	.	.
3.617	0.1102	0.41	.QV	.	.	.	.
3.633	0.1108	0.41	.QV	.	.	.	.
3.650	0.1114	0.41	.QV	.	.	.	.
3.667	0.1119	0.41	.QV	.	.	.	.
3.683	0.1125	0.42	.QV	.	.	.	.
3.700	0.1131	0.42	.QV	.	.	.	.
3.717	0.1137	0.42	.QV	.	.	.	.
3.733	0.1142	0.42	.QV	.	.	.	.
3.750	0.1148	0.42	.QV	.	.	.	.

3.767	0.1154	0.42	.QV	.	.	.	.
3.783	0.1160	0.42	.Q V	.	.	.	.
3.800	0.1165	0.42	.Q V	.	.	.	.
3.817	0.1171	0.42	.Q V	.	.	.	.
3.833	0.1177	0.42	.Q V	.	.	.	.
3.850	0.1183	0.42	.Q V	.	.	.	.
3.867	0.1188	0.42	.Q V	.	.	.	.
3.883	0.1194	0.42	.Q V	.	.	.	.
3.900	0.1200	0.42	.Q V	.	.	.	.
3.917	0.1206	0.42	.Q V	.	.	.	.
3.933	0.1211	0.42	.Q V	.	.	.	.
3.950	0.1217	0.42	.Q V	.	.	.	.
3.967	0.1223	0.42	.Q V	.	.	.	.
3.983	0.1229	0.42	.Q V	.	.	.	.
4.000	0.1235	0.42	.Q V	.	.	.	.
4.017	0.1240	0.42	.Q V	.	.	.	.
4.033	0.1246	0.42	.Q V	.	.	.	.
4.050	0.1252	0.42	.Q V	.	.	.	.
4.067	0.1258	0.42	.Q V	.	.	.	.
4.083	0.1264	0.42	.Q V	.	.	.	.
4.100	0.1269	0.42	.Q V	.	.	.	.
4.117	0.1275	0.42	.Q V	.	.	.	.
4.133	0.1281	0.42	.Q V	.	.	.	.
4.150	0.1287	0.42	.Q V	.	.	.	.
4.167	0.1293	0.42	.Q V	.	.	.	.
4.183	0.1299	0.42	.Q V	.	.	.	.
4.200	0.1304	0.42	.Q V	.	.	.	.
4.217	0.1310	0.42	.Q V	.	.	.	.
4.233	0.1316	0.42	.Q V	.	.	.	.
4.250	0.1322	0.42	.Q V	.	.	.	.
4.267	0.1328	0.43	.Q V	.	.	.	.
4.283	0.1334	0.43	.Q V	.	.	.	.
4.300	0.1340	0.43	.Q V	.	.	.	.
4.317	0.1345	0.43	.Q V	.	.	.	.
4.333	0.1351	0.43	.Q V	.	.	.	.
4.350	0.1357	0.43	.Q V	.	.	.	.
4.367	0.1363	0.43	.Q V	.	.	.	.
4.383	0.1369	0.43	.Q V	.	.	.	.
4.400	0.1375	0.43	.Q V	.	.	.	.
4.417	0.1381	0.43	.Q V	.	.	.	.
4.433	0.1387	0.43	.Q V	.	.	.	.
4.450	0.1392	0.43	.Q V	.	.	.	.
4.467	0.1398	0.43	.Q V	.	.	.	.
4.483	0.1404	0.43	.Q V	.	.	.	.
4.500	0.1410	0.43	.Q V	.	.	.	.
4.517	0.1416	0.43	.Q V	.	.	.	.
4.533	0.1422	0.43	.Q V	.	.	.	.
4.550	0.1428	0.43	.Q V	.	.	.	.
4.567	0.1434	0.43	.Q V	.	.	.	.
4.583	0.1440	0.43	.Q V	.	.	.	.

4.600	0.1446	0.43	.Q	V	.	.	.	.
4.617	0.1452	0.43	.Q	V	.	.	.	.
4.633	0.1458	0.43	.Q	V	.	.	.	.
4.650	0.1464	0.43	.Q	V	.	.	.	.
4.667	0.1470	0.43	.Q	V	.	.	.	.
4.683	0.1476	0.43	.Q	V	.	.	.	.
4.700	0.1481	0.43	.Q	V	.	.	.	.
4.717	0.1487	0.43	.Q	V	.	.	.	.
4.733	0.1493	0.43	.Q	V	.	.	.	.
4.750	0.1499	0.43	.Q	V	.	.	.	.
4.767	0.1505	0.43	.Q	V	.	.	.	.
4.783	0.1511	0.43	.Q	V	.	.	.	.
4.800	0.1517	0.43	.Q	V	.	.	.	.
4.817	0.1523	0.43	.Q	V	.	.	.	.
4.833	0.1529	0.44	.Q	V	.	.	.	.
4.850	0.1535	0.44	.Q	V	.	.	.	.
4.867	0.1541	0.44	.Q	V	.	.	.	.
4.883	0.1547	0.44	.Q	V	.	.	.	.
4.900	0.1553	0.44	.Q	V	.	.	.	.
4.917	0.1559	0.44	.Q	V	.	.	.	.
4.933	0.1565	0.44	.Q	V	.	.	.	.
4.950	0.1571	0.44	.Q	V	.	.	.	.
4.967	0.1577	0.44	.Q	V	.	.	.	.
4.983	0.1584	0.44	.Q	V	.	.	.	.
5.000	0.1590	0.44	.Q	V	.	.	.	.
5.017	0.1596	0.44	.Q	V	.	.	.	.
5.033	0.1602	0.44	.Q	V	.	.	.	.
5.050	0.1608	0.44	.Q	V	.	.	.	.
5.067	0.1614	0.44	.Q	V	.	.	.	.
5.083	0.1620	0.44	.Q	V	.	.	.	.
5.100	0.1626	0.44	.Q	V	.	.	.	.
5.117	0.1632	0.44	.Q	V	.	.	.	.
5.133	0.1638	0.44	.Q	V	.	.	.	.
5.150	0.1644	0.44	.Q	V	.	.	.	.
5.167	0.1650	0.44	.Q	V	.	.	.	.
5.183	0.1656	0.44	.Q	V	.	.	.	.
5.200	0.1663	0.44	.Q	V	.	.	.	.
5.217	0.1669	0.44	.Q	V	.	.	.	.
5.233	0.1675	0.44	.Q	V	.	.	.	.
5.250	0.1681	0.44	.Q	V	.	.	.	.
5.267	0.1687	0.44	.Q	V	.	.	.	.
5.283	0.1693	0.44	.Q	V	.	.	.	.
5.300	0.1699	0.44	.Q	V	.	.	.	.
5.317	0.1705	0.45	.Q	V	.	.	.	.
5.333	0.1711	0.45	.Q	V	.	.	.	.
5.350	0.1718	0.45	.Q	V	.	.	.	.
5.367	0.1724	0.45	.Q	V	.	.	.	.
5.383	0.1730	0.45	.Q	V	.	.	.	.
5.400	0.1736	0.45	.Q	V	.	.	.	.
5.417	0.1742	0.45	.Q	V	.	.	.	.

5.433	0.1748	0.45	.Q	V	.	.	.	.
5.450	0.1755	0.45	.Q	V	.	.	.	.
5.467	0.1761	0.45	.Q	V	.	.	.	.
5.483	0.1767	0.45	.Q	V	.	.	.	.
5.500	0.1773	0.45	.Q	V	.	.	.	.
5.517	0.1779	0.45	.Q	V	.	.	.	.
5.533	0.1786	0.45	.Q	V	.	.	.	.
5.550	0.1792	0.45	.Q	V	.	.	.	.
5.567	0.1798	0.45	.Q	V	.	.	.	.
5.583	0.1804	0.45	.Q	V	.	.	.	.
5.600	0.1810	0.45	.Q	V	.	.	.	.
5.617	0.1817	0.45	.Q	V	.	.	.	.
5.633	0.1823	0.45	.Q	V	.	.	.	.
5.650	0.1829	0.45	.Q	V	.	.	.	.
5.667	0.1835	0.45	.Q	V	.	.	.	.
5.683	0.1842	0.45	.Q	V	.	.	.	.
5.700	0.1848	0.45	.Q	V	.	.	.	.
5.717	0.1854	0.45	.Q	V	.	.	.	.
5.733	0.1860	0.45	.Q	V	.	.	.	.
5.750	0.1867	0.45	.Q	V	.	.	.	.
5.767	0.1873	0.45	.Q	V	.	.	.	.
5.783	0.1879	0.46	.Q	V	.	.	.	.
5.800	0.1885	0.46	.Q	V	.	.	.	.
5.817	0.1892	0.46	.Q	V	.	.	.	.
5.833	0.1898	0.46	.Q	V	.	.	.	.
5.850	0.1904	0.46	.Q	V	.	.	.	.
5.867	0.1911	0.46	.Q	V	.	.	.	.
5.883	0.1917	0.46	.Q	V	.	.	.	.
5.900	0.1923	0.46	.Q	V	.	.	.	.
5.917	0.1930	0.46	.Q	V	.	.	.	.
5.933	0.1936	0.46	.Q	V	.	.	.	.
5.950	0.1942	0.46	.Q	V	.	.	.	.
5.967	0.1948	0.46	.Q	V	.	.	.	.
5.983	0.1955	0.46	.Q	V	.	.	.	.
6.000	0.1961	0.46	.Q	V	.	.	.	.
6.017	0.1968	0.46	.Q	V	.	.	.	.
6.033	0.1974	0.46	.Q	V	.	.	.	.
6.050	0.1980	0.46	.Q	V	.	.	.	.
6.067	0.1987	0.46	.Q	V	.	.	.	.
6.083	0.1993	0.46	.Q	V	.	.	.	.
6.100	0.1999	0.46	.Q	V	.	.	.	.
6.117	0.2006	0.46	.Q	V	.	.	.	.
6.133	0.2012	0.46	.Q	V	.	.	.	.
6.150	0.2018	0.46	.Q	V	.	.	.	.
6.167	0.2025	0.46	.Q	V	.	.	.	.
6.183	0.2031	0.46	.Q	V	.	.	.	.
6.200	0.2038	0.46	.Q	V	.	.	.	.
6.217	0.2044	0.47	.Q	V	.	.	.	.
6.233	0.2050	0.47	.Q	V	.	.	.	.
6.250	0.2057	0.47	.Q	V	.	.	.	.

6.267	0.2063	0.47	.Q	V	.	.	.	.
6.283	0.2070	0.47	.Q	V	.	.	.	.
6.300	0.2076	0.47	.Q	V	.	.	.	.
6.317	0.2083	0.47	.Q	V	.	.	.	.
6.333	0.2089	0.47	.Q	V	.	.	.	.
6.350	0.2096	0.47	.Q	V	.	.	.	.
6.367	0.2102	0.47	.Q	V	.	.	.	.
6.383	0.2108	0.47	.Q	V	.	.	.	.
6.400	0.2115	0.47	.Q	V	.	.	.	.
6.417	0.2121	0.47	.Q	V	.	.	.	.
6.433	0.2128	0.47	.Q	V	.	.	.	.
6.450	0.2134	0.47	.Q	V	.	.	.	.
6.467	0.2141	0.47	.Q	V	.	.	.	.
6.483	0.2147	0.47	.Q	V	.	.	.	.
6.500	0.2154	0.47	.Q	V	.	.	.	.
6.517	0.2160	0.47	.Q	V	.	.	.	.
6.533	0.2167	0.47	.Q	V	.	.	.	.
6.550	0.2173	0.47	.Q	V	.	.	.	.
6.567	0.2180	0.47	.Q	V	.	.	.	.
6.583	0.2186	0.47	.Q	V	.	.	.	.
6.600	0.2193	0.47	.Q	V	.	.	.	.
6.617	0.2199	0.47	.Q	V	.	.	.	.
6.633	0.2206	0.48	.Q	V	.	.	.	.
6.650	0.2213	0.48	.Q	V	.	.	.	.
6.667	0.2219	0.48	.Q	V	.	.	.	.
6.683	0.2226	0.48	.Q	V	.	.	.	.
6.700	0.2232	0.48	.Q	V	.	.	.	.
6.717	0.2239	0.48	.Q	V	.	.	.	.
6.733	0.2245	0.48	.Q	V	.	.	.	.
6.750	0.2252	0.48	.Q	V	.	.	.	.
6.767	0.2259	0.48	.Q	V	.	.	.	.
6.783	0.2265	0.48	.Q	V	.	.	.	.
6.800	0.2272	0.48	.Q	V	.	.	.	.
6.817	0.2279	0.48	.Q	V	.	.	.	.
6.833	0.2285	0.48	.Q	V	.	.	.	.
6.850	0.2292	0.48	.Q	V	.	.	.	.
6.867	0.2298	0.48	.Q	V	.	.	.	.
6.883	0.2305	0.48	.Q	V	.	.	.	.
6.900	0.2312	0.48	.Q	V	.	.	.	.
6.917	0.2318	0.48	.Q	V	.	.	.	.
6.933	0.2325	0.48	.Q	V	.	.	.	.
6.950	0.2332	0.48	.Q	V	.	.	.	.
6.967	0.2338	0.48	.Q	V	.	.	.	.
6.983	0.2345	0.48	.Q	V	.	.	.	.
7.000	0.2352	0.48	.Q	V	.	.	.	.
7.017	0.2358	0.48	.Q	V	.	.	.	.
7.033	0.2365	0.49	.Q	V	.	.	.	.
7.050	0.2372	0.49	.Q	V	.	.	.	.
7.067	0.2378	0.49	.Q	V	.	.	.	.
7.083	0.2385	0.49	.Q	V	.	.	.	.

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7.100      0.2392      0.49  .Q    V   .         .         .         .
7.117      0.2399      0.49  .Q    V   .         .         .         .
7.133      0.2405      0.49  .Q    V   .         .         .         .
7.150      0.2412      0.49  .Q    V   .         .         .         .
7.167      0.2419      0.49  .Q    V   .         .         .         .
7.183      0.2426      0.49  .Q    V   .         .         .         .
7.200      0.2432      0.49  .Q    V   .         .         .         .
7.217      0.2439      0.49  .Q    V   .         .         .         .
7.233      0.2446      0.49  .Q    V   .         .         .         .
7.250      0.2453      0.49  .Q    V   .         .         .         .
7.267      0.2459      0.49  .Q    V   .         .         .         .
7.283      0.2466      0.49  .Q    V   .         .         .         .
7.300      0.2473      0.49  .Q    V   .         .         .         .
7.317      0.2480      0.49  .Q    V   .         .         .         .
7.333      0.2487      0.49  .Q    V   .         .         .         .
7.350      0.2493      0.49  .Q    V   .         .         .         .
7.367      0.2500      0.49  .Q    V   .         .         .         .
7.383      0.2507      0.49  .Q    V   .         .         .         .
7.400      0.2514      0.50  .Q    V   .         .         .         .
7.417      0.2521      0.50  .Q    V   .         .         .         .
7.433      0.2528      0.50  .Q    V   .         .         .         .
7.450      0.2534      0.50  .Q    V   .         .         .         .
7.467      0.2541      0.50  .Q    V   .         .         .         .
7.483      0.2548      0.50  .Q    V   .         .         .         .
7.500      0.2555      0.50  .Q    V   .         .         .         .
7.517      0.2562      0.50  .Q    V   .         .         .         .
7.533      0.2569      0.50  .Q    V   .         .         .         .
7.550      0.2576      0.50  .Q    V   .         .         .         .
7.567      0.2583      0.50  .Q    V   .         .         .         .
7.583      0.2589      0.50  .Q    V   .         .         .         .
7.600      0.2596      0.50  .Q    V   .         .         .         .
7.617      0.2603      0.50  .Q    V   .         .         .         .
7.633      0.2610      0.50  .Q    V   .         .         .         .
7.650      0.2617      0.50  .Q    V   .         .         .         .
7.667      0.2624      0.50  .Q    V   .         .         .         .
7.683      0.2631      0.50  .Q    V   .         .         .         .
7.700      0.2638      0.51  .Q    V   .         .         .         .
7.717      0.2645      0.51  .Q    V   .         .         .         .
7.733      0.2652      0.51  .Q    V   .         .         .         .
7.750      0.2659      0.51  .Q    V   .         .         .         .
7.767      0.2666      0.51  .Q    V   .         .         .         .
7.783      0.2673      0.51  .Q    V   .         .         .         .
7.800      0.2680      0.51  .Q    V   .         .         .         .
7.817      0.2687      0.51  .Q    V   .         .         .         .
7.833      0.2694      0.51  .Q    V   .         .         .         .
7.850      0.2701      0.51  .Q     V  .         .         .         .
7.867      0.2708      0.51  .Q     V  .         .         .         .
7.883      0.2715      0.51  .Q     V  .         .         .         .
7.900      0.2722      0.51  .Q     V  .         .         .         .
7.917      0.2729      0.51  .Q     V  .         .         .         .
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7.933	0.2736	0.51	.Q	V	.	.	.	.
7.950	0.2743	0.51	.Q	V	.	.	.	.
7.967	0.2750	0.51	.Q	V	.	.	.	.
7.983	0.2757	0.51	.Q	V	.	.	.	.
8.000	0.2764	0.51	.Q	V	.	.	.	.
8.017	0.2771	0.52	.Q	V	.	.	.	.
8.033	0.2779	0.52	.Q	V	.	.	.	.
8.050	0.2786	0.52	.Q	V	.	.	.	.
8.067	0.2793	0.52	.Q	V	.	.	.	.
8.083	0.2800	0.52	.Q	V	.	.	.	.
8.100	0.2807	0.52	.Q	V	.	.	.	.
8.117	0.2814	0.52	.Q	V	.	.	.	.
8.133	0.2821	0.52	.Q	V	.	.	.	.
8.150	0.2828	0.52	.Q	V	.	.	.	.
8.167	0.2836	0.52	.Q	V	.	.	.	.
8.183	0.2843	0.52	.Q	V	.	.	.	.
8.200	0.2850	0.52	.Q	V	.	.	.	.
8.217	0.2857	0.52	.Q	V	.	.	.	.
8.233	0.2864	0.52	.Q	V	.	.	.	.
8.250	0.2871	0.52	.Q	V	.	.	.	.
8.267	0.2879	0.52	.Q	V	.	.	.	.
8.283	0.2886	0.52	.Q	V	.	.	.	.
8.300	0.2893	0.52	.Q	V	.	.	.	.
8.317	0.2900	0.52	.Q	V	.	.	.	.
8.333	0.2907	0.52	.Q	V	.	.	.	.
8.350	0.2915	0.53	.Q	V	.	.	.	.
8.367	0.2922	0.53	.Q	V	.	.	.	.
8.383	0.2929	0.53	.Q	V	.	.	.	.
8.400	0.2936	0.53	.Q	V	.	.	.	.
8.417	0.2944	0.53	.Q	V	.	.	.	.
8.433	0.2951	0.53	.Q	V	.	.	.	.
8.450	0.2958	0.53	.Q	V	.	.	.	.
8.467	0.2966	0.53	.Q	V	.	.	.	.
8.483	0.2973	0.53	.Q	V	.	.	.	.
8.500	0.2980	0.53	.Q	V	.	.	.	.
8.517	0.2988	0.53	.Q	V	.	.	.	.
8.533	0.2995	0.53	.Q	V	.	.	.	.
8.550	0.3002	0.53	.Q	V	.	.	.	.
8.567	0.3010	0.53	.Q	V	.	.	.	.
8.583	0.3017	0.53	.Q	V	.	.	.	.
8.600	0.3024	0.53	.Q	V	.	.	.	.
8.617	0.3032	0.53	.Q	V	.	.	.	.
8.633	0.3039	0.53	.Q	V	.	.	.	.
8.650	0.3046	0.54	.Q	V	.	.	.	.
8.667	0.3054	0.54	.Q	V	.	.	.	.
8.683	0.3061	0.54	.Q	V	.	.	.	.
8.700	0.3069	0.54	.Q	V	.	.	.	.
8.717	0.3076	0.54	.Q	V	.	.	.	.
8.733	0.3083	0.54	.Q	V	.	.	.	.
8.750	0.3091	0.54	.Q	V	.	.	.	.

8.767	0.3098	0.54	.Q	V	.	.	.
8.783	0.3106	0.54	.Q	V	.	.	.
8.800	0.3113	0.54	.Q	V	.	.	.
8.817	0.3121	0.54	.Q	V	.	.	.
8.833	0.3128	0.54	.Q	V	.	.	.
8.850	0.3136	0.54	.Q	V	.	.	.
8.867	0.3143	0.54	. Q	V	.	.	.
8.883	0.3151	0.55	. Q	V	.	.	.
8.900	0.3158	0.55	. Q	V	.	.	.
8.917	0.3166	0.55	. Q	V	.	.	.
8.933	0.3173	0.55	. Q	V	.	.	.
8.950	0.3181	0.55	. Q	V	.	.	.
8.967	0.3188	0.55	. Q	V	.	.	.
8.983	0.3196	0.55	. Q	V	.	.	.
9.000	0.3204	0.55	. Q	V	.	.	.
9.017	0.3211	0.55	. Q	V	.	.	.
9.033	0.3219	0.55	. Q	V	.	.	.
9.050	0.3226	0.55	. Q	V	.	.	.
9.067	0.3234	0.55	. Q	V	.	.	.
9.083	0.3241	0.55	. Q	V	.	.	.
9.100	0.3249	0.55	. Q	V	.	.	.
9.117	0.3257	0.55	. Q	V	.	.	.
9.133	0.3264	0.55	. Q	V	.	.	.
9.150	0.3272	0.55	. Q	V	.	.	.
9.167	0.3280	0.55	. Q	V	.	.	.
9.183	0.3287	0.56	. Q	V	.	.	.
9.200	0.3295	0.56	. Q	V	.	.	.
9.217	0.3303	0.56	. Q	V	.	.	.
9.233	0.3310	0.56	. Q	V	.	.	.
9.250	0.3318	0.56	. Q	V	.	.	.
9.267	0.3326	0.56	. Q	V	.	.	.
9.283	0.3333	0.56	. Q	V	.	.	.
9.300	0.3341	0.56	. Q	V	.	.	.
9.317	0.3349	0.56	. Q	V	.	.	.
9.333	0.3357	0.56	. Q	V	.	.	.
9.350	0.3364	0.56	. Q	V	.	.	.
9.367	0.3372	0.56	. Q	V	.	.	.
9.383	0.3380	0.57	. Q	V	.	.	.
9.400	0.3388	0.57	. Q	V	.	.	.
9.417	0.3396	0.57	. Q	V	.	.	.
9.433	0.3403	0.57	. Q	V	.	.	.
9.450	0.3411	0.57	. Q	V	.	.	.
9.467	0.3419	0.57	. Q	V	.	.	.
9.483	0.3427	0.57	. Q	V	.	.	.
9.500	0.3435	0.57	. Q	V	.	.	.
9.517	0.3443	0.57	. Q	V	.	.	.
9.533	0.3450	0.57	. Q	V	.	.	.
9.550	0.3458	0.57	. Q	V	.	.	.
9.567	0.3466	0.57	. Q	V.	.	.	.
9.583	0.3474	0.57	. Q	V.	.	.	.

9.600	0.3482	0.57	. Q	V.	.	.	.
9.617	0.3490	0.57	. Q	V.	.	.	.
9.633	0.3498	0.58	. Q	V.	.	.	.
9.650	0.3506	0.58	. Q	V.	.	.	.
9.667	0.3514	0.58	. Q	V.	.	.	.
9.683	0.3522	0.58	. Q	V.	.	.	.
9.700	0.3530	0.58	. Q	V.	.	.	.
9.717	0.3538	0.58	. Q	V.	.	.	.
9.733	0.3546	0.58	. Q	V.	.	.	.
9.750	0.3554	0.58	. Q	V.	.	.	.
9.767	0.3562	0.58	. Q	V.	.	.	.
9.783	0.3570	0.58	. Q	V.	.	.	.
9.800	0.3578	0.58	. Q	V.	.	.	.
9.817	0.3586	0.58	. Q	V.	.	.	.
9.833	0.3594	0.59	. Q	V.	.	.	.
9.850	0.3602	0.59	. Q	V.	.	.	.
9.867	0.3610	0.59	. Q	V.	.	.	.
9.883	0.3618	0.59	. Q	V.	.	.	.
9.900	0.3626	0.59	. Q	V.	.	.	.
9.917	0.3634	0.59	. Q	V.	.	.	.
9.933	0.3642	0.59	. Q	V.	.	.	.
9.950	0.3650	0.59	. Q	V.	.	.	.
9.967	0.3659	0.59	. Q	V.	.	.	.
9.983	0.3667	0.59	. Q	V.	.	.	.
10.000	0.3675	0.59	. Q	V.	.	.	.
10.017	0.3683	0.59	. Q	V.	.	.	.
10.033	0.3691	0.59	. Q	V.	.	.	.
10.050	0.3699	0.59	. Q	V.	.	.	.
10.067	0.3708	0.60	. Q	V.	.	.	.
10.083	0.3716	0.60	. Q	V.	.	.	.
10.100	0.3724	0.60	. Q	V.	.	.	.
10.117	0.3732	0.60	. Q	V.	.	.	.
10.133	0.3740	0.60	. Q	V.	.	.	.
10.150	0.3749	0.60	. Q	V.	.	.	.
10.167	0.3757	0.60	. Q	V.	.	.	.
10.183	0.3765	0.60	. Q	V.	.	.	.
10.200	0.3774	0.60	. Q	V.	.	.	.
10.217	0.3782	0.60	. Q	V.	.	.	.
10.233	0.3790	0.61	. Q	V.	.	.	.
10.250	0.3799	0.61	. Q	V.	.	.	.
10.267	0.3807	0.61	. Q	V.	.	.	.
10.283	0.3815	0.61	. Q	V.	.	.	.
10.300	0.3824	0.61	. Q	V.	.	.	.
10.317	0.3832	0.61	. Q	V.	.	.	.
10.333	0.3841	0.61	. Q	V.	.	.	.
10.350	0.3849	0.61	. Q	V.	.	.	.
10.367	0.3857	0.61	. Q	V	.	.	.
10.383	0.3866	0.61	. Q	V	.	.	.
10.400	0.3874	0.61	. Q	V	.	.	.
10.417	0.3883	0.61	. Q	V	.	.	.

10.433	0.3891	0.61	. Q	V	.	.	.
10.450	0.3899	0.61	. Q	V	.	.	.
10.467	0.3908	0.62	. Q	V	.	.	.
10.483	0.3916	0.62	. Q	V	.	.	.
10.500	0.3925	0.62	. Q	V	.	.	.
10.517	0.3933	0.62	. Q	V	.	.	.
10.533	0.3942	0.62	. Q	V	.	.	.
10.550	0.3951	0.62	. Q	V	.	.	.
10.567	0.3959	0.62	. Q	V	.	.	.
10.583	0.3968	0.62	. Q	V	.	.	.
10.600	0.3976	0.63	. Q	V	.	.	.
10.617	0.3985	0.63	. Q	V	.	.	.
10.633	0.3994	0.63	. Q	V	.	.	.
10.650	0.4002	0.63	. Q	V	.	.	.
10.667	0.4011	0.63	. Q	V	.	.	.
10.683	0.4020	0.63	. Q	V	.	.	.
10.700	0.4028	0.63	. Q	V	.	.	.
10.717	0.4037	0.63	. Q	V	.	.	.
10.733	0.4046	0.63	. Q	V	.	.	.
10.750	0.4054	0.63	. Q	V	.	.	.
10.767	0.4063	0.63	. Q	V	.	.	.
10.783	0.4072	0.63	. Q	V	.	.	.
10.800	0.4081	0.63	. Q	V	.	.	.
10.817	0.4089	0.63	. Q	V	.	.	.
10.833	0.4098	0.64	. Q	V	.	.	.
10.850	0.4107	0.64	. Q	V	.	.	.
10.867	0.4116	0.64	. Q	V	.	.	.
10.883	0.4124	0.64	. Q	V	.	.	.
10.900	0.4133	0.64	. Q	V	.	.	.
10.917	0.4142	0.64	. Q	V	.	.	.
10.933	0.4151	0.64	. Q	V	.	.	.
10.950	0.4160	0.64	. Q	V	.	.	.
10.967	0.4169	0.65	. Q	V	.	.	.
10.983	0.4178	0.65	. Q	V	.	.	.
11.000	0.4187	0.65	. Q	V	.	.	.
11.017	0.4196	0.65	. Q	V	.	.	.
11.033	0.4205	0.65	. Q	V	.	.	.
11.050	0.4214	0.65	. Q	V	.	.	.
11.067	0.4223	0.65	. Q	V	.	.	.
11.083	0.4232	0.65	. Q	V	.	.	.
11.100	0.4241	0.66	. Q	.V	.	.	.
11.117	0.4250	0.66	. Q	.V	.	.	.
11.133	0.4259	0.66	. Q	.V	.	.	.
11.150	0.4268	0.66	. Q	.V	.	.	.
11.167	0.4277	0.66	. Q	.V	.	.	.
11.183	0.4286	0.66	. Q	.V	.	.	.
11.200	0.4295	0.66	. Q	.V	.	.	.
11.217	0.4304	0.66	. Q	.V	.	.	.
11.233	0.4313	0.66	. Q	.V	.	.	.
11.250	0.4322	0.66	. Q	.V	.	.	.

11.267	0.4331	0.66	. Q	.V	.	.	.
11.283	0.4341	0.66	. Q	.V	.	.	.
11.300	0.4350	0.67	. Q	.V	.	.	.
11.317	0.4359	0.67	. Q	.V	.	.	.
11.333	0.4368	0.67	. Q	.V	.	.	.
11.350	0.4377	0.67	. Q	.V	.	.	.
11.367	0.4387	0.67	. Q	.V	.	.	.
11.383	0.4396	0.67	. Q	.V	.	.	.
11.400	0.4405	0.68	. Q	.V	.	.	.
11.417	0.4415	0.68	. Q	.V	.	.	.
11.433	0.4424	0.68	. Q	.V	.	.	.
11.450	0.4433	0.68	. Q	.V	.	.	.
11.467	0.4443	0.68	. Q	.V	.	.	.
11.483	0.4452	0.68	. Q	.V	.	.	.
11.500	0.4461	0.68	. Q	.V	.	.	.
11.517	0.4471	0.69	. Q	.V	.	.	.
11.533	0.4480	0.69	. Q	.V	.	.	.
11.550	0.4490	0.69	. Q	.V	.	.	.
11.567	0.4499	0.69	. Q	.V	.	.	.
11.583	0.4509	0.69	. Q	.V	.	.	.
11.600	0.4518	0.69	. Q	.V	.	.	.
11.617	0.4528	0.69	. Q	.V	.	.	.
11.633	0.4537	0.69	. Q	.V	.	.	.
11.650	0.4547	0.69	. Q	.V	.	.	.
11.667	0.4556	0.69	. Q	.V	.	.	.
11.683	0.4566	0.69	. Q	.V	.	.	.
11.700	0.4575	0.69	. Q	.V	.	.	.
11.717	0.4585	0.70	. Q	.V	.	.	.
11.733	0.4595	0.70	. Q	.V	.	.	.
11.750	0.4604	0.70	. Q	.V	.	.	.
11.767	0.4614	0.70	. Q	.V	.	.	.
11.783	0.4624	0.70	. Q	. V	.	.	.
11.800	0.4633	0.70	. Q	. V	.	.	.
11.817	0.4643	0.71	. Q	. V	.	.	.
11.833	0.4653	0.71	. Q	. V	.	.	.
11.850	0.4663	0.71	. Q	. V	.	.	.
11.867	0.4672	0.71	. Q	. V	.	.	.
11.883	0.4682	0.71	. Q	. V	.	.	.
11.900	0.4692	0.72	. Q	. V	.	.	.
11.917	0.4702	0.72	. Q	. V	.	.	.
11.933	0.4712	0.72	. Q	. V	.	.	.
11.950	0.4722	0.72	. Q	. V	.	.	.
11.967	0.4732	0.72	. Q	. V	.	.	.
11.983	0.4742	0.72	. Q	. V	.	.	.
12.000	0.4752	0.72	. Q	. V	.	.	.
12.017	0.4762	0.72	. Q	. V	.	.	.
12.033	0.4772	0.72	. Q	. V	.	.	.
12.050	0.4782	0.73	. Q	. V	.	.	.
12.067	0.4792	0.73	. Q	. V	.	.	.
12.083	0.4802	0.73	. Q	. V	.	.	.

12.100	0.4812	0.73	. Q	. V	.	.	.
12.117	0.4822	0.73	. Q	. V	.	.	.
12.133	0.4832	0.73	. Q	. V	.	.	.
12.150	0.4842	0.73	. Q	. V	.	.	.
12.167	0.4852	0.73	. Q	. V	.	.	.
12.183	0.4862	0.73	. Q	. V	.	.	.
12.200	0.4872	0.73	. Q	. V	.	.	.
12.217	0.4882	0.73	. Q	. V	.	.	.
12.233	0.4892	0.73	. Q	. V	.	.	.
12.250	0.4902	0.73	. Q	. V	.	.	.
12.267	0.4912	0.73	. Q	. V	.	.	.
12.283	0.4922	0.73	. Q	. V	.	.	.
12.300	0.4932	0.73	. Q	. V	.	.	.
12.317	0.4942	0.73	. Q	. V	.	.	.
12.333	0.4952	0.73	. Q	. V	.	.	.
12.350	0.4963	0.73	. Q	. V	.	.	.
12.367	0.4973	0.73	. Q	. V	.	.	.
12.383	0.4983	0.73	. Q	. V	.	.	.
12.400	0.4993	0.73	. Q	. V	.	.	.
12.417	0.5003	0.73	. Q	. V	.	.	.
12.433	0.5013	0.74	. Q	. V	.	.	.
12.450	0.5023	0.74	. Q	. V	.	.	.
12.467	0.5033	0.74	. Q	. V	.	.	.
12.483	0.5043	0.74	. Q	. V	.	.	.
12.500	0.5054	0.74	. Q	. V	.	.	.
12.517	0.5064	0.74	. Q	. V	.	.	.
12.533	0.5074	0.74	. Q	. V	.	.	.
12.550	0.5084	0.74	. Q	. V	.	.	.
12.567	0.5095	0.74	. Q	. V	.	.	.
12.583	0.5105	0.75	. Q	. V	.	.	.
12.600	0.5115	0.75	. Q	. V	.	.	.
12.617	0.5126	0.75	. Q	. V	.	.	.
12.633	0.5136	0.75	. Q	. V	.	.	.
12.650	0.5146	0.76	. Q	. V	.	.	.
12.667	0.5157	0.76	. Q	. V	.	.	.
12.683	0.5167	0.76	. Q	. V	.	.	.
12.700	0.5178	0.76	. Q	. V	.	.	.
12.717	0.5188	0.77	. Q	. V	.	.	.
12.733	0.5199	0.77	. Q	. V	.	.	.
12.750	0.5210	0.77	. Q	. V	.	.	.
12.767	0.5220	0.77	. Q	. V	.	.	.
12.783	0.5231	0.78	. Q	. V	.	.	.
12.800	0.5242	0.78	. Q	. V	.	.	.
12.817	0.5253	0.78	. Q	. V	.	.	.
12.833	0.5263	0.78	. Q	. V	.	.	.
12.850	0.5274	0.78	. Q	. V	.	.	.
12.867	0.5285	0.78	. Q	. V	.	.	.
12.883	0.5296	0.79	. Q	. V	.	.	.
12.900	0.5307	0.79	. Q	. V	.	.	.
12.917	0.5317	0.79	. Q	. V	.	.	.

12.933	0.5328	0.79	. Q	. V	.	.	.	
12.950	0.5339	0.79	. Q	. V	.	.	.	
12.967	0.5350	0.79	. Q	. V	.	.	.	
12.983	0.5361	0.79	. Q	. V	.	.	.	
13.000	0.5372	0.80	. Q	. V	.	.	.	
13.017	0.5383	0.80	. Q	. V	.	.	.	
13.033	0.5394	0.80	. Q	. V	.	.	.	
13.050	0.5405	0.80	. Q	. V	.	.	.	
13.067	0.5416	0.81	. Q	. V	.	.	.	
13.083	0.5427	0.81	. Q	. V	.	.	.	
13.100	0.5439	0.81	. Q	. V	.	.	.	
13.117	0.5450	0.82	. Q	. V	.	.	.	
13.133	0.5461	0.82	. Q	. V	.	.	.	
13.150	0.5472	0.82	. Q	. V	.	.	.	
13.167	0.5484	0.83	. Q	. V	.	.	.	
13.183	0.5495	0.83	. Q	. V	.	.	.	
13.200	0.5507	0.83	. Q	. V	.	.	.	
13.217	0.5518	0.84	. Q	. V	.	.	.	
13.233	0.5530	0.84	. Q	. V	.	.	.	
13.250	0.5541	0.84	. Q	. V	.	.	.	
13.267	0.5553	0.84	. Q	. V	.	.	.	
13.283	0.5565	0.84	. Q	. V	.	.	.	
13.300	0.5576	0.84	. Q	. V	.	.	.	
13.317	0.5588	0.85	. Q	. V	.	.	.	
13.333	0.5599	0.85	. Q	. V	.	.	.	
13.350	0.5611	0.85	. Q	. V	.	.	.	
13.367	0.5623	0.85	. Q	. V	.	.	.	
13.383	0.5635	0.85	. Q	. V	.	.	.	
13.400	0.5646	0.85	. Q	. V	.	.	.	
13.417	0.5658	0.86	. Q	. V	.	.	.	
13.433	0.5670	0.86	. Q	. V	.	.	.	
13.450	0.5682	0.86	. Q	. V	.	.	.	
13.467	0.5694	0.87	. Q	. V	.	.	.	
13.483	0.5706	0.87	. Q	. V	.	.	.	
13.500	0.5718	0.87	. Q	. V	.	.	.	
13.517	0.5730	0.88	. Q	. V	.	.	.	
13.533	0.5742	0.88	. Q	. V	.	.	.	
13.550	0.5754	0.89	. Q	. V	.	.	.	
13.567	0.5767	0.89	. Q	. V	.	.	.	
13.583	0.5779	0.89	. Q	. V	.	.	.	
13.600	0.5791	0.90	. Q	. V	.	.	.	
13.617	0.5804	0.90	. Q	. V	.	.	.	
13.633	0.5816	0.91	. Q	. V	.	.	.	
13.650	0.5829	0.91	. Q	. V	.	.	.	
13.667	0.5841	0.91	. Q	. V	.	.	.	
13.683	0.5854	0.91	. Q	. V	.	.	.	
13.700	0.5866	0.91	. Q	. V	.	.	.	
13.717	0.5879	0.92	. Q	. V	.	.	.	
13.733	0.5892	0.92	. Q	. V	.	.	.	
13.750	0.5904	0.92	. Q	. V	.	.	.	

13.767	0.5917	0.92	.	Q	.	V	.	.	.
13.783	0.5930	0.93	.	Q	.	V	.	.	.
13.800	0.5943	0.93	.	Q	.	V	.	.	.
13.817	0.5955	0.93	.	Q	.	V	.	.	.
13.833	0.5968	0.93	.	Q	.	V	.	.	.
13.850	0.5981	0.93	.	Q	.	V	.	.	.
13.867	0.5994	0.94	.	Q	.	V	.	.	.
13.883	0.6007	0.94	.	Q	.	V	.	.	.
13.900	0.6020	0.95	.	Q	.	V	.	.	.
13.917	0.6033	0.95	.	Q	.	V	.	.	.
13.933	0.6046	0.96	.	Q	.	V	.	.	.
13.950	0.6060	0.96	.	Q	.	V	.	.	.
13.967	0.6073	0.97	.	Q	.	V	.	.	.
13.983	0.6086	0.97	.	Q	.	V	.	.	.
14.000	0.6100	0.98	.	Q	.	V	.	.	.
14.017	0.6114	0.98	.	Q	.	V	.	.	.
14.033	0.6127	0.99	.	Q	.	V	.	.	.
14.050	0.6141	0.99	.	Q	.	V	.	.	.
14.067	0.6155	1.00	.	Q	.	V	.	.	.
14.083	0.6168	1.00	.	Q	.	V	.	.	.
14.100	0.6182	1.00	.	Q	.	V	.	.	.
14.117	0.6196	1.00	.	Q	.	V	.	.	.
14.133	0.6210	0.99	.	Q	.	V	.	.	.
14.150	0.6223	0.99	.	Q	.	V	.	.	.
14.167	0.6237	0.99	.	Q	.	V	.	.	.
14.183	0.6250	0.99	.	Q	.	V	.	.	.
14.200	0.6264	0.99	.	Q	.	V	.	.	.
14.217	0.6278	0.98	.	Q	.	V	.	.	.
14.233	0.6291	0.98	.	Q	.	V	.	.	.
14.250	0.6305	0.98	.	Q	.	V	.	.	.
14.267	0.6318	0.98	.	Q	.	V	.	.	.
14.283	0.6331	0.97	.	Q	.	V	.	.	.
14.300	0.6345	0.98	.	Q	.	V	.	.	.
14.317	0.6358	0.99	.	Q	.	V	.	.	.
14.333	0.6372	0.99	.	Q	.	V	.	.	.
14.350	0.6386	1.00	.	Q	.	V	.	.	.
14.367	0.6400	1.01	.	Q	.	V	.	.	.
14.383	0.6414	1.01	.	Q	.	V	.	.	.
14.400	0.6428	1.02	.	Q	.	V	.	.	.
14.417	0.6442	1.03	.	Q	.	V	.	.	.
14.433	0.6456	1.03	.	Q	.	V	.	.	.
14.450	0.6470	1.04	.	Q	.	V	.	.	.
14.467	0.6485	1.05	.	Q	.	V	.	.	.
14.483	0.6499	1.05	.	Q	.	V	.	.	.
14.500	0.6514	1.06	.	Q	.	V	.	.	.
14.517	0.6529	1.06	.	Q	.	V	.	.	.
14.533	0.6543	1.07	.	Q	.	V	.	.	.
14.550	0.6558	1.07	.	Q	.	V	.	.	.
14.567	0.6573	1.08	.	Q	.	V	.	.	.
14.583	0.6588	1.08	.	Q	.	V	.	.	.

14.600	0.6603	1.09	.	Q	.	V	.	.	.
14.617	0.6618	1.09	.	Q	.	V	.	.	.
14.633	0.6633	1.09	.	Q	.	V	.	.	.
14.650	0.6648	1.10	.	Q	.	V	.	.	.
14.667	0.6663	1.10	.	Q	.	V	.	.	.
14.683	0.6678	1.11	.	Q	.	V	.	.	.
14.700	0.6694	1.11	.	Q	.	V	.	.	.
14.717	0.6709	1.12	.	Q	.	V	.	.	.
14.733	0.6725	1.13	.	Q	.	V	.	.	.
14.750	0.6740	1.14	.	Q	.	V	.	.	.
14.767	0.6756	1.15	.	Q	.	V	.	.	.
14.783	0.6772	1.16	.	Q	.	V	.	.	.
14.800	0.6788	1.17	.	Q	.	V	.	.	.
14.817	0.6805	1.18	.	Q	.	V	.	.	.
14.833	0.6821	1.19	.	Q	.	V	.	.	.
14.850	0.6837	1.20	.	Q	.	V	.	.	.
14.867	0.6854	1.21	.	Q	.	V	.	.	.
14.883	0.6871	1.22	.	Q	.	V	.	.	.
14.900	0.6888	1.23	.	Q	.	V	.	.	.
14.917	0.6905	1.25	.	Q	.	V	.	.	.
14.933	0.6923	1.26	.	Q	.	V	.	.	.
14.950	0.6940	1.26	.	Q	.	V	.	.	.
14.967	0.6957	1.27	.	Q	.	V	.	.	.
14.983	0.6975	1.28	.	Q	.	V	.	.	.
15.000	0.6993	1.28	.	Q	.	V	.	.	.
15.017	0.7010	1.29	.	Q	.	V	.	.	.
15.033	0.7028	1.30	.	Q	.	V	.	.	.
15.050	0.7046	1.31	.	Q	.	V	.	.	.
15.067	0.7064	1.31	.	Q	.	V	.	.	.
15.083	0.7083	1.32	.	Q	.	V	.	.	.
15.100	0.7101	1.33	.	Q	.	V	.	.	.
15.117	0.7119	1.33	.	Q	.	V	.	.	.
15.133	0.7138	1.34	.	Q	.	V	.	.	.
15.150	0.7156	1.35	.	Q	.	V	.	.	.
15.167	0.7175	1.37	.	Q	.	V	.	.	.
15.183	0.7194	1.39	.	Q	.	V	.	.	.
15.200	0.7214	1.41	.	Q	.	V	.	.	.
15.217	0.7233	1.43	.	Q	.	V	.	.	.
15.233	0.7253	1.45	.	Q	.	V	.	.	.
15.250	0.7274	1.47	.	Q	.	V	.	.	.
15.267	0.7294	1.49	.	Q	.	V	.	.	.
15.283	0.7315	1.51	.	Q	.	V	.	.	.
15.300	0.7336	1.53	.	Q	.	V	.	.	.
15.317	0.7357	1.55	.	Q	.	V	.	.	.
15.333	0.7379	1.57	.	Q	.	V	.	.	.
15.350	0.7401	1.59	.	Q	.	V	.	.	.
15.367	0.7423	1.61	.	Q	.	V	.	.	.
15.383	0.7446	1.67	.	Q	.	V	.	.	.
15.400	0.7469	1.72	.	Q	.	V	.	.	.
15.417	0.7494	1.77	.	Q	.	V	.	.	.

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15.433      0.7519      1.82  .     Q   .        V.         .         .
15.450      0.7545      1.87  .     Q   .        V.         .         .
15.467      0.7571      1.92  .      Q  .        V.         .         .
15.483      0.7598      1.98  .      Q  .        V.         .         .
15.500      0.7626      2.03  .      Q  .        V.         .         .
15.517      0.7655      2.08  .      Q  .        V.         .         .
15.533      0.7684      2.13  .      Q  .        V.         .         .
15.550      0.7714      2.18  .       Q .         V         .         .
15.567      0.7745      2.23  .       Q .         V         .         .
15.583      0.7777      2.29  .       Q .         V         .         .
15.600      0.7809      2.35  .       Q .         V         .         .
15.617      0.7842      2.41  .       Q .         V         .         .
15.633      0.7876      2.47  .        Q.         V         .         .
15.650      0.7911      2.53  .        Q.         V         .         .
15.667      0.7947      2.59  .        Q.         V         .         .
15.683      0.7983      2.65  .        Q.         V         .         .
15.700      0.8020      2.71  .        Q.         V         .         .
15.717      0.8058      2.76  .         Q         V         .         .
15.733      0.8097      2.82  .         Q         .V        .         .
15.750      0.8137      2.88  .         Q         .V        .         .
15.767      0.8178      2.94  .         Q         .V        .         .
15.783      0.8219      3.00  .         .Q        .V        .         .
15.800      0.8261      3.06  .         .Q        .V        .         .
15.817      0.8304      3.12  .         .Q        .V        .         .
15.833      0.8348      3.18  .         .Q        .V        .         .
15.850      0.8392      3.24  .         .Q        .V        .         .
15.867      0.8438      3.29  .         . Q       .V        .         .
15.883      0.8484      3.35  .         . Q       . V       .         .
15.900      0.8531      3.41  .         . Q       . V       .         .
15.917      0.8579      3.47  .         . Q       . V       .         .
15.933      0.8627      3.53  .         . Q       . V       .         .
15.950      0.8677      3.58  .         .  Q      . V       .         .
15.967      0.8727      3.64  .         .  Q      . V       .         .
15.983      0.8778      3.70  .         .  Q      . V       .         .
16.000      0.8830      3.76  .         .  Q      . V       .         .
16.017      0.8886      4.06  .         .   Q     .  V      .         .
16.033      0.8949      4.61  .         .     Q   .  V      .         .
16.050      0.9020      5.16  .         .       Q .  V      .         .
16.067      0.9099      5.71  .         .         Q  V      .         .
16.083      0.9185      6.26  .         .         .  Q      .         .
16.100      0.9279      6.81  .         .         .   VQ    .         .
16.117      0.9380      7.36  .         .         .   V  Q  .         .
16.133      0.9489      7.91  .         .         .   V    Q.         .
16.150      0.9606      8.46  .         .         .   V     .Q        .
16.167      0.9730      9.01  .         .         .    V    .  Q      .
16.183      0.9862      9.56  .         .         .    V    .    Q    .
16.200      1.0001     10.11  .         .         .    V    .      Q  .
16.217      1.0151     10.89  .         .         .     V   .        Q
16.233      1.0296     10.52  .         .         .     V   .       Q .
16.250      1.0432      9.89  .         .         .      V  .     Q   .
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17.100      1.2180      1.01  .  Q      .          .          .V         .
17.117      1.2194      1.01  .  Q      .          .          .V         .
17.133      1.2208      1.00  .  Q      .          .          .V         .
17.150      1.2221      1.00  .  Q      .          .          .V         .
17.167      1.2235      1.00  .  Q      .          .          .V         .
17.183      1.2249      0.99  .  Q      .          .          .V         .
17.200      1.2262      0.99  .  Q      .          .          .V         .
17.217      1.2276      0.98  .  Q      .          .          .V         .
17.233      1.2289      0.98  .  Q      .          .          .V         .
17.250      1.2303      0.98  .  Q      .          .          .V         .
17.267      1.2316      0.97  .  Q      .          .          .V         .
17.283      1.2330      0.97  .  Q      .          .          . V        .
17.300      1.2343      0.97  .  Q      .          .          . V        .
17.317      1.2356      0.96  .  Q      .          .          . V        .
17.333      1.2369      0.95  .  Q      .          .          . V        .
17.350      1.2382      0.95  .  Q      .          .          . V        .
17.367      1.2395      0.94  .  Q      .          .          . V        .
17.383      1.2408      0.93  .  Q      .          .          . V        .
17.400      1.2421      0.93  .  Q      .          .          . V        .
17.417      1.2434      0.92  .  Q      .          .          . V        .
17.433      1.2446      0.91  .  Q      .          .          . V        .
17.450      1.2459      0.91  .  Q      .          .          . V        .
17.467      1.2471      0.90  .  Q      .          .          . V        .
17.483      1.2483      0.89  .  Q      .          .          . V        .
17.500      1.2496      0.89  .  Q      .          .          . V        .
17.517      1.2508      0.88  .  Q      .          .          . V        .
17.533      1.2520      0.88  .  Q      .          .          . V        .
17.550      1.2532      0.87  .  Q      .          .          . V        .
17.567      1.2544      0.86  .  Q      .          .          . V        .
17.583      1.2555      0.86  .  Q      .          .          . V        .
17.600      1.2567      0.85  .  Q      .          .          . V        .
17.617      1.2579      0.85  .  Q      .          .          . V        .
17.633      1.2591      0.84  .  Q      .          .          . V        .
17.650      1.2602      0.84  .  Q      .          .          . V        .
17.667      1.2614      0.83  .  Q      .          .          . V        .
17.683      1.2625      0.83  .  Q      .          .          . V        .
17.700      1.2636      0.82  .  Q      .          .          . V        .
17.717      1.2648      0.82  .  Q      .          .          . V        .
17.733      1.2659      0.81  . Q       .          .          . V        .
17.750      1.2670      0.81  . Q       .          .          . V        .
17.767      1.2681      0.80  . Q       .          .          . V        .
17.783      1.2692      0.80  . Q       .          .          . V        .
17.800      1.2703      0.80  . Q       .          .          . V        .
17.817      1.2714      0.79  . Q       .          .          .  V       .
17.833      1.2725      0.79  . Q       .          .          .  V       .
17.850      1.2736      0.78  . Q       .          .          .  V       .
17.867      1.2746      0.78  . Q       .          .          .  V       .
17.883      1.2757      0.78  . Q       .          .          .  V       .
17.900      1.2768      0.77  . Q       .          .          .  V       .
17.917      1.2778      0.77  . Q       .          .          .  V       .
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17.933	1.2789	0.76	.	Q	.	.	V	.
17.950	1.2799	0.76	.	Q	.	.	V	.
17.967	1.2810	0.76	.	Q	.	.	V	.
17.983	1.2820	0.75	.	Q	.	.	V	.
18.000	1.2830	0.75	.	Q	.	.	V	.
18.017	1.2841	0.75	.	Q	.	.	V	.
18.033	1.2851	0.74	.	Q	.	.	V	.
18.050	1.2861	0.74	.	Q	.	.	V	.
18.067	1.2871	0.74	.	Q	.	.	V	.
18.083	1.2881	0.73	.	Q	.	.	V	.
18.100	1.2891	0.73	.	Q	.	.	V	.
18.117	1.2901	0.73	.	Q	.	.	V	.
18.133	1.2911	0.72	.	Q	.	.	V	.
18.150	1.2921	0.72	.	Q	.	.	V	.
18.167	1.2931	0.72	.	Q	.	.	V	.
18.183	1.2941	0.72	.	Q	.	.	V	.
18.200	1.2951	0.72	.	Q	.	.	V	.
18.217	1.2961	0.72	.	Q	.	.	V	.
18.233	1.2971	0.71	.	Q	.	.	V	.
18.250	1.2980	0.71	.	Q	.	.	V	.
18.267	1.2990	0.71	.	Q	.	.	V	.
18.283	1.3000	0.71	.	Q	.	.	V	.
18.300	1.3010	0.71	.	Q	.	.	V	.
18.317	1.3019	0.71	.	Q	.	.	V	.
18.333	1.3029	0.71	.	Q	.	.	V	.
18.350	1.3039	0.71	.	Q	.	.	V	.
18.367	1.3049	0.71	.	Q	.	.	V	.
18.383	1.3058	0.70	.	Q	.	.	V	.
18.400	1.3068	0.70	.	Q	.	.	V	.
18.417	1.3078	0.70	.	Q	.	.	V	.
18.433	1.3087	0.70	.	Q	.	.	V	.
18.450	1.3097	0.69	.	Q	.	.	V	.
18.467	1.3106	0.69	.	Q	.	.	V	.
18.483	1.3116	0.69	.	Q	.	.	V	.
18.500	1.3125	0.69	.	Q	.	.	V	.
18.517	1.3135	0.68	.	Q	.	.	V	.
18.533	1.3144	0.68	.	Q	.	.	V	.
18.550	1.3154	0.68	.	Q	.	.	V	.
18.567	1.3163	0.68	.	Q	.	.	V	.
18.583	1.3172	0.67	.	Q	.	.	V	.
18.600	1.3181	0.67	.	Q	.	.	V	.
18.617	1.3191	0.67	.	Q	.	.	V	.
18.633	1.3200	0.67	.	Q	.	.	V	.
18.650	1.3209	0.67	.	Q	.	.	V	.
18.667	1.3218	0.66	.	Q	.	.	V	.
18.683	1.3227	0.66	.	Q	.	.	V	.
18.700	1.3236	0.66	.	Q	.	.	V	.
18.717	1.3245	0.66	.	Q	.	.	V	.
18.733	1.3254	0.65	.	Q	.	.	V	.
18.750	1.3263	0.65	.	Q	.	.	V	.

18.767	1.3272	0.65	.	Q	.	.	V	.
18.783	1.3281	0.65	.	Q	.	.	V	.
18.800	1.3290	0.65	.	Q	.	.	V	.
18.817	1.3299	0.64	.	Q	.	.	V	.
18.833	1.3308	0.64	.	Q	.	.	V	.
18.850	1.3317	0.64	.	Q	.	.	V	.
18.867	1.3325	0.64	.	Q	.	.	V	.
18.883	1.3334	0.64	.	Q	.	.	V	.
18.900	1.3343	0.63	.	Q	.	.	V	.
18.917	1.3352	0.63	.	Q	.	.	V	.
18.933	1.3360	0.63	.	Q	.	.	V	.
18.950	1.3369	0.63	.	Q	.	.	V	.
18.967	1.3378	0.63	.	Q	.	.	V	.
18.983	1.3386	0.62	.	Q	.	.	V	.
19.000	1.3395	0.62	.	Q	.	.	V	.
19.017	1.3403	0.62	.	Q	.	.	V	.
19.033	1.3412	0.62	.	Q	.	.	V	.
19.050	1.3420	0.62	.	Q	.	.	V	.
19.067	1.3429	0.61	.	Q	.	.	V	.
19.083	1.3437	0.61	.	Q	.	.	V	.
19.100	1.3446	0.61	.	Q	.	.	V	.
19.117	1.3454	0.61	.	Q	.	.	V	.
19.133	1.3462	0.61	.	Q	.	.	V	.
19.150	1.3471	0.61	.	Q	.	.	V	.
19.167	1.3479	0.60	.	Q	.	.	V	.
19.183	1.3487	0.60	.	Q	.	.	V	.
19.200	1.3496	0.60	.	Q	.	.	V	.
19.217	1.3504	0.60	.	Q	.	.	V	.
19.233	1.3512	0.60	.	Q	.	.	V	.
19.250	1.3520	0.60	.	Q	.	.	V	.
19.267	1.3528	0.59	.	Q	.	.	V	.
19.283	1.3537	0.59	.	Q	.	.	V	.
19.300	1.3545	0.59	.	Q	.	.	V	.
19.317	1.3553	0.59	.	Q	.	.	V	.
19.333	1.3561	0.59	.	Q	.	.	V	.
19.350	1.3569	0.59	.	Q	.	.	V	.
19.367	1.3577	0.58	.	Q	.	.	V	.
19.383	1.3585	0.58	.	Q	.	.	V	.
19.400	1.3593	0.58	.	Q	.	.	V	.
19.417	1.3601	0.58	.	Q	.	.	V	.
19.433	1.3609	0.58	.	Q	.	.	V	.
19.450	1.3617	0.58	.	Q	.	.	V	.
19.467	1.3625	0.58	.	Q	.	.	V	.
19.483	1.3633	0.57	.	Q	.	.	V	.
19.500	1.3641	0.57	.	Q	.	.	V	.
19.517	1.3649	0.57	.	Q	.	.	V	.
19.533	1.3656	0.57	.	Q	.	.	V	.
19.550	1.3664	0.57	.	Q	.	.	V	.
19.567	1.3672	0.57	.	Q	.	.	V	.
19.583	1.3680	0.57	.	Q	.	.	V	.

19.600	1.3688	0.56	. Q	.	.	.	V	.
19.617	1.3695	0.56	. Q	.	.	.	V	.
19.633	1.3703	0.56	. Q	.	.	.	V	.
19.650	1.3711	0.56	. Q	.	.	.	V	.
19.667	1.3718	0.56	. Q	.	.	.	V	.
19.683	1.3726	0.56	. Q	.	.	.	V	.
19.700	1.3734	0.56	. Q	.	.	.	V	.
19.717	1.3741	0.55	. Q	.	.	.	V	.
19.733	1.3749	0.55	. Q	.	.	.	V	.
19.750	1.3757	0.55	. Q	.	.	.	V	.
19.767	1.3764	0.55	. Q	.	.	.	V	.
19.783	1.3772	0.55	. Q	.	.	.	V	.
19.800	1.3779	0.55	. Q	.	.	.	V	.
19.817	1.3787	0.55	. Q	.	.	.	V	.
19.833	1.3794	0.55	. Q	.	.	.	V	.
19.850	1.3802	0.54	.Q	.	.	.	V	.
19.867	1.3809	0.54	.Q	.	.	.	V	.
19.883	1.3817	0.54	.Q	.	.	.	V	.
19.900	1.3824	0.54	.Q	.	.	.	V	.
19.917	1.3832	0.54	.Q	.	.	.	V	.
19.933	1.3839	0.54	.Q	.	.	.	V	.
19.950	1.3846	0.54	.Q	.	.	.	V	.
19.967	1.3854	0.54	.Q	.	.	.	V	.
19.983	1.3861	0.53	.Q	.	.	.	V	.
20.000	1.3869	0.53	.Q	.	.	.	V	.
20.017	1.3876	0.53	.Q	.	.	.	V	.
20.033	1.3883	0.53	.Q	.	.	.	V	.
20.050	1.3890	0.53	.Q	.	.	.	V	.
20.067	1.3898	0.53	.Q	.	.	.	V	.
20.083	1.3905	0.53	.Q	.	.	.	V	.
20.100	1.3912	0.53	.Q	.	.	.	V	.
20.117	1.3919	0.52	.Q	.	.	.	V	.
20.133	1.3927	0.52	.Q	.	.	.	V	.
20.150	1.3934	0.52	.Q	.	.	.	V	.
20.167	1.3941	0.52	.Q	.	.	.	V	.
20.183	1.3948	0.52	.Q	.	.	.	V	.
20.200	1.3955	0.52	.Q	.	.	.	V	.
20.217	1.3963	0.52	.Q	.	.	.	V	.
20.233	1.3970	0.52	.Q	.	.	.	V	.
20.250	1.3977	0.52	.Q	.	.	.	V	.
20.267	1.3984	0.52	.Q	.	.	.	V	.
20.283	1.3991	0.51	.Q	.	.	.	V	.
20.300	1.3998	0.51	.Q	.	.	.	V	.
20.317	1.4005	0.51	.Q	.	.	.	V	.
20.333	1.4012	0.51	.Q	.	.	.	V	.
20.350	1.4019	0.51	.Q	.	.	.	V	.
20.367	1.4026	0.51	.Q	.	.	.	V	.
20.383	1.4033	0.51	.Q	.	.	.	V	.
20.400	1.4040	0.51	.Q	.	.	.	V	.
20.417	1.4047	0.51	.Q	.	.	.	V	.

20.433	1.4054	0.50	.Q	.	.	.	V	.
20.450	1.4061	0.50	.Q	.	.	.	V	.
20.467	1.4068	0.50	.Q	.	.	.	V	.
20.483	1.4075	0.50	.Q	.	.	.	V	.
20.500	1.4082	0.50	.Q	.	.	.	V	.
20.517	1.4089	0.50	.Q	.	.	.	V	.
20.533	1.4095	0.50	.Q	.	.	.	V	.
20.550	1.4102	0.50	.Q	.	.	.	V	.
20.567	1.4109	0.50	.Q	.	.	.	V	.
20.583	1.4116	0.50	.Q	.	.	.	V	.
20.600	1.4123	0.50	.Q	.	.	.	V	.
20.617	1.4130	0.49	.Q	.	.	.	V	.
20.633	1.4136	0.49	.Q	.	.	.	V	.
20.650	1.4143	0.49	.Q	.	.	.	V	.
20.667	1.4150	0.49	.Q	.	.	.	V	.
20.683	1.4157	0.49	.Q	.	.	.	V	.
20.700	1.4163	0.49	.Q	.	.	.	V	.
20.717	1.4170	0.49	.Q	.	.	.	V	.
20.733	1.4177	0.49	.Q	.	.	.	V	.
20.750	1.4184	0.49	.Q	.	.	.	V	.
20.767	1.4190	0.49	.Q	.	.	.	V	.
20.783	1.4197	0.48	.Q	.	.	.	V	.
20.800	1.4204	0.48	.Q	.	.	.	V	.
20.817	1.4210	0.48	.Q	.	.	.	V	.
20.833	1.4217	0.48	.Q	.	.	.	V	.
20.850	1.4224	0.48	.Q	.	.	.	V	.
20.867	1.4230	0.48	.Q	.	.	.	V	.
20.883	1.4237	0.48	.Q	.	.	.	V	.
20.900	1.4243	0.48	.Q	.	.	.	V	.
20.917	1.4250	0.48	.Q	.	.	.	V	.
20.933	1.4257	0.48	.Q	.	.	.	V	.
20.950	1.4263	0.48	.Q	.	.	.	V	.
20.967	1.4270	0.48	.Q	.	.	.	V	.
20.983	1.4276	0.47	.Q	.	.	.	V	.
21.000	1.4283	0.47	.Q	.	.	.	V	.
21.017	1.4289	0.47	.Q	.	.	.	V	.
21.033	1.4296	0.47	.Q	.	.	.	V	.
21.050	1.4302	0.47	.Q	.	.	.	V	.
21.067	1.4309	0.47	.Q	.	.	.	V	.
21.083	1.4315	0.47	.Q	.	.	.	V	.
21.100	1.4322	0.47	.Q	.	.	.	V	.
21.117	1.4328	0.47	.Q	.	.	.	V	.
21.133	1.4335	0.47	.Q	.	.	.	V	.
21.150	1.4341	0.47	.Q	.	.	.	V	.
21.167	1.4347	0.47	.Q	.	.	.	V	.
21.183	1.4354	0.46	.Q	.	.	.	V	.
21.200	1.4360	0.46	.Q	.	.	.	V	.
21.217	1.4367	0.46	.Q	.	.	.	V	.
21.233	1.4373	0.46	.Q	.	.	.	V	.
21.250	1.4379	0.46	.Q	.	.	.	V	.

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21.267      1.4386      0.46  .Q        .         .         .      V  .
21.283      1.4392      0.46  .Q        .         .         .      V  .
21.300      1.4398      0.46  .Q        .         .         .      V  .
21.317      1.4405      0.46  .Q        .         .         .      V  .
21.333      1.4411      0.46  .Q        .         .         .      V  .
21.350      1.4417      0.46  .Q        .         .         .      V  .
21.367      1.4424      0.46  .Q        .         .         .      V  .
21.383      1.4430      0.46  .Q        .         .         .      V  .
21.400      1.4436      0.45  .Q        .         .         .      V  .
21.417      1.4442      0.45  .Q        .         .         .      V  .
21.433      1.4449      0.45  .Q        .         .         .      V  .
21.450      1.4455      0.45  .Q        .         .         .      V  .
21.467      1.4461      0.45  .Q        .         .         .      V  .
21.483      1.4467      0.45  .Q        .         .         .      V  .
21.500      1.4473      0.45  .Q        .         .         .      V  .
21.517      1.4480      0.45  .Q        .         .         .      V  .
21.533      1.4486      0.45  .Q        .         .         .      V  .
21.550      1.4492      0.45  .Q        .         .         .      V  .
21.567      1.4498      0.45  .Q        .         .         .      V  .
21.583      1.4504      0.45  .Q        .         .         .      V  .
21.600      1.4510      0.45  .Q        .         .         .      V  .
21.617      1.4517      0.45  .Q        .         .         .      V  .
21.633      1.4523      0.44  .Q        .         .         .      V  .
21.650      1.4529      0.44  .Q        .         .         .      V  .
21.667      1.4535      0.44  .Q        .         .         .      V  .
21.683      1.4541      0.44  .Q        .         .         .      V  .
21.700      1.4547      0.44  .Q        .         .         .      V  .
21.717      1.4553      0.44  .Q        .         .         .      V  .
21.733      1.4559      0.44  .Q        .         .         .      V  .
21.750      1.4565      0.44  .Q        .         .         .      V  .
21.767      1.4571      0.44  .Q        .         .         .      V  .
21.783      1.4578      0.44  .Q        .         .         .      V  .
21.800      1.4584      0.44  .Q        .         .         .      V  .
21.817      1.4590      0.44  .Q        .         .         .      V  .
21.833      1.4596      0.44  .Q        .         .         .      V  .
21.850      1.4602      0.44  .Q        .         .         .      V  .
21.867      1.4608      0.44  .Q        .         .         .      V  .
21.883      1.4614      0.44  .Q        .         .         .      V  .
21.900      1.4620      0.43  .Q        .         .         .      V  .
21.917      1.4626      0.43  .Q        .         .         .      V  .
21.933      1.4632      0.43  .Q        .         .         .       V .
21.950      1.4637      0.43  .Q        .         .         .       V .
21.967      1.4643      0.43  .Q        .         .         .       V .
21.983      1.4649      0.43  .Q        .         .         .       V .
22.000      1.4655      0.43  .Q        .         .         .       V .
22.017      1.4661      0.43  .Q        .         .         .       V .
22.033      1.4667      0.43  .Q        .         .         .       V .
22.050      1.4673      0.43  .Q        .         .         .       V .
22.067      1.4679      0.43  .Q        .         .         .       V .
22.083      1.4685      0.43  .Q        .         .         .       V .
```

22.100	1.4691	0.43	.Q	.	.	.	V .
22.117	1.4697	0.43	.Q	.	.	.	V .
22.133	1.4702	0.43	.Q	.	.	.	V .
22.150	1.4708	0.43	.Q	.	.	.	V .
22.167	1.4714	0.42	.Q	.	.	.	V .
22.183	1.4720	0.42	.Q	.	.	.	V .
22.200	1.4726	0.42	.Q	.	.	.	V .
22.217	1.4732	0.42	.Q	.	.	.	V .
22.233	1.4737	0.42	.Q	.	.	.	V .
22.250	1.4743	0.42	.Q	.	.	.	V .
22.267	1.4749	0.42	.Q	.	.	.	V .
22.283	1.4755	0.42	.Q	.	.	.	V .
22.300	1.4761	0.42	.Q	.	.	.	V .
22.317	1.4766	0.42	.Q	.	.	.	V .
22.333	1.4772	0.42	.Q	.	.	.	V .
22.350	1.4778	0.42	.Q	.	.	.	V .
22.367	1.4784	0.42	.Q	.	.	.	V .
22.383	1.4789	0.42	.Q	.	.	.	V .
22.400	1.4795	0.42	.Q	.	.	.	V .
22.417	1.4801	0.42	.Q	.	.	.	V .
22.433	1.4807	0.42	.Q	.	.	.	V .
22.450	1.4812	0.41	.Q	.	.	.	V .
22.467	1.4818	0.41	.Q	.	.	.	V .
22.483	1.4824	0.41	.Q	.	.	.	V .
22.500	1.4829	0.41	.Q	.	.	.	V .
22.517	1.4835	0.41	.Q	.	.	.	V .
22.533	1.4841	0.41	.Q	.	.	.	V .
22.550	1.4846	0.41	.Q	.	.	.	V .
22.567	1.4852	0.41	.Q	.	.	.	V .
22.583	1.4858	0.41	.Q	.	.	.	V .
22.600	1.4863	0.41	.Q	.	.	.	V .
22.617	1.4869	0.41	.Q	.	.	.	V .
22.633	1.4875	0.41	.Q	.	.	.	V .
22.650	1.4880	0.41	.Q	.	.	.	V .
22.667	1.4886	0.41	.Q	.	.	.	V .
22.683	1.4891	0.41	.Q	.	.	.	V .
22.700	1.4897	0.41	.Q	.	.	.	V .
22.717	1.4903	0.41	.Q	.	.	.	V .
22.733	1.4908	0.41	.Q	.	.	.	V .
22.750	1.4914	0.40	.Q	.	.	.	V .
22.767	1.4919	0.40	.Q	.	.	.	V .
22.783	1.4925	0.40	.Q	.	.	.	V .
22.800	1.4930	0.40	.Q	.	.	.	V .
22.817	1.4936	0.40	.Q	.	.	.	V .
22.833	1.4942	0.40	.Q	.	.	.	V .
22.850	1.4947	0.40	.Q	.	.	.	V .
22.867	1.4953	0.40	.Q	.	.	.	V .
22.883	1.4958	0.40	.Q	.	.	.	V .
22.900	1.4964	0.40	.Q	.	.	.	V .
22.917	1.4969	0.40	.Q	.	.	.	V .

22.933	1.4975	0.40	.Q	.	.	.	V .
22.950	1.4980	0.40	.Q	.	.	.	V .
22.967	1.4986	0.40	.Q	.	.	.	V .
22.983	1.4991	0.40	.Q	.	.	.	V .
23.000	1.4997	0.40	.Q	.	.	.	V .
23.017	1.5002	0.40	.Q	.	.	.	V .
23.033	1.5008	0.40	.Q	.	.	.	V .
23.050	1.5013	0.40	.Q	.	.	.	V .
23.067	1.5018	0.40	.Q	.	.	.	V.
23.083	1.5024	0.39	.Q	.	.	.	V.
23.100	1.5029	0.39	.Q	.	.	.	V.
23.117	1.5035	0.39	.Q	.	.	.	V.
23.133	1.5040	0.39	.Q	.	.	.	V.
23.150	1.5046	0.39	.Q	.	.	.	V.
23.167	1.5051	0.39	.Q	.	.	.	V.
23.183	1.5056	0.39	.Q	.	.	.	V.
23.200	1.5062	0.39	.Q	.	.	.	V.
23.217	1.5067	0.39	.Q	.	.	.	V.
23.233	1.5073	0.39	.Q	.	.	.	V.
23.250	1.5078	0.39	.Q	.	.	.	V.
23.267	1.5083	0.39	.Q	.	.	.	V.
23.283	1.5089	0.39	.Q	.	.	.	V.
23.300	1.5094	0.39	.Q	.	.	.	V.
23.317	1.5099	0.39	.Q	.	.	.	V.
23.333	1.5105	0.39	.Q	.	.	.	V.
23.350	1.5110	0.39	.Q	.	.	.	V.
23.367	1.5115	0.39	.Q	.	.	.	V.
23.383	1.5121	0.39	.Q	.	.	.	V.
23.400	1.5126	0.39	.Q	.	.	.	V.
23.417	1.5131	0.39	.Q	.	.	.	V.
23.433	1.5137	0.39	.Q	.	.	.	V.
23.450	1.5142	0.38	.Q	.	.	.	V.
23.467	1.5147	0.38	.Q	.	.	.	V.
23.483	1.5152	0.38	.Q	.	.	.	V.
23.500	1.5158	0.38	.Q	.	.	.	V.
23.517	1.5163	0.38	.Q	.	.	.	V.
23.533	1.5168	0.38	.Q	.	.	.	V.
23.550	1.5174	0.38	.Q	.	.	.	V.
23.567	1.5179	0.38	.Q	.	.	.	V.
23.583	1.5184	0.38	.Q	.	.	.	V.
23.600	1.5189	0.38	.Q	.	.	.	V.
23.617	1.5195	0.38	.Q	.	.	.	V.
23.633	1.5200	0.38	.Q	.	.	.	V.
23.650	1.5205	0.38	.Q	.	.	.	V.
23.667	1.5210	0.38	.Q	.	.	.	V.
23.683	1.5215	0.38	.Q	.	.	.	V.
23.700	1.5221	0.38	.Q	.	.	.	V.
23.717	1.5226	0.38	.Q	.	.	.	V.
23.733	1.5231	0.38	.Q	.	.	.	V.
23.750	1.5236	0.38	.Q	.	.	.	V.

```
  23.767      1.5241      0.38  .Q        .         .         .         V.
  23.783      1.5247      0.38  .Q        .         .         .         V.
  23.800      1.5252      0.38  .Q        .         .         .         V.
  23.817      1.5257      0.38  .Q        .         .         .         V.
  23.833      1.5262      0.37  .Q        .         .         .         V.
  23.850      1.5267      0.37  .Q        .         .         .         V.
  23.867      1.5272      0.37  .Q        .         .         .         V.
  23.883      1.5278      0.37  .Q        .         .         .         V.
  23.900      1.5283      0.37  .Q        .         .         .         V.
  23.917      1.5288      0.37  .Q        .         .         .         V.
  23.933      1.5293      0.37  .Q        .         .         .         V.
  23.950      1.5298      0.37  .Q        .         .         .         V.
  23.967      1.5303      0.37  .Q        .         .         .         V.
  23.983      1.5308      0.37  .Q        .         .         .         V.
  24.000      1.5313      0.37  .Q        .         .         .         V.
--------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated                Duration
       Peak Flow Rate                     (minutes)
   ======================                 =========
              0%                           1441.0
             10%                            715.0
             20%                            300.0
             30%                            170.0
             40%                            110.0
             50%                             95.0
             60%                             75.0
             70%                             55.0
             80%                             35.0
             90%                             20.0


********************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  11
--------------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
================================================================================

            STREAM HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
        (Notes: Time indicated is at END of Each Unit Intervals.
                Peak 5-minute rainfall intensity is modeled as
                a constant value for entire 5-minute period.)
--------------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        5.0      10.0      15.0      20.0
--------------------------------------------------------------------------------
   0.017      0.0000      0.00  Q         .         .         .         .
   0.033      0.0000      0.00  Q         .         .         .         .
```

0.050	0.0000	0.00	Q	.	.	.	.
0.067	0.0000	0.00	Q	.	.	.	.
0.083	0.0000	0.00	Q	.	.	.	.
0.100	0.0000	0.02	Q	.	.	.	.
0.117	0.0001	0.05	Q	.	.	.	.
0.133	0.0002	0.08	Q	.	.	.	.
0.150	0.0004	0.11	Q	.	.	.	.
0.167	0.0006	0.14	Q	.	.	.	.
0.183	0.0008	0.17	Q	.	.	.	.
0.200	0.0011	0.19	Q	.	.	.	.
0.217	0.0014	0.22	Q	.	.	.	.
0.233	0.0017	0.25	Q	.	.	.	.
0.250	0.0021	0.28	Q	.	.	.	.
0.267	0.0025	0.31	Q	.	.	.	.
0.283	0.0030	0.34	Q	.	.	.	.
0.300	0.0035	0.36	Q	.	.	.	.
0.317	0.0040	0.37	Q	.	.	.	.
0.333	0.0045	0.37	Q	.	.	.	.
0.350	0.0050	0.37	Q	.	.	.	.
0.367	0.0055	0.37	Q	.	.	.	.
0.383	0.0060	0.37	Q	.	.	.	.
0.400	0.0065	0.37	Q	.	.	.	.
0.417	0.0070	0.37	Q	.	.	.	.
0.433	0.0076	0.37	Q	.	.	.	.
0.450	0.0081	0.37	Q	.	.	.	.
0.467	0.0086	0.37	Q	.	.	.	.
0.483	0.0091	0.37	Q	.	.	.	.
0.500	0.0096	0.37	Q	.	.	.	.
0.517	0.0101	0.37	Q	.	.	.	.
0.533	0.0106	0.37	Q	.	.	.	.
0.550	0.0111	0.37	Q	.	.	.	.
0.567	0.0116	0.37	Q	.	.	.	.
0.583	0.0121	0.37	Q	.	.	.	.
0.600	0.0126	0.37	Q	.	.	.	.
0.617	0.0132	0.37	Q	.	.	.	.
0.633	0.0137	0.37	Q	.	.	.	.
0.650	0.0142	0.37	Q	.	.	.	.
0.667	0.0147	0.37	Q	.	.	.	.
0.683	0.0152	0.37	Q	.	.	.	.
0.700	0.0157	0.37	Q	.	.	.	.
0.717	0.0162	0.37	Q	.	.	.	.
0.733	0.0167	0.37	Q	.	.	.	.
0.750	0.0173	0.37	Q	.	.	.	.
0.767	0.0178	0.37	Q	.	.	.	.
0.783	0.0183	0.37	Q	.	.	.	.
0.800	0.0188	0.37	Q	.	.	.	.
0.817	0.0193	0.37	Q	.	.	.	.
0.833	0.0198	0.37	Q	.	.	.	.
0.850	0.0204	0.37	Q	.	.	.	.
0.867	0.0209	0.37	Q	.	.	.	.

0.883	0.0214	0.37	Q	.	.	.	.
0.900	0.0219	0.37	Q	.	.	.	.
0.917	0.0224	0.37	Q	.	.	.	.
0.933	0.0229	0.37	Q	.	.	.	.
0.950	0.0234	0.37	Q	.	.	.	.
0.967	0.0240	0.38	Q	.	.	.	.
0.983	0.0245	0.38	Q	.	.	.	.
1.000	0.0250	0.38	Q	.	.	.	.
1.017	0.0255	0.38	Q	.	.	.	.
1.033	0.0260	0.38	Q	.	.	.	.
1.050	0.0266	0.38	Q	.	.	.	.
1.067	0.0271	0.38	Q	.	.	.	.
1.083	0.0276	0.38	Q	.	.	.	.
1.100	0.0281	0.38	Q	.	.	.	.
1.117	0.0286	0.38	Q	.	.	.	.
1.133	0.0292	0.38	Q	.	.	.	.
1.150	0.0297	0.38	Q	.	.	.	.
1.167	0.0302	0.38	Q	.	.	.	.
1.183	0.0307	0.38	Q	.	.	.	.
1.200	0.0312	0.38	Q	.	.	.	.
1.217	0.0318	0.38	Q	.	.	.	.
1.233	0.0323	0.38	Q	.	.	.	.
1.250	0.0328	0.38	Q	.	.	.	.
1.267	0.0333	0.38	Q	.	.	.	.
1.283	0.0339	0.38	Q	.	.	.	.
1.300	0.0344	0.38	Q	.	.	.	.
1.317	0.0349	0.38	Q	.	.	.	.
1.333	0.0354	0.38	Q	.	.	.	.
1.350	0.0359	0.38	Q	.	.	.	.
1.367	0.0365	0.38	Q	.	.	.	.
1.383	0.0370	0.38	Q	.	.	.	.
1.400	0.0375	0.38	Q	.	.	.	.
1.417	0.0380	0.38	Q	.	.	.	.
1.433	0.0386	0.38	QV	.	.	.	.
1.450	0.0391	0.38	QV	.	.	.	.
1.467	0.0396	0.38	QV	.	.	.	.
1.483	0.0401	0.38	QV	.	.	.	.
1.500	0.0407	0.38	QV	.	.	.	.
1.517	0.0412	0.38	QV	.	.	.	.
1.533	0.0417	0.38	QV	.	.	.	.
1.550	0.0423	0.38	QV	.	.	.	.
1.567	0.0428	0.38	QV	.	.	.	.
1.583	0.0433	0.38	QV	.	.	.	.
1.600	0.0438	0.38	QV	.	.	.	.
1.617	0.0444	0.38	QV	.	.	.	.
1.633	0.0449	0.38	QV	.	.	.	.
1.650	0.0454	0.38	QV	.	.	.	.
1.667	0.0460	0.38	QV	.	.	.	.
1.683	0.0465	0.38	QV	.	.	.	.
1.700	0.0470	0.39	QV	.	.	.	.

1.717	0.0476	0.39	QV	.	.	.	.
1.733	0.0481	0.39	QV	.	.	.	.
1.750	0.0486	0.39	QV	.	.	.	.
1.767	0.0491	0.39	QV	.	.	.	.
1.783	0.0497	0.39	QV	.	.	.	.
1.800	0.0502	0.39	QV	.	.	.	.
1.817	0.0507	0.39	QV	.	.	.	.
1.833	0.0513	0.39	QV	.	.	.	.
1.850	0.0518	0.39	QV	.	.	.	.
1.867	0.0523	0.39	QV	.	.	.	.
1.883	0.0529	0.39	QV	.	.	.	.
1.900	0.0534	0.39	QV	.	.	.	.
1.917	0.0539	0.39	QV	.	.	.	.
1.933	0.0545	0.39	QV	.	.	.	.
1.950	0.0550	0.39	QV	.	.	.	.
1.967	0.0556	0.39	QV	.	.	.	.
1.983	0.0561	0.39	QV	.	.	.	.
2.000	0.0566	0.39	QV	.	.	.	.
2.017	0.0572	0.39	QV	.	.	.	.
2.033	0.0577	0.39	QV	.	.	.	.
2.050	0.0582	0.39	QV	.	.	.	.
2.067	0.0588	0.39	QV	.	.	.	.
2.083	0.0593	0.39	QV	.	.	.	.
2.100	0.0599	0.39	QV	.	.	.	.
2.117	0.0604	0.39	QV	.	.	.	.
2.133	0.0609	0.39	QV	.	.	.	.
2.150	0.0615	0.39	QV	.	.	.	.
2.167	0.0620	0.39	QV	.	.	.	.
2.183	0.0625	0.39	QV	.	.	.	.
2.200	0.0631	0.39	QV	.	.	.	.
2.217	0.0636	0.39	QV	.	.	.	.
2.233	0.0642	0.39	QV	.	.	.	.
2.250	0.0647	0.39	QV	.	.	.	.
2.267	0.0652	0.39	QV	.	.	.	.
2.283	0.0658	0.39	QV	.	.	.	.
2.300	0.0663	0.39	QV	.	.	.	.
2.317	0.0669	0.39	QV	.	.	.	.
2.333	0.0674	0.39	QV	.	.	.	.
2.350	0.0680	0.39	QV	.	.	.	.
2.367	0.0685	0.39	QV	.	.	.	.
2.383	0.0690	0.39	QV	.	.	.	.
2.400	0.0696	0.40	QV	.	.	.	.
2.417	0.0701	0.40	QV	.	.	.	.
2.433	0.0707	0.40	QV	.	.	.	.
2.450	0.0712	0.40	QV	.	.	.	.
2.467	0.0718	0.40	QV	.	.	.	.
2.483	0.0723	0.40	QV	.	.	.	.
2.500	0.0729	0.40	QV	.	.	.	.
2.517	0.0734	0.40	QV	.	.	.	.
2.533	0.0740	0.40	QV	.	.	.	.

2.550	0.0745	0.40	QV	.	.	.	.
2.567	0.0750	0.40	QV	.	.	.	.
2.583	0.0756	0.40	QV	.	.	.	.
2.600	0.0761	0.40	QV	.	.	.	.
2.617	0.0767	0.40	QV	.	.	.	.
2.633	0.0772	0.40	Q V	.	.	.	.
2.650	0.0778	0.40	Q V	.	.	.	.
2.667	0.0783	0.40	Q V	.	.	.	.
2.683	0.0789	0.40	Q V	.	.	.	.
2.700	0.0794	0.40	Q V	.	.	.	.
2.717	0.0800	0.40	Q V	.	.	.	.
2.733	0.0805	0.40	Q V	.	.	.	.
2.750	0.0811	0.40	Q V	.	.	.	.
2.767	0.0816	0.40	Q V	.	.	.	.
2.783	0.0822	0.40	Q V	.	.	.	.
2.800	0.0827	0.40	Q V	.	.	.	.
2.817	0.0833	0.40	Q V	.	.	.	.
2.833	0.0838	0.40	Q V	.	.	.	.
2.850	0.0844	0.40	Q V	.	.	.	.
2.867	0.0850	0.40	Q V	.	.	.	.
2.883	0.0855	0.40	Q V	.	.	.	.
2.900	0.0861	0.40	Q V	.	.	.	.
2.917	0.0866	0.40	Q V	.	.	.	.
2.933	0.0872	0.40	Q V	.	.	.	.
2.950	0.0877	0.40	Q V	.	.	.	.
2.967	0.0883	0.40	Q V	.	.	.	.
2.983	0.0888	0.40	Q V	.	.	.	.
3.000	0.0894	0.40	Q V	.	.	.	.
3.017	0.0900	0.40	Q V	.	.	.	.
3.033	0.0905	0.40	Q V	.	.	.	.
3.050	0.0911	0.40	Q V	.	.	.	.
3.067	0.0916	0.40	Q V	.	.	.	.
3.083	0.0922	0.40	Q V	.	.	.	.
3.100	0.0927	0.40	Q V	.	.	.	.
3.117	0.0933	0.41	Q V	.	.	.	.
3.133	0.0939	0.41	Q V	.	.	.	.
3.150	0.0944	0.41	Q V	.	.	.	.
3.167	0.0950	0.41	Q V	.	.	.	.
3.183	0.0955	0.41	Q V	.	.	.	.
3.200	0.0961	0.41	Q V	.	.	.	.
3.217	0.0967	0.41	Q V	.	.	.	.
3.233	0.0972	0.41	Q V	.	.	.	.
3.250	0.0978	0.41	Q V	.	.	.	.
3.267	0.0983	0.41	Q V	.	.	.	.
3.283	0.0989	0.41	Q V	.	.	.	.
3.300	0.0995	0.41	Q V	.	.	.	.
3.317	0.1000	0.41	Q V	.	.	.	.
3.333	0.1006	0.41	Q V	.	.	.	.
3.350	0.1012	0.41	Q V	.	.	.	.
3.367	0.1017	0.41	Q V	.	.	.	.

3.383	0.1023	0.41	Q	V	.	.	.	.
3.400	0.1029	0.41	Q	V	.	.	.	.
3.417	0.1034	0.41	Q	V	.	.	.	.
3.433	0.1040	0.41	Q	V	.	.	.	.
3.450	0.1046	0.41	Q	V	.	.	.	.
3.467	0.1051	0.41	Q	V	.	.	.	.
3.483	0.1057	0.41	Q	V	.	.	.	.
3.500	0.1063	0.41	Q	V	.	.	.	.
3.517	0.1068	0.41	Q	V	.	.	.	.
3.533	0.1074	0.41	Q	V	.	.	.	.
3.550	0.1080	0.41	Q	V	.	.	.	.
3.567	0.1085	0.41	Q	V	.	.	.	.
3.583	0.1091	0.41	Q	V	.	.	.	.
3.600	0.1097	0.41	Q	V	.	.	.	.
3.617	0.1102	0.41	Q	V	.	.	.	.
3.633	0.1108	0.41	Q	V	.	.	.	.
3.650	0.1114	0.41	Q	V	.	.	.	.
3.667	0.1119	0.41	Q	V	.	.	.	.
3.683	0.1125	0.42	Q	V	.	.	.	.
3.700	0.1131	0.42	Q	V	.	.	.	.
3.717	0.1137	0.42	Q	V	.	.	.	.
3.733	0.1142	0.42	Q	V	.	.	.	.
3.750	0.1148	0.42	Q	V	.	.	.	.
3.767	0.1154	0.42	Q	V	.	.	.	.
3.783	0.1160	0.42	Q	V	.	.	.	.
3.800	0.1165	0.42	Q	V	.	.	.	.
3.817	0.1171	0.42	Q	V	.	.	.	.
3.833	0.1177	0.42	Q	V	.	.	.	.
3.850	0.1183	0.42	Q	V	.	.	.	.
3.867	0.1188	0.42	Q	V	.	.	.	.
3.883	0.1194	0.42	Q	V	.	.	.	.
3.900	0.1200	0.42	Q	V	.	.	.	.
3.917	0.1206	0.42	Q	V	.	.	.	.
3.933	0.1211	0.42	Q	V	.	.	.	.
3.950	0.1217	0.42	Q	V	.	.	.	.
3.967	0.1223	0.42	Q	V	.	.	.	.
3.983	0.1229	0.42	Q	V	.	.	.	.
4.000	0.1235	0.42	Q	V	.	.	.	.
4.017	0.1240	0.42	Q	V	.	.	.	.
4.033	0.1246	0.42	Q	V	.	.	.	.
4.050	0.1252	0.42	Q	V	.	.	.	.
4.067	0.1258	0.42	Q	V	.	.	.	.
4.083	0.1264	0.42	Q	V	.	.	.	.
4.100	0.1269	0.42	Q	V	.	.	.	.
4.117	0.1275	0.42	Q	V	.	.	.	.
4.133	0.1281	0.42	Q	V	.	.	.	.
4.150	0.1287	0.42	Q	V	.	.	.	.
4.167	0.1293	0.42	Q	V	.	.	.	.
4.183	0.1299	0.42	Q	V	.	.	.	.
4.200	0.1304	0.42	Q	V	.	.	.	.

4.217	0.1310	0.42	Q	V	.	.	.	.
4.233	0.1316	0.42	Q	V	.	.	.	.
4.250	0.1322	0.42	Q	V	.	.	.	.
4.267	0.1328	0.43	Q	V	.	.	.	.
4.283	0.1334	0.43	Q	V	.	.	.	.
4.300	0.1340	0.43	Q	V	.	.	.	.
4.317	0.1345	0.43	Q	V	.	.	.	.
4.333	0.1351	0.43	Q	V	.	.	.	.
4.350	0.1357	0.43	Q	V	.	.	.	.
4.367	0.1363	0.43	Q	V	.	.	.	.
4.383	0.1369	0.43	Q	V	.	.	.	.
4.400	0.1375	0.43	Q	V	.	.	.	.
4.417	0.1381	0.43	Q	V	.	.	.	.
4.433	0.1387	0.43	Q	V	.	.	.	.
4.450	0.1392	0.43	Q	V	.	.	.	.
4.467	0.1398	0.43	Q	V	.	.	.	.
4.483	0.1404	0.43	Q	V	.	.	.	.
4.500	0.1410	0.43	Q	V	.	.	.	.
4.517	0.1416	0.43	Q	V	.	.	.	.
4.533	0.1422	0.43	Q	V	.	.	.	.
4.550	0.1428	0.43	Q	V	.	.	.	.
4.567	0.1434	0.43	Q	V	.	.	.	.
4.583	0.1440	0.43	Q	V	.	.	.	.
4.600	0.1446	0.43	Q	V	.	.	.	.
4.617	0.1452	0.43	Q	V	.	.	.	.
4.633	0.1458	0.43	Q	V	.	.	.	.
4.650	0.1464	0.43	Q	V	.	.	.	.
4.667	0.1470	0.43	Q	V	.	.	.	.
4.683	0.1476	0.43	Q	V	.	.	.	.
4.700	0.1481	0.43	Q	V	.	.	.	.
4.717	0.1487	0.43	Q	V	.	.	.	.
4.733	0.1493	0.43	Q	V	.	.	.	.
4.750	0.1499	0.43	Q	V	.	.	.	.
4.767	0.1505	0.43	Q	V	.	.	.	.
4.783	0.1511	0.43	Q	V	.	.	.	.
4.800	0.1517	0.43	Q	V	.	.	.	.
4.817	0.1523	0.43	Q	V	.	.	.	.
4.833	0.1529	0.44	Q	V	.	.	.	.
4.850	0.1535	0.44	Q	V	.	.	.	.
4.867	0.1541	0.44	Q	V	.	.	.	.
4.883	0.1547	0.44	Q	V	.	.	.	.
4.900	0.1553	0.44	Q	V	.	.	.	.
4.917	0.1559	0.44	Q	V	.	.	.	.
4.933	0.1565	0.44	Q	V	.	.	.	.
4.950	0.1571	0.44	Q	V	.	.	.	.
4.967	0.1577	0.44	Q	V	.	.	.	.
4.983	0.1584	0.44	Q	V	.	.	.	.
5.000	0.1590	0.44	Q	V	.	.	.	.
5.017	0.1596	0.44	Q	V	.	.	.	.
5.033	0.1602	0.44	Q	V	.	.	.	.

5.050	0.1608	0.44	Q	V	.	.	.	.
5.067	0.1614	0.44	Q	V	.	.	.	.
5.083	0.1620	0.44	Q	V	.	.	.	.
5.100	0.1626	0.44	Q	V	.	.	.	.
5.117	0.1632	0.44	Q	V	.	.	.	.
5.133	0.1638	0.44	Q	V	.	.	.	.
5.150	0.1644	0.44	Q	V	.	.	.	.
5.167	0.1650	0.44	Q	V	.	.	.	.
5.183	0.1656	0.44	Q	V	.	.	.	.
5.200	0.1663	0.44	Q	V	.	.	.	.
5.217	0.1669	0.44	Q	V	.	.	.	.
5.233	0.1675	0.44	Q	V	.	.	.	.
5.250	0.1681	0.44	Q	V	.	.	.	.
5.267	0.1687	0.44	Q	V	.	.	.	.
5.283	0.1693	0.44	Q	V	.	.	.	.
5.300	0.1699	0.44	Q	V	.	.	.	.
5.317	0.1705	0.45	Q	V	.	.	.	.
5.333	0.1711	0.45	Q	V	.	.	.	.
5.350	0.1718	0.45	Q	V	.	.	.	.
5.367	0.1724	0.45	Q	V	.	.	.	.
5.383	0.1730	0.45	Q	V	.	.	.	.
5.400	0.1736	0.45	Q	V	.	.	.	.
5.417	0.1742	0.45	Q	V	.	.	.	.
5.433	0.1748	0.45	Q	V	.	.	.	.
5.450	0.1755	0.45	Q	V	.	.	.	.
5.467	0.1761	0.45	Q	V	.	.	.	.
5.483	0.1767	0.45	Q	V	.	.	.	.
5.500	0.1773	0.45	Q	V	.	.	.	.
5.517	0.1779	0.45	Q	V	.	.	.	.
5.533	0.1786	0.45	Q	V	.	.	.	.
5.550	0.1792	0.45	Q	V	.	.	.	.
5.567	0.1798	0.45	Q	V	.	.	.	.
5.583	0.1804	0.45	Q	V	.	.	.	.
5.600	0.1810	0.45	Q	V	.	.	.	.
5.617	0.1817	0.45	Q	V	.	.	.	.
5.633	0.1823	0.45	Q	V	.	.	.	.
5.650	0.1829	0.45	Q	V	.	.	.	.
5.667	0.1835	0.45	Q	V	.	.	.	.
5.683	0.1842	0.45	Q	V	.	.	.	.
5.700	0.1848	0.45	Q	V	.	.	.	.
5.717	0.1854	0.45	Q	V	.	.	.	.
5.733	0.1860	0.45	Q	V	.	.	.	.
5.750	0.1867	0.45	Q	V	.	.	.	.
5.767	0.1873	0.45	Q	V	.	.	.	.
5.783	0.1879	0.46	Q	V	.	.	.	.
5.800	0.1885	0.46	Q	V	.	.	.	.
5.817	0.1892	0.46	Q	V	.	.	.	.
5.833	0.1898	0.46	Q	V	.	.	.	.
5.850	0.1904	0.46	Q	V	.	.	.	.
5.867	0.1911	0.46	Q	V	.	.	.	.

5.883	0.1917	0.46	Q	V	.	.	.	.
5.900	0.1923	0.46	Q	V	.	.	.	.
5.917	0.1930	0.46	Q	V	.	.	.	.
5.933	0.1936	0.46	Q	V	.	.	.	.
5.950	0.1942	0.46	Q	V	.	.	.	.
5.967	0.1948	0.46	Q	V	.	.	.	.
5.983	0.1955	0.46	Q	V	.	.	.	.
6.000	0.1961	0.46	Q	V	.	.	.	.
6.017	0.1968	0.46	Q	V	.	.	.	.
6.033	0.1974	0.46	Q	V	.	.	.	.
6.050	0.1980	0.46	Q	V	.	.	.	.
6.067	0.1987	0.46	Q	V	.	.	.	.
6.083	0.1993	0.46	Q	V	.	.	.	.
6.100	0.1999	0.46	Q	V	.	.	.	.
6.117	0.2006	0.46	Q	V	.	.	.	.
6.133	0.2012	0.46	Q	V	.	.	.	.
6.150	0.2018	0.46	Q	V	.	.	.	.
6.167	0.2025	0.46	Q	V	.	.	.	.
6.183	0.2031	0.46	Q	V	.	.	.	.
6.200	0.2038	0.46	Q	V	.	.	.	.
6.217	0.2044	0.47	Q	V	.	.	.	.
6.233	0.2050	0.47	Q	V	.	.	.	.
6.250	0.2057	0.47	Q	V	.	.	.	.
6.267	0.2063	0.47	Q	V	.	.	.	.
6.283	0.2070	0.47	Q	V	.	.	.	.
6.300	0.2076	0.47	Q	V	.	.	.	.
6.317	0.2083	0.47	Q	V	.	.	.	.
6.333	0.2089	0.47	Q	V	.	.	.	.
6.350	0.2096	0.47	Q	V	.	.	.	.
6.367	0.2102	0.47	Q	V	.	.	.	.
6.383	0.2108	0.47	Q	V	.	.	.	.
6.400	0.2115	0.47	Q	V	.	.	.	.
6.417	0.2121	0.47	Q	V	.	.	.	.
6.433	0.2128	0.47	Q	V	.	.	.	.
6.450	0.2134	0.47	Q	V	.	.	.	.
6.467	0.2141	0.47	Q	V	.	.	.	.
6.483	0.2147	0.47	Q	V	.	.	.	.
6.500	0.2154	0.47	Q	V	.	.	.	.
6.517	0.2160	0.47	Q	V	.	.	.	.
6.533	0.2167	0.47	Q	V	.	.	.	.
6.550	0.2173	0.47	Q	V	.	.	.	.
6.567	0.2180	0.47	Q	V	.	.	.	.
6.583	0.2186	0.47	Q	V	.	.	.	.
6.600	0.2193	0.47	Q	V	.	.	.	.
6.617	0.2199	0.47	Q	V	.	.	.	.
6.633	0.2206	0.48	Q	V	.	.	.	.
6.650	0.2213	0.48	Q	V	.	.	.	.
6.667	0.2219	0.48	Q	V	.	.	.	.
6.683	0.2226	0.48	Q	V	.	.	.	.
6.700	0.2232	0.48	Q	V	.	.	.	.

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6.717      0.2239      0.48  Q    V    .         .         .         .
6.733      0.2245      0.48  Q    V    .         .         .         .
6.750      0.2252      0.48  Q    V    .         .         .         .
6.767      0.2259      0.48  Q    V    .         .         .         .
6.783      0.2265      0.48  Q    V    .         .         .         .
6.800      0.2272      0.48  Q    V    .         .         .         .
6.817      0.2279      0.48  Q    V    .         .         .         .
6.833      0.2285      0.48  Q    V    .         .         .         .
6.850      0.2292      0.48  Q    V    .         .         .         .
6.867      0.2298      0.48  Q    V    .         .         .         .
6.883      0.2305      0.48  Q    V    .         .         .         .
6.900      0.2312      0.48  Q     V   .         .         .         .
6.917      0.2318      0.48  Q     V   .         .         .         .
6.933      0.2325      0.48  Q     V   .         .         .         .
6.950      0.2332      0.48  Q     V   .         .         .         .
6.967      0.2338      0.48  Q     V   .         .         .         .
6.983      0.2345      0.48  Q     V   .         .         .         .
7.000      0.2352      0.48  Q     V   .         .         .         .
7.017      0.2358      0.48  Q     V   .         .         .         .
7.033      0.2365      0.49  Q     V   .         .         .         .
7.050      0.2372      0.49  Q     V   .         .         .         .
7.067      0.2378      0.49  Q     V   .         .         .         .
7.083      0.2385      0.49  Q     V   .         .         .         .
7.100      0.2392      0.49  Q     V   .         .         .         .
7.117      0.2399      0.49  Q     V   .         .         .         .
7.133      0.2405      0.49  Q     V   .         .         .         .
7.150      0.2412      0.49  Q     V   .         .         .         .
7.167      0.2419      0.49  Q     V   .         .         .         .
7.183      0.2426      0.49  Q     V   .         .         .         .
7.200      0.2432      0.49  Q     V   .         .         .         .
7.217      0.2439      0.49  Q     V   .         .         .         .
7.233      0.2446      0.49  Q     V   .         .         .         .
7.250      0.2453      0.49  Q     V   .         .         .         .
7.267      0.2459      0.49  Q     V   .         .         .         .
7.283      0.2466      0.49  Q     V   .         .         .         .
7.300      0.2473      0.49  Q     V   .         .         .         .
7.317      0.2480      0.49  Q     V   .         .         .         .
7.333      0.2487      0.49  Q     V   .         .         .         .
7.350      0.2493      0.49  Q     V   .         .         .         .
7.367      0.2500      0.49  Q     V   .         .         .         .
7.383      0.2507      0.49  Q     V   .         .         .         .
7.400      0.2514      0.50  Q     V   .         .         .         .
7.417      0.2521      0.50  Q     V   .         .         .         .
7.433      0.2528      0.50  Q     V   .         .         .         .
7.450      0.2534      0.50  Q     V   .         .         .         .
7.467      0.2541      0.50  Q     V   .         .         .         .
7.483      0.2548      0.50  Q     V   .         .         .         .
7.500      0.2555      0.50  Q     V   .         .         .         .
7.517      0.2562      0.50  Q     V   .         .         .         .
7.533      0.2569      0.50  .Q    V   .         .         .         .
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7.550      0.2576      0.50  .Q    V   .         .         .         .
7.567      0.2583      0.50  .Q    V   .         .         .         .
7.583      0.2589      0.50  .Q    V   .         .         .         .
7.600      0.2596      0.50  .Q    V   .         .         .         .
7.617      0.2603      0.50  .Q    V   .         .         .         .
7.633      0.2610      0.50  .Q    V   .         .         .         .
7.650      0.2617      0.50  .Q    V   .         .         .         .
7.667      0.2624      0.50  .Q    V   .         .         .         .
7.683      0.2631      0.50  .Q    V   .         .         .         .
7.700      0.2638      0.51  .Q    V   .         .         .         .
7.717      0.2645      0.51  .Q    V   .         .         .         .
7.733      0.2652      0.51  .Q    V   .         .         .         .
7.750      0.2659      0.51  .Q    V   .         .         .         .
7.767      0.2666      0.51  .Q    V   .         .         .         .
7.783      0.2673      0.51  .Q    V   .         .         .         .
7.800      0.2680      0.51  .Q    V   .         .         .         .
7.817      0.2687      0.51  .Q    V   .         .         .         .
7.833      0.2694      0.51  .Q    V   .         .         .         .
7.850      0.2701      0.51  .Q     V  .         .         .         .
7.867      0.2708      0.51  .Q     V  .         .         .         .
7.883      0.2715      0.51  .Q     V  .         .         .         .
7.900      0.2722      0.51  .Q     V  .         .         .         .
7.917      0.2729      0.51  .Q     V  .         .         .         .
7.933      0.2736      0.51  .Q     V  .         .         .         .
7.950      0.2743      0.51  .Q     V  .         .         .         .
7.967      0.2750      0.51  .Q     V  .         .         .         .
7.983      0.2757      0.51  .Q     V  .         .         .         .
8.000      0.2764      0.51  .Q     V  .         .         .         .
8.017      0.2771      0.52  .Q     V  .         .         .         .
8.033      0.2779      0.52  .Q     V  .         .         .         .
8.050      0.2786      0.52  .Q     V  .         .         .         .
8.067      0.2793      0.52  .Q     V  .         .         .         .
8.083      0.2800      0.52  .Q     V  .         .         .         .
8.100      0.2807      0.52  .Q     V  .         .         .         .
8.117      0.2814      0.52  .Q     V  .         .         .         .
8.133      0.2821      0.52  .Q     V  .         .         .         .
8.150      0.2828      0.52  .Q     V  .         .         .         .
8.167      0.2836      0.52  .Q     V  .         .         .         .
8.183      0.2843      0.52  .Q     V  .         .         .         .
8.200      0.2850      0.52  .Q     V  .         .         .         .
8.217      0.2857      0.52  .Q     V  .         .         .         .
8.233      0.2864      0.52  .Q     V  .         .         .         .
8.250      0.2871      0.52  .Q     V  .         .         .         .
8.267      0.2879      0.52  .Q     V  .         .         .         .
8.283      0.2886      0.52  .Q     V  .         .         .         .
8.300      0.2893      0.52  .Q     V  .         .         .         .
8.317      0.2900      0.52  .Q     V  .         .         .         .
8.333      0.2907      0.52  .Q     V  .         .         .         .
8.350      0.2915      0.53  .Q     V  .         .         .         .
8.367      0.2922      0.53  .Q     V  .         .         .         .
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8.383      0.2929      0.53  .Q     V  .          .          .          .
8.400      0.2936      0.53  .Q     V  .          .          .          .
8.417      0.2944      0.53  .Q     V  .          .          .          .
8.433      0.2951      0.53  .Q     V  .          .          .          .
8.450      0.2958      0.53  .Q     V  .          .          .          .
8.467      0.2966      0.53  .Q     V  .          .          .          .
8.483      0.2973      0.53  .Q     V  .          .          .          .
8.500      0.2980      0.53  .Q     V  .          .          .          .
8.517      0.2988      0.53  .Q     V  .          .          .          .
8.533      0.2995      0.53  .Q     V  .          .          .          .
8.550      0.3002      0.53  .Q     V  .          .          .          .
8.567      0.3010      0.53  .Q     V  .          .          .          .
8.583      0.3017      0.53  .Q     V  .          .          .          .
8.600      0.3024      0.53  .Q     V  .          .          .          .
8.617      0.3032      0.53  .Q     V  .          .          .          .
8.633      0.3039      0.53  .Q     V  .          .          .          .
8.650      0.3046      0.54  .Q     V  .          .          .          .
8.667      0.3054      0.54  .Q     V  .          .          .          .
8.683      0.3061      0.54  .Q     V  .          .          .          .
8.700      0.3069      0.54  .Q     V  .          .          .          .
8.717      0.3076      0.54  .Q     V  .          .          .          .
8.733      0.3083      0.54  .Q      V .          .          .          .
8.750      0.3091      0.54  .Q      V .          .          .          .
8.767      0.3098      0.54  .Q      V .          .          .          .
8.783      0.3106      0.54  .Q      V .          .          .          .
8.800      0.3113      0.54  .Q      V .          .          .          .
8.817      0.3121      0.54  .Q      V .          .          .          .
8.833      0.3128      0.54  .Q      V .          .          .          .
8.850      0.3136      0.54  .Q      V .          .          .          .
8.867      0.3143      0.54  .Q      V .          .          .          .
8.883      0.3151      0.55  .Q      V .          .          .          .
8.900      0.3158      0.55  .Q      V .          .          .          .
8.917      0.3166      0.55  .Q      V .          .          .          .
8.933      0.3173      0.55  .Q      V .          .          .          .
8.950      0.3181      0.55  .Q      V .          .          .          .
8.967      0.3188      0.55  .Q      V .          .          .          .
8.983      0.3196      0.55  .Q      V .          .          .          .
9.000      0.3204      0.55  .Q      V .          .          .          .
9.017      0.3211      0.55  .Q      V .          .          .          .
9.033      0.3219      0.55  .Q      V .          .          .          .
9.050      0.3226      0.55  .Q      V .          .          .          .
9.067      0.3234      0.55  .Q      V .          .          .          .
9.083      0.3241      0.55  .Q      V .          .          .          .
9.100      0.3249      0.55  .Q      V .          .          .          .
9.117      0.3257      0.55  .Q      V .          .          .          .
9.133      0.3264      0.55  .Q      V .          .          .          .
9.150      0.3272      0.55  .Q      V .          .          .          .
9.167      0.3280      0.55  .Q      V .          .          .          .
9.183      0.3287      0.56  .Q      V .          .          .          .
9.200      0.3295      0.56  .Q      V .          .          .          .
```

9.217	0.3303	0.56	.Q	V	.	.	.	.
9.233	0.3310	0.56	.Q	V	.	.	.	.
9.250	0.3318	0.56	.Q	V	.	.	.	.
9.267	0.3326	0.56	.Q	V	.	.	.	.
9.283	0.3333	0.56	.Q	V	.	.	.	.
9.300	0.3341	0.56	.Q	V	.	.	.	.
9.317	0.3349	0.56	.Q	V	.	.	.	.
9.333	0.3357	0.56	.Q	V	.	.	.	.
9.350	0.3364	0.56	.Q	V	.	.	.	.
9.367	0.3372	0.56	.Q	V	.	.	.	.
9.383	0.3380	0.57	.Q	V	.	.	.	.
9.400	0.3388	0.57	.Q	V	.	.	.	.
9.417	0.3396	0.57	.Q	V	.	.	.	.
9.433	0.3403	0.57	.Q	V	.	.	.	.
9.450	0.3411	0.57	.Q	V	.	.	.	.
9.467	0.3419	0.57	.Q	V	.	.	.	.
9.483	0.3427	0.57	.Q	V	.	.	.	.
9.500	0.3435	0.57	.Q	V	.	.	.	.
9.517	0.3443	0.57	.Q	V	.	.	.	.
9.533	0.3450	0.57	.Q	V	.	.	.	.
9.550	0.3458	0.57	.Q	V	.	.	.	.
9.567	0.3466	0.57	.Q	V.		.	.	.
9.583	0.3474	0.57	.Q	V.		.	.	.
9.600	0.3482	0.57	.Q	V.		.	.	.
9.617	0.3490	0.57	.Q	V.		.	.	.
9.633	0.3498	0.58	.Q	V.		.	.	.
9.650	0.3506	0.58	.Q	V.		.	.	.
9.667	0.3514	0.58	.Q	V.		.	.	.
9.683	0.3522	0.58	.Q	V.		.	.	.
9.700	0.3530	0.58	.Q	V.		.	.	.
9.717	0.3538	0.58	.Q	V.		.	.	.
9.733	0.3546	0.58	.Q	V.		.	.	.
9.750	0.3554	0.58	.Q	V.		.	.	.
9.767	0.3562	0.58	.Q	V.		.	.	.
9.783	0.3570	0.58	.Q	V.		.	.	.
9.800	0.3578	0.58	.Q	V.		.	.	.
9.817	0.3586	0.58	.Q	V.		.	.	.
9.833	0.3594	0.59	.Q	V.		.	.	.
9.850	0.3602	0.59	.Q	V.		.	.	.
9.867	0.3610	0.59	.Q	V.		.	.	.
9.883	0.3618	0.59	.Q	V.		.	.	.
9.900	0.3626	0.59	.Q	V.		.	.	.
9.917	0.3634	0.59	.Q	V.		.	.	.
9.933	0.3642	0.59	.Q	V.		.	.	.
9.950	0.3650	0.59	.Q	V.		.	.	.
9.967	0.3659	0.59	.Q	V.		.	.	.
9.983	0.3667	0.59	.Q	V.		.	.	.
10.000	0.3675	0.59	.Q	V.		.	.	.
10.017	0.3683	0.59	.Q	V.		.	.	.
10.033	0.3691	0.59	.Q	V.		.	.	.

10.050	0.3699	0.59	.Q	V.	.	.	.
10.067	0.3708	0.60	.Q	V.	.	.	.
10.083	0.3716	0.60	.Q	V.	.	.	.
10.100	0.3724	0.60	.Q	V.	.	.	.
10.117	0.3732	0.60	.Q	V.	.	.	.
10.133	0.3740	0.60	.Q	V.	.	.	.
10.150	0.3749	0.60	.Q	V.	.	.	.
10.167	0.3757	0.60	.Q	V.	.	.	.
10.183	0.3765	0.60	.Q	V.	.	.	.
10.200	0.3774	0.60	.Q	V.	.	.	.
10.217	0.3782	0.60	.Q	V.	.	.	.
10.233	0.3790	0.61	.Q	V.	.	.	.
10.250	0.3799	0.61	.Q	V.	.	.	.
10.267	0.3807	0.61	.Q	V.	.	.	.
10.283	0.3815	0.61	.Q	V.	.	.	.
10.300	0.3824	0.61	.Q	V.	.	.	.
10.317	0.3832	0.61	.Q	V.	.	.	.
10.333	0.3841	0.61	.Q	V.	.	.	.
10.350	0.3849	0.61	.Q	V.	.	.	.
10.367	0.3857	0.61	.Q	V	.	.	.
10.383	0.3866	0.61	.Q	V	.	.	.
10.400	0.3874	0.61	.Q	V	.	.	.
10.417	0.3883	0.61	.Q	V	.	.	.
10.433	0.3891	0.61	.Q	V	.	.	.
10.450	0.3899	0.61	.Q	V	.	.	.
10.467	0.3908	0.62	.Q	V	.	.	.
10.483	0.3916	0.62	.Q	V	.	.	.
10.500	0.3925	0.62	.Q	V	.	.	.
10.517	0.3933	0.62	.Q	V	.	.	.
10.533	0.3942	0.62	.Q	V	.	.	.
10.550	0.3951	0.62	.Q	V	.	.	.
10.567	0.3959	0.62	.Q	V	.	.	.
10.583	0.3968	0.62	.Q	V	.	.	.
10.600	0.3976	0.63	.Q	V	.	.	.
10.617	0.3985	0.63	.Q	V	.	.	.
10.633	0.3994	0.63	.Q	V	.	.	.
10.650	0.4002	0.63	.Q	V	.	.	.
10.667	0.4011	0.63	.Q	V	.	.	.
10.683	0.4020	0.63	.Q	V	.	.	.
10.700	0.4028	0.63	.Q	V	.	.	.
10.717	0.4037	0.63	.Q	V	.	.	.
10.733	0.4046	0.63	.Q	V	.	.	.
10.750	0.4054	0.63	.Q	V	.	.	.
10.767	0.4063	0.63	.Q	V	.	.	.
10.783	0.4072	0.63	.Q	V	.	.	.
10.800	0.4081	0.63	.Q	V	.	.	.
10.817	0.4089	0.63	.Q	V	.	.	.
10.833	0.4098	0.64	.Q	V	.	.	.
10.850	0.4107	0.64	.Q	V	.	.	.
10.867	0.4116	0.64	.Q	V	.	.	.

10.883	0.4124	0.64	.Q	V	.	.	.
10.900	0.4133	0.64	.Q	V	.	.	.
10.917	0.4142	0.64	.Q	V	.	.	.
10.933	0.4151	0.64	.Q	V	.	.	.
10.950	0.4160	0.64	.Q	V	.	.	.
10.967	0.4169	0.65	.Q	V	.	.	.
10.983	0.4178	0.65	.Q	V	.	.	.
11.000	0.4187	0.65	.Q	V	.	.	.
11.017	0.4196	0.65	.Q	V	.	.	.
11.033	0.4205	0.65	.Q	V	.	.	.
11.050	0.4214	0.65	.Q	V	.	.	.
11.067	0.4223	0.65	.Q	V	.	.	.
11.083	0.4232	0.65	.Q	V	.	.	.
11.100	0.4241	0.66	.Q	.V	.	.	.
11.117	0.4250	0.66	.Q	.V	.	.	.
11.133	0.4259	0.66	.Q	.V	.	.	.
11.150	0.4268	0.66	.Q	.V	.	.	.
11.167	0.4277	0.66	.Q	.V	.	.	.
11.183	0.4286	0.66	.Q	.V	.	.	.
11.200	0.4295	0.66	.Q	.V	.	.	.
11.217	0.4304	0.66	.Q	.V	.	.	.
11.233	0.4313	0.66	.Q	.V	.	.	.
11.250	0.4322	0.66	.Q	.V	.	.	.
11.267	0.4331	0.66	.Q	.V	.	.	.
11.283	0.4341	0.66	.Q	.V	.	.	.
11.300	0.4350	0.67	.Q	.V	.	.	.
11.317	0.4359	0.67	.Q	.V	.	.	.
11.333	0.4368	0.67	.Q	.V	.	.	.
11.350	0.4377	0.67	.Q	.V	.	.	.
11.367	0.4387	0.67	.Q	.V	.	.	.
11.383	0.4396	0.67	.Q	.V	.	.	.
11.400	0.4405	0.68	.Q	.V	.	.	.
11.417	0.4415	0.68	.Q	.V	.	.	.
11.433	0.4424	0.68	.Q	.V	.	.	.
11.450	0.4433	0.68	.Q	.V	.	.	.
11.467	0.4443	0.68	.Q	.V	.	.	.
11.483	0.4452	0.68	.Q	.V	.	.	.
11.500	0.4461	0.68	.Q	.V	.	.	.
11.517	0.4471	0.69	.Q	.V	.	.	.
11.533	0.4480	0.69	.Q	.V	.	.	.
11.550	0.4490	0.69	.Q	.V	.	.	.
11.567	0.4499	0.69	.Q	.V	.	.	.
11.583	0.4509	0.69	.Q	.V	.	.	.
11.600	0.4518	0.69	.Q	.V	.	.	.
11.617	0.4528	0.69	.Q	.V	.	.	.
11.633	0.4537	0.69	.Q	.V	.	.	.
11.650	0.4547	0.69	.Q	.V	.	.	.
11.667	0.4556	0.69	.Q	.V	.	.	.
11.683	0.4566	0.69	.Q	.V	.	.	.
11.700	0.4575	0.69	.Q	.V	.	.	.

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11.717      0.4585      0.70  .Q        .V        .         .         .
11.733      0.4595      0.70  .Q        .V        .         .         .
11.750      0.4604      0.70  .Q        .V        .         .         .
11.767      0.4614      0.70  .Q        .V        .         .         .
11.783      0.4624      0.70  .Q        . V       .         .         .
11.800      0.4633      0.70  .Q        . V       .         .         .
11.817      0.4643      0.71  .Q        . V       .         .         .
11.833      0.4653      0.71  .Q        . V       .         .         .
11.850      0.4663      0.71  .Q        . V       .         .         .
11.867      0.4672      0.71  .Q        . V       .         .         .
11.883      0.4682      0.71  .Q        . V       .         .         .
11.900      0.4692      0.72  .Q        . V       .         .         .
11.917      0.4702      0.72  .Q        . V       .         .         .
11.933      0.4712      0.72  .Q        . V       .         .         .
11.950      0.4722      0.72  .Q        . V       .         .         .
11.967      0.4732      0.72  .Q        . V       .         .         .
11.983      0.4742      0.72  .Q        . V       .         .         .
12.000      0.4752      0.72  .Q        . V       .         .         .
12.017      0.4762      0.72  .Q        . V       .         .         .
12.033      0.4772      0.72  .Q        . V       .         .         .
12.050      0.4782      0.73  .Q        . V       .         .         .
12.067      0.4792      0.73  .Q        . V       .         .         .
12.083      0.4802      0.73  .Q        . V       .         .         .
12.100      0.4812      0.73  .Q        . V       .         .         .
12.117      0.4822      0.73  .Q        . V       .         .         .
12.133      0.4832      0.73  .Q        . V       .         .         .
12.150      0.4842      0.73  .Q        . V       .         .         .
12.167      0.4852      0.73  .Q        . V       .         .         .
12.183      0.4862      0.73  .Q        . V       .         .         .
12.200      0.4872      0.73  .Q        . V       .         .         .
12.217      0.4882      0.73  .Q        . V       .         .         .
12.233      0.4892      0.73  .Q        . V       .         .         .
12.250      0.4902      0.73  .Q        . V       .         .         .
12.267      0.4912      0.73  .Q        . V       .         .         .
12.283      0.4922      0.73  .Q        . V       .         .         .
12.300      0.4932      0.73  .Q        . V       .         .         .
12.317      0.4942      0.73  .Q        . V       .         .         .
12.333      0.4952      0.73  .Q        . V       .         .         .
12.350      0.4963      0.73  .Q        . V       .         .         .
12.367      0.4973      0.73  .Q        . V       .         .         .
12.383      0.4983      0.73  .Q        . V       .         .         .
12.400      0.4993      0.73  .Q        . V       .         .         .
12.417      0.5003      0.73  .Q        . V       .         .         .
12.433      0.5013      0.74  .Q        .  V      .         .         .
12.450      0.5023      0.74  .Q        .  V      .         .         .
12.467      0.5033      0.74  .Q        .  V      .         .         .
12.483      0.5043      0.74  .Q        .  V      .         .         .
12.500      0.5054      0.74  .Q        .  V      .         .         .
12.517      0.5064      0.74  .Q        .  V      .         .         .
12.533      0.5074      0.74  .Q        .  V      .         .         .
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12.550      0.5084      0.74  .Q        .  V      .         .         .
12.567      0.5095      0.74  .Q        .  V      .         .         .
12.583      0.5105      0.75  .Q        .  V      .         .         .
12.600      0.5115      0.75  .Q        .  V      .         .         .
12.617      0.5126      0.75  .Q        .  V      .         .         .
12.633      0.5136      0.75  .Q        .  V      .         .         .
12.650      0.5146      0.76  .Q        .  V      .         .         .
12.667      0.5157      0.76  .Q        .  V      .         .         .
12.683      0.5167      0.76  .Q        .  V      .         .         .
12.700      0.5178      0.76  .Q        .  V      .         .         .
12.717      0.5188      0.77  .Q        .  V      .         .         .
12.733      0.5199      0.77  .Q        .  V      .         .         .
12.750      0.5210      0.77  .Q        .  V      .         .         .
12.767      0.5220      0.77  .Q        .  V      .         .         .
12.783      0.5231      0.78  .Q        .  V      .         .         .
12.800      0.5242      0.78  .Q        .  V      .         .         .
12.817      0.5253      0.78  .Q        .  V      .         .         .
12.833      0.5263      0.78  .Q        .  V      .         .         .
12.850      0.5274      0.78  .Q        .  V      .         .         .
12.867      0.5285      0.78  .Q        .  V      .         .         .
12.883      0.5296      0.79  .Q        .  V      .         .         .
12.900      0.5307      0.79  .Q        .  V      .         .         .
12.917      0.5317      0.79  .Q        .  V      .         .         .
12.933      0.5328      0.79  .Q        .  V      .         .         .
12.950      0.5339      0.79  .Q        .  V      .         .         .
12.967      0.5350      0.79  .Q        .  V      .         .         .
12.983      0.5361      0.79  .Q        .  V      .         .         .
13.000      0.5372      0.80  .Q        .  V      .         .         .
13.017      0.5383      0.80  .Q        .  V      .         .         .
13.033      0.5394      0.80  .Q        .   V     .         .         .
13.050      0.5405      0.80  .Q        .   V     .         .         .
13.067      0.5416      0.81  .Q        .   V     .         .         .
13.083      0.5427      0.81  .Q        .   V     .         .         .
13.100      0.5439      0.81  .Q        .   V     .         .         .
13.117      0.5450      0.82  .Q        .   V     .         .         .
13.133      0.5461      0.82  .Q        .   V     .         .         .
13.150      0.5472      0.82  .Q        .   V     .         .         .
13.167      0.5484      0.83  .Q        .   V     .         .         .
13.183      0.5495      0.83  .Q        .   V     .         .         .
13.200      0.5507      0.83  .Q        .   V     .         .         .
13.217      0.5518      0.84  .Q        .   V     .         .         .
13.233      0.5530      0.84  .Q        .   V     .         .         .
13.250      0.5541      0.84  .Q        .   V     .         .         .
13.267      0.5553      0.84  .Q        .   V     .         .         .
13.283      0.5565      0.84  .Q        .   V     .         .         .
13.300      0.5576      0.84  .Q        .   V     .         .         .
13.317      0.5588      0.85  .Q        .   V     .         .         .
13.333      0.5599      0.85  .Q        .   V     .         .         .
13.350      0.5611      0.85  .Q        .   V     .         .         .
13.367      0.5623      0.85  .Q        .   V     .         .         .
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13.383      0.5635      0.85  .Q        .   V     .         .         .
13.400      0.5646      0.85  .Q        .   V     .         .         .
13.417      0.5658      0.86  .Q        .   V     .         .         .
13.433      0.5670      0.86  .Q        .   V     .         .         .
13.450      0.5682      0.86  .Q        .   V     .         .         .
13.467      0.5694      0.87  .Q        .   V     .         .         .
13.483      0.5706      0.87  .Q        .   V     .         .         .
13.500      0.5718      0.87  .Q        .   V     .         .         .
13.517      0.5730      0.88  .Q        .   V     .         .         .
13.533      0.5742      0.88  .Q        .   V     .         .         .
13.550      0.5754      0.89  .Q        .   V     .         .         .
13.567      0.5767      0.89  .Q        .   V     .         .         .
13.583      0.5779      0.89  .Q        .    V    .         .         .
13.600      0.5791      0.90  .Q        .    V    .         .         .
13.617      0.5804      0.90  .Q        .    V    .         .         .
13.633      0.5816      0.91  .Q        .    V    .         .         .
13.650      0.5829      0.91  .Q        .    V    .         .         .
13.667      0.5841      0.91  .Q        .    V    .         .         .
13.683      0.5854      0.91  .Q        .    V    .         .         .
13.700      0.5866      0.91  .Q        .    V    .         .         .
13.717      0.5879      0.92  .Q        .    V    .         .         .
13.733      0.5892      0.92  .Q        .    V    .         .         .
13.750      0.5904      0.92  .Q        .    V    .         .         .
13.767      0.5917      0.92  .Q        .    V    .         .         .
13.783      0.5930      0.93  .Q        .    V    .         .         .
13.800      0.5943      0.93  .Q        .    V    .         .         .
13.817      0.5955      0.93  .Q        .    V    .         .         .
13.833      0.5968      0.93  .Q        .    V    .         .         .
13.850      0.5981      0.93  .Q        .    V    .         .         .
13.867      0.5994      0.94  .Q        .    V    .         .         .
13.883      0.6007      0.94  .Q        .    V    .         .         .
13.900      0.6020      0.95  .Q        .    V    .         .         .
13.917      0.6033      0.95  .Q        .    V    .         .         .
13.933      0.6046      0.96  .Q        .    V    .         .         .
13.950      0.6060      0.96  .Q        .    V    .         .         .
13.967      0.6073      0.97  .Q        .    V    .         .         .
13.983      0.6086      0.97  .Q        .    V    .         .         .
14.000      0.6100      0.98  .Q        .    V    .         .         .
14.017      0.6114      0.98  .Q        .    V    .         .         .
14.033      0.6127      0.99  .Q        .    V    .         .         .
14.050      0.6141      0.99  .Q        .    V    .         .         .
14.067      0.6155      1.00  .Q        .    V    .         .         .
14.083      0.6168      1.00  .Q        .     V   .         .         .
14.100      0.6182      1.00  .Q        .     V   .         .         .
14.117      0.6196      1.00  .Q        .     V   .         .         .
14.133      0.6210      0.99  .Q        .     V   .         .         .
14.150      0.6223      0.99  .Q        .     V   .         .         .
14.167      0.6237      0.99  .Q        .     V   .         .         .
14.183      0.6250      0.99  .Q        .     V   .         .         .
14.200      0.6264      0.99  .Q        .     V   .         .         .
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14.217      0.6278      0.98  .Q        .     V   .         .         .
14.233      0.6291      0.98  .Q        .     V   .         .         .
14.250      0.6305      0.98  .Q        .     V   .         .         .
14.267      0.6318      0.98  .Q        .     V   .         .         .
14.283      0.6331      0.97  .Q        .     V   .         .         .
14.300      0.6345      0.98  .Q        .     V   .         .         .
14.317      0.6358      0.99  .Q        .     V   .         .         .
14.333      0.6372      0.99  .Q        .     V   .         .         .
14.350      0.6386      1.00  .Q        .     V   .         .         .
14.367      0.6400      1.01  . Q       .     V   .         .         .
14.383      0.6414      1.01  . Q       .     V   .         .         .
14.400      0.6428      1.02  . Q       .     V   .         .         .
14.417      0.6442      1.03  . Q       .     V   .         .         .
14.433      0.6456      1.03  . Q       .     V   .         .         .
14.450      0.6470      1.04  . Q       .     V   .         .         .
14.467      0.6485      1.05  . Q       .     V   .         .         .
14.483      0.6499      1.05  . Q       .     V   .         .         .
14.500      0.6514      1.06  . Q       .     V   .         .         .
14.517      0.6529      1.06  . Q       .     V   .         .         .
14.533      0.6543      1.07  . Q       .     V   .         .         .
14.550      0.6558      1.07  . Q       .      V  .         .         .
14.567      0.6573      1.08  . Q       .      V  .         .         .
14.583      0.6588      1.08  . Q       .      V  .         .         .
14.600      0.6603      1.09  . Q       .      V  .         .         .
14.617      0.6618      1.09  . Q       .      V  .         .         .
14.633      0.6633      1.09  . Q       .      V  .         .         .
14.650      0.6648      1.10  . Q       .      V  .         .         .
14.667      0.6663      1.10  . Q       .      V  .         .         .
14.683      0.6678      1.11  . Q       .      V  .         .         .
14.700      0.6694      1.11  . Q       .      V  .         .         .
14.717      0.6709      1.12  . Q       .      V  .         .         .
14.733      0.6725      1.13  . Q       .      V  .         .         .
14.750      0.6740      1.14  . Q       .      V  .         .         .
14.767      0.6756      1.15  . Q       .      V  .         .         .
14.783      0.6772      1.16  . Q       .      V  .         .         .
14.800      0.6788      1.17  . Q       .      V  .         .         .
14.817      0.6805      1.18  . Q       .      V  .         .         .
14.833      0.6821      1.19  . Q       .      V  .         .         .
14.850      0.6837      1.20  . Q       .      V  .         .         .
14.867      0.6854      1.21  . Q       .      V  .         .         .
14.883      0.6871      1.22  . Q       .      V  .         .         .
14.900      0.6888      1.23  . Q       .      V  .         .         .
14.917      0.6905      1.25  . Q       .      V  .         .         .
14.933      0.6923      1.26  . Q       .      V  .         .         .
14.950      0.6940      1.26  . Q       .       V .         .         .
14.967      0.6957      1.27  . Q       .       V .         .         .
14.983      0.6975      1.28  . Q       .       V .         .         .
15.000      0.6993      1.28  . Q       .       V .         .         .
15.017      0.7010      1.29  . Q       .       V .         .         .
15.033      0.7028      1.30  . Q       .       V .         .         .
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15.050      0.7046      1.31  . Q       .       V .         .         .
15.067      0.7064      1.31  . Q       .       V .         .         .
15.083      0.7083      1.32  . Q       .       V .         .         .
15.100      0.7101      1.33  . Q       .       V .         .         .
15.117      0.7119      1.33  . Q       .       V .         .         .
15.133      0.7138      1.34  . Q       .       V .         .         .
15.150      0.7156      1.35  . Q       .       V .         .         .
15.167      0.7175      1.37  . Q       .       V .         .         .
15.183      0.7194      1.39  . Q       .       V .         .         .
15.200      0.7214      1.41  . Q       .       V .         .         .
15.217      0.7233      1.43  . Q       .       V .         .         .
15.233      0.7253      1.45  . Q       .       V .         .         .
15.250      0.7274      1.47  . Q       .       V .         .         .
15.267      0.7294      1.49  . Q       .       V .         .         .
15.283      0.7315      1.51  .  Q      .       V .         .         .
15.300      0.7336      1.53  .  Q      .        V.         .         .
15.317      0.7357      1.55  .  Q      .        V.         .         .
15.333      0.7379      1.57  .  Q      .        V.         .         .
15.350      0.7401      1.59  .  Q      .        V.         .         .
15.367      0.7423      1.61  .  Q      .        V.         .         .
15.383      0.7446      1.67  .  Q      .        V.         .         .
15.400      0.7469      1.72  .  Q      .        V.         .         .
15.417      0.7494      1.77  .  Q      .        V.         .         .
15.433      0.7519      1.82  .  Q      .        V.         .         .
15.450      0.7545      1.87  .  Q      .        V.         .         .
15.467      0.7571      1.92  .  Q      .        V.         .         .
15.483      0.7598      1.98  .  Q      .        V.         .         .
15.500      0.7626      2.03  .   Q     .        V.         .         .
15.517      0.7655      2.08  .   Q     .        V.         .         .
15.533      0.7684      2.13  .   Q     .        V.         .         .
15.550      0.7714      2.18  .   Q     .         V         .         .
15.567      0.7745      2.23  .   Q     .         V         .         .
15.583      0.7777      2.29  .   Q     .         V         .         .
15.600      0.7809      2.35  .   Q     .         V         .         .
15.617      0.7842      2.41  .   Q     .         V         .         .
15.633      0.7876      2.47  .   Q     .         V         .         .
15.650      0.7911      2.53  .    Q    .         V         .         .
15.667      0.7947      2.59  .    Q    .         V         .         .
15.683      0.7983      2.65  .    Q    .         V         .         .
15.700      0.8020      2.71  .    Q    .         V         .         .
15.717      0.8058      2.76  .    Q    .         V         .         .
15.733      0.8097      2.82  .    Q    .         .V        .         .
15.750      0.8137      2.88  .    Q    .         .V        .         .
15.767      0.8178      2.94  .    Q    .         .V        .         .
15.783      0.8219      3.00  .     Q   .         .V        .         .
15.800      0.8261      3.06  .     Q   .         .V        .         .
15.817      0.8304      3.12  .     Q   .         .V        .         .
15.833      0.8348      3.18  .     Q   .         .V        .         .
15.850      0.8392      3.24  .     Q   .         .V        .         .
15.867      0.8438      3.29  .     Q   .         .V        .         .
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15.883      0.8484      3.35  .     Q   .         . V       .         .
15.900      0.8531      3.41  .     Q   .         . V       .         .
15.917      0.8579      3.47  .     Q   .         . V       .         .
15.933      0.8627      3.53  .      Q  .         . V       .         .
15.950      0.8677      3.58  .      Q  .         . V       .         .
15.967      0.8727      3.64  .      Q  .         . V       .         .
15.983      0.8778      3.70  .      Q  .         . V       .         .
16.000      0.8830      3.76  .      Q  .         . V       .         .
16.017      0.8886      4.06  .       Q .         .  V      .         .
16.033      0.8949      4.61  .        Q.         .  V      .         .
16.050      0.9020      5.16  .         Q         .  V      .         .
16.067      0.9099      5.71  .         .Q        .  V      .         .
16.083      0.9185      6.26  .         . Q       .  V      .         .
16.100      0.9279      6.81  .         .  Q      .   V     .         .
16.117      0.9380      7.36  .         .   Q     .   V     .         .
16.133      0.9489      7.91  .         .    Q    .   V     .         .
16.150      0.9606      8.46  .         .     Q   .   V     .         .
16.167      0.9730      9.01  .         .       Q .    V    .         .
16.183      0.9862      9.56  .         .        Q.    V    .         .
16.200      1.0001     10.11  .         .         Q    V    .         .
16.217      1.0151     10.89  .         .         .Q    V   .         .
16.233      1.0296     10.52  .         .         .Q    V   .         .
16.250      1.0432      9.89  .         .        Q.      V  .         .
16.267      1.0560      9.26  .         .       Q .      V  .         .
16.283      1.0679      8.63  .         .      Q  .      V  .         .
16.300      1.0789      8.01  .         .     Q   .       V .         .
16.317      1.0891      7.38  .         .   Q     .       V .         .
16.333      1.0984      6.75  .         .  Q      .       V .         .
16.350      1.1068      6.12  .         . Q       .       V .         .
16.367      1.1144      5.49  .         Q         .       V .         .
16.383      1.1211      4.87  .        Q.         .        V.         .
16.400      1.1269      4.24  .       Q .         .        V.         .
16.417      1.1319      3.61  .      Q  .         .        V.         .
16.433      1.1360      2.99  .    Q    .         .        V.         .
16.450      1.1397      2.71  .    Q    .         .        V.         .
16.467      1.1433      2.61  .    Q    .         .        V.         .
16.483      1.1468      2.51  .    Q    .         .        V.         .
16.500      1.1501      2.40  .   Q     .         .        V.         .
16.517      1.1533      2.30  .   Q     .         .        V.         .
16.533      1.1563      2.20  .   Q     .         .         V         .
16.550      1.1592      2.10  .   Q     .         .         V         .
16.567      1.1619      1.99  .  Q      .         .         V         .
16.583      1.1645      1.89  .  Q      .         .         V         .
16.600      1.1670      1.79  .  Q      .         .         V         .
16.617      1.1693      1.69  .  Q      .         .         V         .
16.633      1.1715      1.58  .  Q      .         .         V         .
16.650      1.1736      1.49  . Q       .         .         V         .
16.667      1.1755      1.44  . Q       .         .         V         .
16.683      1.1775      1.42  . Q       .         .         V         .
16.700      1.1794      1.40  . Q       .         .         V         .
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16.717	1.1813	1.38	. Q	.	.	V	.
16.733	1.1832	1.36	. Q	.	.	V	.
16.750	1.1850	1.33	. Q	.	.	V	.
16.767	1.1868	1.31	. Q	.	.	V	.
16.783	1.1886	1.29	. Q	.	.	V	.
16.800	1.1904	1.27	. Q	.	.	V	.
16.817	1.1921	1.25	. Q	.	.	V	.
16.833	1.1938	1.23	. Q	.	.	.V	.
16.850	1.1954	1.20	. Q	.	.	.V	.
16.867	1.1971	1.18	. Q	.	.	.V	.
16.883	1.1987	1.17	. Q	.	.	.V	.
16.900	1.2003	1.16	. Q	.	.	.V	.
16.917	1.2018	1.14	. Q	.	.	.V	.
16.933	1.2034	1.13	. Q	.	.	.V	.
16.950	1.2049	1.12	. Q	.	.	.V	.
16.967	1.2065	1.10	. Q	.	.	.V	.
16.983	1.2080	1.09	. Q	.	.	.V	.
17.000	1.2094	1.08	. Q	.	.	.V	.
17.017	1.2109	1.07	. Q	.	.	.V	.
17.033	1.2124	1.05	. Q	.	.	.V	.
17.050	1.2138	1.04	. Q	.	.	.V	.
17.067	1.2152	1.03	. Q	.	.	.V	.
17.083	1.2166	1.01	. Q	.	.	.V	.
17.100	1.2180	1.01	. Q	.	.	.V	.
17.117	1.2194	1.01	. Q	.	.	.V	.
17.133	1.2208	1.00	. Q	.	.	.V	.
17.150	1.2221	1.00	.Q	.	.	.V	.
17.167	1.2235	1.00	.Q	.	.	.V	.
17.183	1.2249	0.99	.Q	.	.	.V	.
17.200	1.2262	0.99	.Q	.	.	.V	.
17.217	1.2276	0.98	.Q	.	.	.V	.
17.233	1.2289	0.98	.Q	.	.	.V	.
17.250	1.2303	0.98	.Q	.	.	.V	.
17.267	1.2316	0.97	.Q	.	.	.V	.
17.283	1.2330	0.97	.Q	.	.	. V	.
17.300	1.2343	0.97	.Q	.	.	. V	.
17.317	1.2356	0.96	.Q	.	.	. V	.
17.333	1.2369	0.95	.Q	.	.	. V	.
17.350	1.2382	0.95	.Q	.	.	. V	.
17.367	1.2395	0.94	.Q	.	.	. V	.
17.383	1.2408	0.93	.Q	.	.	. V	.
17.400	1.2421	0.93	.Q	.	.	. V	.
17.417	1.2434	0.92	.Q	.	.	. V	.
17.433	1.2446	0.91	.Q	.	.	. V	.
17.450	1.2459	0.91	.Q	.	.	. V	.
17.467	1.2471	0.90	.Q	.	.	. V	.
17.483	1.2483	0.89	.Q	.	.	. V	.
17.500	1.2496	0.89	.Q	.	.	. V	.
17.517	1.2508	0.88	.Q	.	.	. V	.
17.533	1.2520	0.88	.Q	.	.	. V	.

17.550	1.2532	0.87	.Q	.	.	.	V	.
17.567	1.2544	0.86	.Q	.	.	.	V	.
17.583	1.2555	0.86	.Q	.	.	.	V	.
17.600	1.2567	0.85	.Q	.	.	.	V	.
17.617	1.2579	0.85	.Q	.	.	.	V	.
17.633	1.2591	0.84	.Q	.	.	.	V	.
17.650	1.2602	0.84	.Q	.	.	.	V	.
17.667	1.2614	0.83	.Q	.	.	.	V	.
17.683	1.2625	0.83	.Q	.	.	.	V	.
17.700	1.2636	0.82	.Q	.	.	.	V	.
17.717	1.2648	0.82	.Q	.	.	.	V	.
17.733	1.2659	0.81	.Q	.	.	.	V	.
17.750	1.2670	0.81	.Q	.	.	.	V	.
17.767	1.2681	0.80	.Q	.	.	.	V	.
17.783	1.2692	0.80	.Q	.	.	.	V	.
17.800	1.2703	0.80	.Q	.	.	.	V	.
17.817	1.2714	0.79	.Q	.	.	.	V	.
17.833	1.2725	0.79	.Q	.	.	.	V	.
17.850	1.2736	0.78	.Q	.	.	.	V	.
17.867	1.2746	0.78	.Q	.	.	.	V	.
17.883	1.2757	0.78	.Q	.	.	.	V	.
17.900	1.2768	0.77	.Q	.	.	.	V	.
17.917	1.2778	0.77	.Q	.	.	.	V	.
17.933	1.2789	0.76	.Q	.	.	.	V	.
17.950	1.2799	0.76	.Q	.	.	.	V	.
17.967	1.2810	0.76	.Q	.	.	.	V	.
17.983	1.2820	0.75	.Q	.	.	.	V	.
18.000	1.2830	0.75	.Q	.	.	.	V	.
18.017	1.2841	0.75	.Q	.	.	.	V	.
18.033	1.2851	0.74	.Q	.	.	.	V	.
18.050	1.2861	0.74	.Q	.	.	.	V	.
18.067	1.2871	0.74	.Q	.	.	.	V	.
18.083	1.2881	0.73	.Q	.	.	.	V	.
18.100	1.2891	0.73	.Q	.	.	.	V	.
18.117	1.2901	0.73	.Q	.	.	.	V	.
18.133	1.2911	0.72	.Q	.	.	.	V	.
18.150	1.2921	0.72	.Q	.	.	.	V	.
18.167	1.2931	0.72	.Q	.	.	.	V	.
18.183	1.2941	0.72	.Q	.	.	.	V	.
18.200	1.2951	0.72	.Q	.	.	.	V	.
18.217	1.2961	0.72	.Q	.	.	.	V	.
18.233	1.2971	0.71	.Q	.	.	.	V	.
18.250	1.2980	0.71	.Q	.	.	.	V	.
18.267	1.2990	0.71	.Q	.	.	.	V	.
18.283	1.3000	0.71	.Q	.	.	.	V	.
18.300	1.3010	0.71	.Q	.	.	.	V	.
18.317	1.3019	0.71	.Q	.	.	.	V	.
18.333	1.3029	0.71	.Q	.	.	.	V	.
18.350	1.3039	0.71	.Q	.	.	.	V	.
18.367	1.3049	0.71	.Q	.	.	.	V	.

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18.383      1.3058      0.70  .Q        .         .         .  V      .
18.400      1.3068      0.70  .Q        .         .         .  V      .
18.417      1.3078      0.70  .Q        .         .         .  V      .
18.433      1.3087      0.70  .Q        .         .         .  V      .
18.450      1.3097      0.69  .Q        .         .         .   V     .
18.467      1.3106      0.69  .Q        .         .         .   V     .
18.483      1.3116      0.69  .Q        .         .         .   V     .
18.500      1.3125      0.69  .Q        .         .         .   V     .
18.517      1.3135      0.68  .Q        .         .         .   V     .
18.533      1.3144      0.68  .Q        .         .         .   V     .
18.550      1.3154      0.68  .Q        .         .         .   V     .
18.567      1.3163      0.68  .Q        .         .         .   V     .
18.583      1.3172      0.67  .Q        .         .         .   V     .
18.600      1.3181      0.67  .Q        .         .         .   V     .
18.617      1.3191      0.67  .Q        .         .         .   V     .
18.633      1.3200      0.67  .Q        .         .         .   V     .
18.650      1.3209      0.67  .Q        .         .         .   V     .
18.667      1.3218      0.66  .Q        .         .         .   V     .
18.683      1.3227      0.66  .Q        .         .         .   V     .
18.700      1.3236      0.66  .Q        .         .         .   V     .
18.717      1.3245      0.66  .Q        .         .         .   V     .
18.733      1.3254      0.65  .Q        .         .         .   V     .
18.750      1.3263      0.65  .Q        .         .         .   V     .
18.767      1.3272      0.65  .Q        .         .         .   V     .
18.783      1.3281      0.65  .Q        .         .         .   V     .
18.800      1.3290      0.65  .Q        .         .         .   V     .
18.817      1.3299      0.64  .Q        .         .         .   V     .
18.833      1.3308      0.64  .Q        .         .         .   V     .
18.850      1.3317      0.64  .Q        .         .         .   V     .
18.867      1.3325      0.64  .Q        .         .         .   V     .
18.883      1.3334      0.64  .Q        .         .         .   V     .
18.900      1.3343      0.63  .Q        .         .         .   V     .
18.917      1.3352      0.63  .Q        .         .         .   V     .
18.933      1.3360      0.63  .Q        .         .         .   V     .
18.950      1.3369      0.63  .Q        .         .         .   V     .
18.967      1.3378      0.63  .Q        .         .         .   V     .
18.983      1.3386      0.62  .Q        .         .         .   V     .
19.000      1.3395      0.62  .Q        .         .         .   V     .
19.017      1.3403      0.62  .Q        .         .         .   V     .
19.033      1.3412      0.62  .Q        .         .         .   V     .
19.050      1.3420      0.62  .Q        .         .         .   V     .
19.067      1.3429      0.61  .Q        .         .         .   V     .
19.083      1.3437      0.61  .Q        .         .         .   V     .
19.100      1.3446      0.61  .Q        .         .         .   V     .
19.117      1.3454      0.61  .Q        .         .         .   V     .
19.133      1.3462      0.61  .Q        .         .         .   V     .
19.150      1.3471      0.61  .Q        .         .         .   V     .
19.167      1.3479      0.60  .Q        .         .         .    V    .
19.183      1.3487      0.60  .Q        .         .         .    V    .
19.200      1.3496      0.60  .Q        .         .         .    V    .
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19.217      1.3504      0.60  .Q        .         .         .    V    .
19.233      1.3512      0.60  .Q        .         .         .    V    .
19.250      1.3520      0.60  .Q        .         .         .    V    .
19.267      1.3528      0.59  .Q        .         .         .    V    .
19.283      1.3537      0.59  .Q        .         .         .    V    .
19.300      1.3545      0.59  .Q        .         .         .    V    .
19.317      1.3553      0.59  .Q        .         .         .    V    .
19.333      1.3561      0.59  .Q        .         .         .    V    .
19.350      1.3569      0.59  .Q        .         .         .    V    .
19.367      1.3577      0.58  .Q        .         .         .    V    .
19.383      1.3585      0.58  .Q        .         .         .    V    .
19.400      1.3593      0.58  .Q        .         .         .    V    .
19.417      1.3601      0.58  .Q        .         .         .    V    .
19.433      1.3609      0.58  .Q        .         .         .    V    .
19.450      1.3617      0.58  .Q        .         .         .    V    .
19.467      1.3625      0.58  .Q        .         .         .    V    .
19.483      1.3633      0.57  .Q        .         .         .    V    .
19.500      1.3641      0.57  .Q        .         .         .    V    .
19.517      1.3649      0.57  .Q        .         .         .    V    .
19.533      1.3656      0.57  .Q        .         .         .    V    .
19.550      1.3664      0.57  .Q        .         .         .    V    .
19.567      1.3672      0.57  .Q        .         .         .    V    .
19.583      1.3680      0.57  .Q        .         .         .    V    .
19.600      1.3688      0.56  .Q        .         .         .    V    .
19.617      1.3695      0.56  .Q        .         .         .    V    .
19.633      1.3703      0.56  .Q        .         .         .    V    .
19.650      1.3711      0.56  .Q        .         .         .    V    .
19.667      1.3718      0.56  .Q        .         .         .    V    .
19.683      1.3726      0.56  .Q        .         .         .    V    .
19.700      1.3734      0.56  .Q        .         .         .    V    .
19.717      1.3741      0.55  .Q        .         .         .    V    .
19.733      1.3749      0.55  .Q        .         .         .    V    .
19.750      1.3757      0.55  .Q        .         .         .    V    .
19.767      1.3764      0.55  .Q        .         .         .    V    .
19.783      1.3772      0.55  .Q        .         .         .    V    .
19.800      1.3779      0.55  .Q        .         .         .    V    .
19.817      1.3787      0.55  .Q        .         .         .    V    .
19.833      1.3794      0.55  .Q        .         .         .    V    .
19.850      1.3802      0.54  .Q        .         .         .    V    .
19.867      1.3809      0.54  .Q        .         .         .    V    .
19.883      1.3817      0.54  .Q        .         .         .    V    .
19.900      1.3824      0.54  .Q        .         .         .    V    .
19.917      1.3832      0.54  .Q        .         .         .    V    .
19.933      1.3839      0.54  .Q        .         .         .    V    .
19.950      1.3846      0.54  .Q        .         .         .    V    .
19.967      1.3854      0.54  .Q        .         .         .    V    .
19.983      1.3861      0.53  .Q        .         .         .     V   .
20.000      1.3869      0.53  .Q        .         .         .     V   .
20.017      1.3876      0.53  .Q        .         .         .     V   .
20.033      1.3883      0.53  .Q        .         .         .     V   .
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20.050	1.3890	0.53	.Q	.	.	.	V	.
20.067	1.3898	0.53	.Q	.	.	.	V	.
20.083	1.3905	0.53	.Q	.	.	.	V	.
20.100	1.3912	0.53	.Q	.	.	.	V	.
20.117	1.3919	0.52	.Q	.	.	.	V	.
20.133	1.3927	0.52	.Q	.	.	.	V	.
20.150	1.3934	0.52	.Q	.	.	.	V	.
20.167	1.3941	0.52	.Q	.	.	.	V	.
20.183	1.3948	0.52	.Q	.	.	.	V	.
20.200	1.3955	0.52	.Q	.	.	.	V	.
20.217	1.3963	0.52	.Q	.	.	.	V	.
20.233	1.3970	0.52	.Q	.	.	.	V	.
20.250	1.3977	0.52	.Q	.	.	.	V	.
20.267	1.3984	0.52	.Q	.	.	.	V	.
20.283	1.3991	0.51	.Q	.	.	.	V	.
20.300	1.3998	0.51	.Q	.	.	.	V	.
20.317	1.4005	0.51	.Q	.	.	.	V	.
20.333	1.4012	0.51	.Q	.	.	.	V	.
20.350	1.4019	0.51	.Q	.	.	.	V	.
20.367	1.4026	0.51	.Q	.	.	.	V	.
20.383	1.4033	0.51	.Q	.	.	.	V	.
20.400	1.4040	0.51	.Q	.	.	.	V	.
20.417	1.4047	0.51	.Q	.	.	.	V	.
20.433	1.4054	0.50	.Q	.	.	.	V	.
20.450	1.4061	0.50	.Q	.	.	.	V	.
20.467	1.4068	0.50	.Q	.	.	.	V	.
20.483	1.4075	0.50	.Q	.	.	.	V	.
20.500	1.4082	0.50	.Q	.	.	.	V	.
20.517	1.4089	0.50	Q	.	.	.	V	.
20.533	1.4095	0.50	Q	.	.	.	V	.
20.550	1.4102	0.50	Q	.	.	.	V	.
20.567	1.4109	0.50	Q	.	.	.	V	.
20.583	1.4116	0.50	Q	.	.	.	V	.
20.600	1.4123	0.50	Q	.	.	.	V	.
20.617	1.4130	0.49	Q	.	.	.	V	.
20.633	1.4136	0.49	Q	.	.	.	V	.
20.650	1.4143	0.49	Q	.	.	.	V	.
20.667	1.4150	0.49	Q	.	.	.	V	.
20.683	1.4157	0.49	Q	.	.	.	V	.
20.700	1.4163	0.49	Q	.	.	.	V	.
20.717	1.4170	0.49	Q	.	.	.	V	.
20.733	1.4177	0.49	Q	.	.	.	V	.
20.750	1.4184	0.49	Q	.	.	.	V	.
20.767	1.4190	0.49	Q	.	.	.	V	.
20.783	1.4197	0.48	Q	.	.	.	V	.
20.800	1.4204	0.48	Q	.	.	.	V	.
20.817	1.4210	0.48	Q	.	.	.	V	.
20.833	1.4217	0.48	Q	.	.	.	V	.
20.850	1.4224	0.48	Q	.	.	.	V	.
20.867	1.4230	0.48	Q	.	.	.	V	.

20.883	1.4237	0.48	Q	.	.	.	V	.
20.900	1.4243	0.48	Q	.	.	.	V	.
20.917	1.4250	0.48	Q	.	.	.	V	.
20.933	1.4257	0.48	Q	.	.	.	V	.
20.950	1.4263	0.48	Q	.	.	.	V	.
20.967	1.4270	0.48	Q	.	.	.	V	.
20.983	1.4276	0.47	Q	.	.	.	V	.
21.000	1.4283	0.47	Q	.	.	.	V	.
21.017	1.4289	0.47	Q	.	.	.	V	.
21.033	1.4296	0.47	Q	.	.	.	V	.
21.050	1.4302	0.47	Q	.	.	.	V	.
21.067	1.4309	0.47	Q	.	.	.	V	.
21.083	1.4315	0.47	Q	.	.	.	V	.
21.100	1.4322	0.47	Q	.	.	.	V	.
21.117	1.4328	0.47	Q	.	.	.	V	.
21.133	1.4335	0.47	Q	.	.	.	V	.
21.150	1.4341	0.47	Q	.	.	.	V	.
21.167	1.4347	0.47	Q	.	.	.	V	.
21.183	1.4354	0.46	Q	.	.	.	V	.
21.200	1.4360	0.46	Q	.	.	.	V	.
21.217	1.4367	0.46	Q	.	.	.	V	.
21.233	1.4373	0.46	Q	.	.	.	V	.
21.250	1.4379	0.46	Q	.	.	.	V	.
21.267	1.4386	0.46	Q	.	.	.	V	.
21.283	1.4392	0.46	Q	.	.	.	V	.
21.300	1.4398	0.46	Q	.	.	.	V	.
21.317	1.4405	0.46	Q	.	.	.	V	.
21.333	1.4411	0.46	Q	.	.	.	V	.
21.350	1.4417	0.46	Q	.	.	.	V	.
21.367	1.4424	0.46	Q	.	.	.	V	.
21.383	1.4430	0.46	Q	.	.	.	V	.
21.400	1.4436	0.45	Q	.	.	.	V	.
21.417	1.4442	0.45	Q	.	.	.	V	.
21.433	1.4449	0.45	Q	.	.	.	V	.
21.450	1.4455	0.45	Q	.	.	.	V	.
21.467	1.4461	0.45	Q	.	.	.	V	.
21.483	1.4467	0.45	Q	.	.	.	V	.
21.500	1.4473	0.45	Q	.	.	.	V	.
21.517	1.4480	0.45	Q	.	.	.	V	.
21.533	1.4486	0.45	Q	.	.	.	V	.
21.550	1.4492	0.45	Q	.	.	.	V	.
21.567	1.4498	0.45	Q	.	.	.	V	.
21.583	1.4504	0.45	Q	.	.	.	V	.
21.600	1.4510	0.45	Q	.	.	.	V	.
21.617	1.4517	0.45	Q	.	.	.	V	.
21.633	1.4523	0.44	Q	.	.	.	V	.
21.650	1.4529	0.44	Q	.	.	.	V	.
21.667	1.4535	0.44	Q	.	.	.	V	.
21.683	1.4541	0.44	Q	.	.	.	V	.
21.700	1.4547	0.44	Q	.	.	.	V	.

21.717	1.4553	0.44	Q	.	.	.	V	.
21.733	1.4559	0.44	Q	.	.	.	V	.
21.750	1.4565	0.44	Q	.	.	.	V	.
21.767	1.4571	0.44	Q	.	.	.	V	.
21.783	1.4578	0.44	Q	.	.	.	V	.
21.800	1.4584	0.44	Q	.	.	.	V	.
21.817	1.4590	0.44	Q	.	.	.	V	.
21.833	1.4596	0.44	Q	.	.	.	V	.
21.850	1.4602	0.44	Q	.	.	.	V	.
21.867	1.4608	0.44	Q	.	.	.	V	.
21.883	1.4614	0.44	Q	.	.	.	V	.
21.900	1.4620	0.43	Q	.	.	.	V	.
21.917	1.4626	0.43	Q	.	.	.	V	.
21.933	1.4632	0.43	Q	.	.	.	V	.
21.950	1.4637	0.43	Q	.	.	.	V	.
21.967	1.4643	0.43	Q	.	.	.	V	.
21.983	1.4649	0.43	Q	.	.	.	V	.
22.000	1.4655	0.43	Q	.	.	.	V	.
22.017	1.4661	0.43	Q	.	.	.	V	.
22.033	1.4667	0.43	Q	.	.	.	V	.
22.050	1.4673	0.43	Q	.	.	.	V	.
22.067	1.4679	0.43	Q	.	.	.	V	.
22.083	1.4685	0.43	Q	.	.	.	V	.
22.100	1.4691	0.43	Q	.	.	.	V	.
22.117	1.4697	0.43	Q	.	.	.	V	.
22.133	1.4702	0.43	Q	.	.	.	V	.
22.150	1.4708	0.43	Q	.	.	.	V	.
22.167	1.4714	0.42	Q	.	.	.	V	.
22.183	1.4720	0.42	Q	.	.	.	V	.
22.200	1.4726	0.42	Q	.	.	.	V	.
22.217	1.4732	0.42	Q	.	.	.	V	.
22.233	1.4737	0.42	Q	.	.	.	V	.
22.250	1.4743	0.42	Q	.	.	.	V	.
22.267	1.4749	0.42	Q	.	.	.	V	.
22.283	1.4755	0.42	Q	.	.	.	V	.
22.300	1.4761	0.42	Q	.	.	.	V	.
22.317	1.4766	0.42	Q	.	.	.	V	.
22.333	1.4772	0.42	Q	.	.	.	V	.
22.350	1.4778	0.42	Q	.	.	.	V	.
22.367	1.4784	0.42	Q	.	.	.	V	.
22.383	1.4789	0.42	Q	.	.	.	V	.
22.400	1.4795	0.42	Q	.	.	.	V	.
22.417	1.4801	0.42	Q	.	.	.	V	.
22.433	1.4807	0.42	Q	.	.	.	V	.
22.450	1.4812	0.41	Q	.	.	.	V	.
22.467	1.4818	0.41	Q	.	.	.	V	.
22.483	1.4824	0.41	Q	.	.	.	V	.
22.500	1.4829	0.41	Q	.	.	.	V	.
22.517	1.4835	0.41	Q	.	.	.	V	.
22.533	1.4841	0.41	Q	.	.	.	V	.

22.550	1.4846	0.41	Q	.	.	.	V .
22.567	1.4852	0.41	Q	.	.	.	V .
22.583	1.4858	0.41	Q	.	.	.	V .
22.600	1.4863	0.41	Q	.	.	.	V .
22.617	1.4869	0.41	Q	.	.	.	V .
22.633	1.4875	0.41	Q	.	.	.	V .
22.650	1.4880	0.41	Q	.	.	.	V .
22.667	1.4886	0.41	Q	.	.	.	V .
22.683	1.4891	0.41	Q	.	.	.	V .
22.700	1.4897	0.41	Q	.	.	.	V .
22.717	1.4903	0.41	Q	.	.	.	V .
22.733	1.4908	0.41	Q	.	.	.	V .
22.750	1.4914	0.40	Q	.	.	.	V .
22.767	1.4919	0.40	Q	.	.	.	V .
22.783	1.4925	0.40	Q	.	.	.	V .
22.800	1.4930	0.40	Q	.	.	.	V .
22.817	1.4936	0.40	Q	.	.	.	V .
22.833	1.4942	0.40	Q	.	.	.	V .
22.850	1.4947	0.40	Q	.	.	.	V .
22.867	1.4953	0.40	Q	.	.	.	V .
22.883	1.4958	0.40	Q	.	.	.	V .
22.900	1.4964	0.40	Q	.	.	.	V .
22.917	1.4969	0.40	Q	.	.	.	V .
22.933	1.4975	0.40	Q	.	.	.	V .
22.950	1.4980	0.40	Q	.	.	.	V .
22.967	1.4986	0.40	Q	.	.	.	V .
22.983	1.4991	0.40	Q	.	.	.	V .
23.000	1.4997	0.40	Q	.	.	.	V .
23.017	1.5002	0.40	Q	.	.	.	V .
23.033	1.5008	0.40	Q	.	.	.	V .
23.050	1.5013	0.40	Q	.	.	.	V .
23.067	1.5018	0.40	Q	.	.	.	V.
23.083	1.5024	0.39	Q	.	.	.	V.
23.100	1.5029	0.39	Q	.	.	.	V.
23.117	1.5035	0.39	Q	.	.	.	V.
23.133	1.5040	0.39	Q	.	.	.	V.
23.150	1.5046	0.39	Q	.	.	.	V.
23.167	1.5051	0.39	Q	.	.	.	V.
23.183	1.5056	0.39	Q	.	.	.	V.
23.200	1.5062	0.39	Q	.	.	.	V.
23.217	1.5067	0.39	Q	.	.	.	V.
23.233	1.5073	0.39	Q	.	.	.	V.
23.250	1.5078	0.39	Q	.	.	.	V.
23.267	1.5083	0.39	Q	.	.	.	V.
23.283	1.5089	0.39	Q	.	.	.	V.
23.300	1.5094	0.39	Q	.	.	.	V.
23.317	1.5099	0.39	Q	.	.	.	V.
23.333	1.5105	0.39	Q	.	.	.	V.
23.350	1.5110	0.39	Q	.	.	.	V.
23.367	1.5115	0.39	Q	.	.	.	V.

23.383	1.5121	0.39	Q	.	.	.	V.
23.400	1.5126	0.39	Q	.	.	.	V.
23.417	1.5131	0.39	Q	.	.	.	V.
23.433	1.5137	0.39	Q	.	.	.	V.
23.450	1.5142	0.38	Q	.	.	.	V.
23.467	1.5147	0.38	Q	.	.	.	V.
23.483	1.5152	0.38	Q	.	.	.	V.
23.500	1.5158	0.38	Q	.	.	.	V.
23.517	1.5163	0.38	Q	.	.	.	V.
23.533	1.5168	0.38	Q	.	.	.	V.
23.550	1.5174	0.38	Q	.	.	.	V.
23.567	1.5179	0.38	Q	.	.	.	V.
23.583	1.5184	0.38	Q	.	.	.	V.
23.600	1.5189	0.38	Q	.	.	.	V.
23.617	1.5195	0.38	Q	.	.	.	V.
23.633	1.5200	0.38	Q	.	.	.	V.
23.650	1.5205	0.38	Q	.	.	.	V.
23.667	1.5210	0.38	Q	.	.	.	V.
23.683	1.5215	0.38	Q	.	.	.	V.
23.700	1.5221	0.38	Q	.	.	.	V.
23.717	1.5226	0.38	Q	.	.	.	V.
23.733	1.5231	0.38	Q	.	.	.	V.
23.750	1.5236	0.38	Q	.	.	.	V.
23.767	1.5241	0.38	Q	.	.	.	V.
23.783	1.5247	0.38	Q	.	.	.	V.
23.800	1.5252	0.38	Q	.	.	.	V.
23.817	1.5257	0.38	Q	.	.	.	V.
23.833	1.5262	0.37	Q	.	.	.	V.
23.850	1.5267	0.37	Q	.	.	.	V.
23.867	1.5272	0.37	Q	.	.	.	V.
23.883	1.5278	0.37	Q	.	.	.	V.
23.900	1.5283	0.37	Q	.	.	.	V.
23.917	1.5288	0.37	Q	.	.	.	V.
23.933	1.5293	0.37	Q	.	.	.	V.
23.950	1.5298	0.37	Q	.	.	.	V.
23.967	1.5303	0.37	Q	.	.	.	V.
23.983	1.5308	0.37	Q	.	.	.	V.
24.000	1.5313	0.37	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1441.0
10%	715.0
20%	300.0
30%	170.0

40%	110.0
50%	95.0
60%	75.0
70%	55.0
80%	35.0
90%	20.0

==========

END OF FLOODSCx ROUTING ANALYSIS

Cherry Outpost

(Proposed Condition) Small Area Hydrograph Loss Rates

Subarea	Area (acres)	Soil Type	Land Use	A_p	A_i	F_p (in/hr) Adj. Infiltration Rate	F_m	Runoff Index (RI)	$\bar{y}$ Storm Event - Year
									100
								AMC	P_{24} (Inches)
								II	5.87
A-1	0.218	A	Natural or Agriculture	1.00	0.00	0.742	0.74	32	0.004
A-1	0.010	C	Natural or Agriculture	1.00	0.00	0.373	0.37	69	0.004
A-1	1.664	A	Commercial	0.10	0.90	0.141	0.14	32	1.440
A-1	0.285	C	Commercial	0.10	0.90	0.071	0.07	69	0.259
A-1.1	0.327	A	Natural or Agriculture	1.00	0.00	0.742	0.74	32	0.006
A-1.1	0.254	C	Natural or Agriculture	1.00	0.00	0.373	0.37	69	0.113
A-1.1	0.673	A	Commercial	0.10	0.90	0.141	0.14	32	0.582
A-1.1	0.327	C	Commercial	0.10	0.90	0.071	0.07	69	0.297
A-2	0.108	A	Natural or Agriculture	1.00	0.00	0.742	0.74	32	0.002
A-2	0.432	C	Natural or Agriculture	1.00	0.00	0.373	0.37	69	0.192
A-2.1	0.006	A	Natural or Agriculture	1.00	0.00	0.742	0.74	32	0.000
A-2.1	0.015	C	Natural or Agriculture	1.00	0.00	0.373	0.37	69	0.007
A-2.1	0.158	A	Commercial	0.10	0.90	0.141	0.14	32	0.137
A-2.1	0.712	C	Commercial	0.10	0.90	0.071	0.07	69	0.646
A-2.2	0.025	A	Natural or Agriculture	1.00	0.00	0.742	0.74	32	0.000
A-2.2	0.096	A	Commercial	0.10	0.90	0.141	0.14	32	0.083
A-2.2	0.064	C	Commercial	0.10	0.90	0.071	0.07	69	0.058
A-2.3	0.063	A	Natural or Agriculture	1.00	0.00	0.742	0.74	32	0.001
A-2.3	0.059	C	Natural or Agriculture	1.00	0.00	0.373	0.37	69	0.026
A-2.3	0.166	A	Commercial	0.10	0.90	0.141	0.14	32	0.144
A-2.3	0.287	C	Commercial	0.10	0.90	0.071	0.07	69	0.261
Total =	5.95						0.227		0.283

Cherry Outpost

(Proposed Condition) Loss Rates Summary

	STORM EVENT
	100-YR
Tc =	11.180
Area =	5.949
$\bar{y}$ =	0.283
F_m =	0.227

PROPOSED BASIN A

Rating Table

	Stage (feet)	Depth (feet)	Headwater Elevation* (ft)	Surface Area (ft^2)	Surface Area (acres)	Storage Volume (ac-ft)		Storage Volume (ft^3)	Oulet Discharge (cfs)
						i	S	S	
1	1396.00	0.00	0.00	3697	0.08		0.00	0	0.0
2	1396.50	0.50	0.00	4149	0.10	0.045	0.045	1961	0.0
3	1397.00	1.00	0.50	4821	0.11	0.051	0.097	4204	2.7
4	1398.00	2.00	1.50	6155	0.14	0.126	0.222	9692	4.8
5	1399.00	3.00	2.50	7535	0.17	0.157	0.380	16537	6.1
6	1400.00	4.00	3.50	8852	0.20	0.188	0.568	24730	7.3

Nyloplast Inlet Capacity Table

DISCLAIMER: SAFETY FACTORS ARE NOT INCLUDED IN THESE CALCULATIONS. ACTUAL CALCULATIONS SHOULD BE CARRIED OUT AND VERIFIED BY THE DESIGN ENGINEER TAKING INTO ACCOUNT ALL LOCAL CONDITIONS. NYLOPLAST RECOMMENDS USING A MINIMUM SAFETY FACTOR OF 1.25 FOR PAVED AREAS AND 2.0 FOR TURF AREAS. ADS/NYLOPLAST IS NOT RESPONSIBLE FOR MISUSE OF THIS TOOL.

Input	
Type of Grate	18" Standard
Head (ft)	0.5

Properties	
Orifice Flow Area (in)	**116.72**
Orifice Flow Area (ft)	**0.81**
Weir Flow Perimeter (in)	**52.04**
Weir Flow Perimeter (ft)	**4.34**

Solution	
Capacity (cfs)	**2.74**
Capacity (gpm)	**1230.13**

$$Q_{weir} = CLH^{3/2}$$

$C = 3.33\ Weir\ Discharge\ Coefficient$

$L = Perimeter\ of\ Grate\ Opening\ (ft)$

$H = Flow\ Height\ of\ Water\ Surface\ Above\ Weir\ (ft)$

$$Q_{orifice} = CA\sqrt{2gh}$$

$C = 0.60\ Orifice\ Discharge\ Coefficient$

$A = Area\ of\ the\ Orifice\ (ft^2)$

$g = Gravitational\ Constant\ \left(32.2\frac{ft}{s^2}\right)$

$H = Depth\ of\ Water\ Above\ Center\ of\ Orifice\ (ft)$

REV 5.4.12

Nyloplast Inlet Capacity Table

DISCLAIMER: SAFETY FACTORS ARE NOT INCLUDED IN THESE CALCULATIONS. ACTUAL CALCULATIONS SHOULD BE CARRIED OUT AND VERIFIED BY THE DESIGN ENGINEER TAKING INTO ACCOUNT ALL LOCAL CONDITIONS. NYLOPLAST RECOMMENDS USING A MINIMUM SAFETY FACTOR OF 1.25 FOR PAVED AREAS AND 2.0 FOR TURF AREAS. ADS/NYLOPLAST IS NOT RESPONSIBLE FOR MISUSE OF THIS TOOL.

Input	
Type of Grate	18" Standard
Head (ft)	1.5

Properties	
Orifice Flow Area (in)	**116.72**
Orifice Flow Area (ft)	**0.81**
Weir Flow Perimeter (in)	**52.04**
Weir Flow Perimeter (ft)	**4.34**

Solution	
Capacity (cfs)	**4.75**
Capacity (gpm)	**2130.65**

$$Q_{weir} = CLH^{3/2}$$

$C = 3.33\ Weir\ Discharge\ Coefficient$

$L = Perimeter\ of\ Grate\ Opening\ (ft)$

$H = Flow\ Height\ of\ Water\ Surface\ Above\ Weir\ (ft)$

$$Q_{orifice} = CA\sqrt{2gh}$$

$C = 0.60\ Orifice\ Discharge\ Coefficient$

$A = Area\ of\ the\ Orifice\ (ft^2)$

$g = Gravitational\ Constant\ \left(32.2\frac{ft}{s^2}\right)$

$H = Depth\ of\ Water\ Above\ Center\ of\ Orifice\ (ft)$

REV 5.4.12

Nyloplast Inlet Capacity Table

DISCLAIMER: SAFETY FACTORS ARE NOT INCLUDED IN THESE CALCULATIONS. ACTUAL CALCULATIONS SHOULD BE CARRIED OUT AND VERIFIED BY THE DESIGN ENGINEER TAKING INTO ACCOUNT ALL LOCAL CONDITIONS. NYLOPLAST RECOMMENDS USING A MINIMUM SAFETY FACTOR OF 1.25 FOR PAVED AREAS AND 2.0 FOR TURF AREAS. ADS/NYLOPLAST IS NOT RESPONSIBLE FOR MISUSE OF THIS TOOL.

Input	
Type of Grate	18" Standard
Head (ft)	2.5

Properties	
Orifice Flow Area (in)	**116.72**
Orifice Flow Area (ft)	**0.81**
Weir Flow Perimeter (in)	**52.04**
Weir Flow Perimeter (ft)	**4.34**

Solution	
Capacity (cfs)	**6.13**
Capacity (gpm)	**2750.65**

$$Q_{weir} = CLH^{3/2}$$

$C = 3.33\ Weir\ Discharge\ Coefficient$

$L = Perimeter\ of\ Grate\ Opening\ (ft)$

$H = Flow\ Height\ of\ Water\ Surface\ Above\ Weir\ (ft)$

$$Q_{orifice} = CA\sqrt{2gh}$$

$C = 0.60\ Orifice\ Discharge\ Coefficient$

$A = Area\ of\ the\ Orifice\ (ft^2)$

$g = Gravitational\ Constant\ \left(32.2\frac{ft}{s^2}\right)$

$H = Depth\ of\ Water\ Above\ Center\ of\ Orifice\ (ft)$

REV 5.4.12

Nyloplast Inlet Capacity Table

DISCLAIMER: SAFETY FACTORS ARE NOT INCLUDED IN THESE CALCULATIONS. ACTUAL CALCULATIONS SHOULD BE CARRIED OUT AND VERIFIED BY THE DESIGN ENGINEER TAKING INTO ACCOUNT ALL LOCAL CONDITIONS. NYLOPLAST RECOMMENDS USING A MINIMUM SAFETY FACTOR OF 1.25 FOR PAVED AREAS AND 2.0 FOR TURF AREAS. ADS/NYLOPLAST IS NOT RESPONSIBLE FOR MISUSE OF THIS TOOL.

Input	
Type of Grate	18" Standard
Head (ft)	3.5

Properties	
Orifice Flow Area (in)	**116.72**
Orifice Flow Area (ft)	**0.81**
Weir Flow Perimeter (in)	**52.04**
Weir Flow Perimeter (ft)	**4.34**

Solution	
Capacity (cfs)	**7.25**
Capacity (gpm)	**3254.62**

$$Q_{weir} = CLH^{3/2}$$

$C = 3.33\ Weir\ Discharge\ Coefficient$

$L = Perimeter\ of\ Grate\ Opening\ (ft)$

$H = Flow\ Height\ of\ Water\ Surface\ Above\ Weir\ (ft)$

$$Q_{orifice} = CA\sqrt{2gh}$$

$C = 0.60\ Orifice\ Discharge\ Coefficient$

$A = Area\ of\ the\ Orifice\ (ft^2)$

$g = Gravitational\ Constant\ \left(32.2\frac{ft}{s^2}\right)$

$H = Depth\ of\ Water\ Above\ Center\ of\ Orifice\ (ft)$

REV 5.4.12

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*******************************************************************************

             F L O O D    R O U T I N G    A N A L Y S I S
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1334

                         Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* SP8997 - WILDOMAR CHERRY OUTPOST                                      *
* PROPOSED CONDITION SMALL AREA UNIT HYDROGRAPH                         *
* 100-YEAR STORM EVENT FLOW THROUGH BASIN                               *
 ************************************************************************

  FILE NAME: 100YRPRH.DAT
  TIME/DATE OF STUDY: 15:39 04/30/2024

   The Small Area Unit Hydrograph Procedures in Section J
   of the Hydrology Manual provides estimates of runoff
   hydrograph and runoff volume for watersheds whose time of
   concentration is less than 25 minutes. The PROGRAM User
   should check the applicability of using the small area unit
   hydrograph procedures, and follow the guidelines in
   Sections J and K.5 in complex watershed modeling.


*******************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE    110.00 IS CODE = 1.2
-------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
===============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    5.95
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.227
    LOW LOSS FRACTION = 0.283
    TIME OF CONCENTRATION(MIN.) = 11.18
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    USER SPECIFIED RAINFALL VALUES ARE USED:
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.31
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.85
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.31
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.13
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.96
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.87

-------------------------------------------------------------------------------
    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.93
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.98
```

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-------------------------------------------------------------------------------
♠
===============================================================================

                    2 4 - H O U R    S T O R M
                 R U N O F F    H Y D R O G R A P H

===============================================================================
              HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
       (Notes: Time indicated is at END of Each Unit Intervals.
               Peak 5-minute rainfall intensity is modeled as
               a constant value for entire 5-minute period.)
-------------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        3.2       6.4       9.6      12.8
-------------------------------------------------------------------------------
   0.017      0.0000      0.02  Q         .         .         .         .
   0.033      0.0001      0.07  Q         .         .         .         .
   0.050      0.0003      0.12  Q         .         .         .         .
   0.067      0.0005      0.17  Q         .         .         .         .
   0.083      0.0008      0.22  Q         .         .         .         .
   0.100      0.0012      0.26  Q         .         .         .         .
   0.117      0.0016      0.31  Q         .         .         .         .
   0.133      0.0021      0.36  VQ        .         .         .         .
   0.150      0.0027      0.41  VQ        .         .         .         .
   0.167      0.0033      0.45  VQ        .         .         .         .
   0.183      0.0039      0.46  VQ        .         .         .         .
   0.200      0.0046      0.46  VQ        .         .         .         .
   0.217      0.0052      0.46  VQ        .         .         .         .
   0.233      0.0059      0.47  VQ        .         .         .         .
   0.250      0.0065      0.47  VQ        .         .         .         .
   0.267      0.0071      0.47  VQ        .         .         .         .
   0.283      0.0078      0.47  VQ        .         .         .         .
   0.300      0.0084      0.47  VQ        .         .         .         .
   0.317      0.0091      0.47  VQ        .         .         .         .
   0.333      0.0097      0.47  VQ        .         .         .         .
   0.350      0.0103      0.47  VQ        .         .         .         .
   0.367      0.0110      0.47  VQ        .         .         .         .
   0.383      0.0116      0.47  VQ        .         .         .         .
   0.400      0.0123      0.47  VQ        .         .         .         .
   0.417      0.0129      0.47  VQ        .         .         .         .
   0.433      0.0136      0.47  VQ        .         .         .         .
   0.450      0.0142      0.47  VQ        .         .         .         .
   0.467      0.0149      0.47  VQ        .         .         .         .
   0.483      0.0155      0.47  VQ        .         .         .         .
   0.500      0.0161      0.47  VQ        .         .         .         .
   0.517      0.0168      0.47  VQ        .         .         .         .
   0.533      0.0174      0.47  VQ        .         .         .         .
   0.550      0.0181      0.47  VQ        .         .         .         .
   0.567      0.0187      0.47  VQ        .         .         .         .
   0.583      0.0194      0.47  VQ        .         .         .         .
   0.600      0.0200      0.47  VQ        .         .         .         .
   0.617      0.0207      0.47  VQ        .         .         .         .
   0.633      0.0213      0.47  VQ        .         .         .         .
   0.650      0.0220      0.47  VQ        .         .         .         .
   0.667      0.0226      0.47  VQ        .         .         .         .
   0.683      0.0233      0.47  VQ        .         .         .         .
   0.700      0.0239      0.47  VQ        .         .         .         .
   0.717      0.0246      0.47  VQ        .         .         .         .
```

0.733	0.0252	0.47	VQ	.	.	.	.
0.750	0.0259	0.47	VQ	.	.	.	.
0.767	0.0265	0.47	VQ	.	.	.	.
0.783	0.0272	0.47	VQ	.	.	.	.
0.800	0.0278	0.47	VQ	.	.	.	.
0.817	0.0285	0.47	VQ	.	.	.	.
0.833	0.0291	0.47	VQ	.	.	.	.
0.850	0.0298	0.47	VQ	.	.	.	.
0.867	0.0304	0.47	VQ	.	.	.	.
0.883	0.0311	0.48	VQ	.	.	.	.
0.900	0.0317	0.48	VQ	.	.	.	.
0.917	0.0324	0.48	VQ	.	.	.	.
0.933	0.0331	0.48	VQ	.	.	.	.
0.950	0.0337	0.48	VQ	.	.	.	.
0.967	0.0344	0.48	VQ	.	.	.	.
0.983	0.0350	0.48	VQ	.	.	.	.
1.000	0.0357	0.48	VQ	.	.	.	.
1.017	0.0363	0.48	VQ	.	.	.	.
1.033	0.0370	0.48	VQ	.	.	.	.
1.050	0.0377	0.48	VQ	.	.	.	.
1.067	0.0383	0.48	VQ	.	.	.	.
1.083	0.0390	0.48	VQ	.	.	.	.
1.100	0.0396	0.48	VQ	.	.	.	.
1.117	0.0403	0.48	VQ	.	.	.	.
1.133	0.0409	0.48	VQ	.	.	.	.
1.150	0.0416	0.48	VQ	.	.	.	.
1.167	0.0423	0.48	VQ	.	.	.	.
1.183	0.0429	0.48	VQ	.	.	.	.
1.200	0.0436	0.48	VQ	.	.	.	.
1.217	0.0442	0.48	VQ	.	.	.	.
1.233	0.0449	0.48	VQ	.	.	.	.
1.250	0.0456	0.48	VQ	.	.	.	.
1.267	0.0462	0.48	VQ	.	.	.	.
1.283	0.0469	0.48	VQ	.	.	.	.
1.300	0.0476	0.48	VQ	.	.	.	.
1.317	0.0482	0.48	.Q	.	.	.	.
1.333	0.0489	0.48	.Q	.	.	.	.
1.350	0.0496	0.48	.Q	.	.	.	.
1.367	0.0502	0.48	.Q	.	.	.	.
1.383	0.0509	0.48	.Q	.	.	.	.
1.400	0.0516	0.48	.Q	.	.	.	.
1.417	0.0522	0.48	.Q	.	.	.	.
1.433	0.0529	0.48	.Q	.	.	.	.
1.450	0.0535	0.48	.Q	.	.	.	.
1.467	0.0542	0.48	.Q	.	.	.	.
1.483	0.0549	0.48	.Q	.	.	.	.
1.500	0.0555	0.48	.Q	.	.	.	.
1.517	0.0562	0.48	.Q	.	.	.	.
1.533	0.0569	0.49	.Q	.	.	.	.
1.550	0.0576	0.49	.Q	.	.	.	.
1.567	0.0582	0.49	.Q	.	.	.	.
1.583	0.0589	0.49	.Q	.	.	.	.
1.600	0.0596	0.49	.Q	.	.	.	.
1.617	0.0602	0.49	.Q	.	.	.	.
1.633	0.0609	0.49	.Q	.	.	.	.
1.650	0.0616	0.49	.Q	.	.	.	.
1.667	0.0622	0.49	.Q	.	.	.	.
1.683	0.0629	0.49	.Q	.	.	.	.
1.700	0.0636	0.49	.Q	.	.	.	.
1.717	0.0643	0.49	.Q	.	.	.	.
1.733	0.0649	0.49	.Q	.	.	.	.
1.750	0.0656	0.49	.Q	.	.	.	.
1.767	0.0663	0.49	.Q	.	.	.	.
1.783	0.0670	0.49	.Q	.	.	.	.
1.800	0.0676	0.49	.Q	.	.	.	.
1.817	0.0683	0.49	.Q	.	.	.	.
1.833	0.0690	0.49	.Q	.	.	.	.
1.850	0.0697	0.49	.Q	.	.	.	.
1.867	0.0703	0.49	.Q	.	.	.	.
1.883	0.0710	0.49	.Q	.	.	.	.
1.900	0.0717	0.49	.Q	.	.	.	.
1.917	0.0724	0.49	.Q	.	.	.	.
1.933	0.0730	0.49	.Q	.	.	.	.
1.950	0.0737	0.49	.Q	.	.	.	.
1.967	0.0744	0.49	.Q	.	.	.	.
1.983	0.0751	0.49	.Q	.	.	.	.
2.000	0.0758	0.49	.Q	.	.	.	.
2.017	0.0764	0.49	.Q	.	.	.	.
2.033	0.0771	0.49	.Q	.	.	.	.
2.050	0.0778	0.49	.Q	.	.	.	.
2.067	0.0785	0.49	.Q	.	.	.	.
2.083	0.0792	0.50	.Q	.	.	.	.
2.100	0.0798	0.50	.Q	.	.	.	.
2.117	0.0805	0.50	.Q	.	.	.	.
2.133	0.0812	0.50	.Q	.	.	.	.
2.150	0.0819	0.50	.Q	.	.	.	.
2.167	0.0826	0.50	.Q	.	.	.	.
2.183	0.0833	0.50	.Q	.	.	.	.
2.200	0.0839	0.50	.Q	.	.	.	.
2.217	0.0846	0.50	.Q	.	.	.	.
2.233	0.0853	0.50	.Q	.	.	.	.
2.250	0.0860	0.50	.Q	.	.	.	.
2.267	0.0867	0.50	.Q	.	.	.	.
2.283	0.0874	0.50	.Q	.	.	.	.
2.300	0.0881	0.50	.Q	.	.	.	.
2.317	0.0887	0.50	.Q	.	.	.	.
2.333	0.0894	0.50	.Q	.	.	.	.
2.350	0.0901	0.50	.Q	.	.	.	.
2.367	0.0908	0.50	.Q	.	.	.	.
2.383	0.0915	0.50	.Q	.	.	.	.
2.400	0.0922	0.50	.Q	.	.	.	.
2.417	0.0929	0.50	.Q	.	.	.	.
2.433	0.0936	0.50	.Q	.	.	.	.
2.450	0.0943	0.50	.Q	.	.	.	.
2.467	0.0950	0.50	.Q	.	.	.	.
2.483	0.0956	0.50	.Q	.	.	.	.
2.500	0.0963	0.50	.Q	.	.	.	.
2.517	0.0970	0.50	.QV	.	.	.	.
2.533	0.0977	0.50	.QV	.	.	.	.
2.550	0.0984	0.50	.QV	.	.	.	.
2.567	0.0991	0.50	.QV	.	.	.	.
2.583	0.0998	0.50	.QV	.	.	.	.
2.600	0.1005	0.50	.QV	.	.	.	.
2.617	0.1012	0.50	.QV	.	.	.	.
2.633	0.1019	0.50	.QV	.	.	.	.
2.650	0.1026	0.50	.QV	.	.	.	.
2.667	0.1033	0.51	.QV	.	.	.	.
2.683	0.1040	0.51	.QV	.	.	.	.

2.700	0.1047	0.51	.QV	.	.	.	.
2.717	0.1054	0.51	.QV	.	.	.	.
2.733	0.1061	0.51	.QV	.	.	.	.
2.750	0.1068	0.51	.QV	.	.	.	.
2.767	0.1075	0.51	.QV	.	.	.	.
2.783	0.1082	0.51	.QV	.	.	.	.
2.800	0.1089	0.51	.QV	.	.	.	.
2.817	0.1096	0.51	.QV	.	.	.	.
2.833	0.1103	0.51	.QV	.	.	.	.
2.850	0.1110	0.51	.QV	.	.	.	.
2.867	0.1117	0.51	.QV	.	.	.	.
2.883	0.1124	0.51	.QV	.	.	.	.
2.900	0.1131	0.51	.QV	.	.	.	.
2.917	0.1138	0.51	.QV	.	.	.	.
2.933	0.1145	0.51	.QV	.	.	.	.
2.950	0.1152	0.51	.QV	.	.	.	.
2.967	0.1159	0.51	.QV	.	.	.	.
2.983	0.1166	0.51	.QV	.	.	.	.
3.000	0.1173	0.51	.QV	.	.	.	.
3.017	0.1180	0.51	.QV	.	.	.	.
3.033	0.1187	0.51	.QV	.	.	.	.
3.050	0.1194	0.51	.QV	.	.	.	.
3.067	0.1201	0.51	.QV	.	.	.	.
3.083	0.1208	0.51	.QV	.	.	.	.
3.100	0.1215	0.51	.QV	.	.	.	.
3.117	0.1222	0.51	.QV	.	.	.	.
3.133	0.1230	0.52	.QV	.	.	.	.
3.150	0.1237	0.52	.QV	.	.	.	.
3.167	0.1244	0.52	.QV	.	.	.	.
3.183	0.1251	0.52	.QV	.	.	.	.
3.200	0.1258	0.52	.QV	.	.	.	.
3.217	0.1265	0.52	.QV	.	.	.	.
3.233	0.1272	0.52	.QV	.	.	.	.
3.250	0.1279	0.52	.QV	.	.	.	.
3.267	0.1286	0.52	.QV	.	.	.	.
3.283	0.1294	0.52	.QV	.	.	.	.
3.300	0.1301	0.52	.QV	.	.	.	.
3.317	0.1308	0.52	.QV	.	.	.	.
3.333	0.1315	0.52	.QV	.	.	.	.
3.350	0.1322	0.52	.QV	.	.	.	.
3.367	0.1329	0.52	.QV	.	.	.	.
3.383	0.1336	0.52	.QV	.	.	.	.
3.400	0.1344	0.52	.QV	.	.	.	.
3.417	0.1351	0.52	.QV	.	.	.	.
3.433	0.1358	0.52	.QV	.	.	.	.
3.450	0.1365	0.52	.QV	.	.	.	.
3.467	0.1372	0.52	.QV	.	.	.	.
3.483	0.1380	0.52	.QV	.	.	.	.
3.500	0.1387	0.52	.QV	.	.	.	.
3.517	0.1394	0.52	.QV	.	.	.	.
3.533	0.1401	0.52	.QV	.	.	.	.
3.550	0.1408	0.52	.QV	.	.	.	.
3.567	0.1416	0.52	.QV	.	.	.	.
3.583	0.1423	0.52	.QV	.	.	.	.
3.600	0.1430	0.52	.QV	.	.	.	.
3.617	0.1437	0.52	.QV	.	.	.	.
3.633	0.1444	0.52	.QV	.	.	.	.
3.650	0.1452	0.53	.Q V	.	.	.	.
3.667	0.1459	0.53	.Q V	.	.	.	.
3.683	0.1466	0.53	.Q V	.	.	.	.
3.700	0.1473	0.53	.Q V	.	.	.	.
3.717	0.1481	0.53	.Q V	.	.	.	.
3.733	0.1488	0.53	.Q V	.	.	.	.
3.750	0.1495	0.53	.Q V	.	.	.	.
3.767	0.1502	0.53	.Q V	.	.	.	.
3.783	0.1510	0.53	.Q V	.	.	.	.
3.800	0.1517	0.53	.Q V	.	.	.	.
3.817	0.1524	0.53	.Q V	.	.	.	.
3.833	0.1532	0.53	.Q V	.	.	.	.
3.850	0.1539	0.53	.Q V	.	.	.	.
3.867	0.1546	0.53	.Q V	.	.	.	.
3.883	0.1553	0.53	.Q V	.	.	.	.
3.900	0.1561	0.53	.Q V	.	.	.	.
3.917	0.1568	0.53	.Q V	.	.	.	.
3.933	0.1575	0.53	.Q V	.	.	.	.
3.950	0.1583	0.53	.Q V	.	.	.	.
3.967	0.1590	0.53	.Q V	.	.	.	.
3.983	0.1597	0.53	.Q V	.	.	.	.
4.000	0.1605	0.53	.Q V	.	.	.	.
4.017	0.1612	0.53	.Q V	.	.	.	.
4.033	0.1619	0.53	.Q V	.	.	.	.
4.050	0.1627	0.53	.Q V	.	.	.	.
4.067	0.1634	0.53	.Q V	.	.	.	.
4.083	0.1641	0.53	.Q V	.	.	.	.
4.100	0.1649	0.53	.Q V	.	.	.	.
4.117	0.1656	0.53	.Q V	.	.	.	.
4.133	0.1664	0.54	.Q V	.	.	.	.
4.150	0.1671	0.54	.Q V	.	.	.	.
4.167	0.1678	0.54	.Q V	.	.	.	.
4.183	0.1686	0.54	.Q V	.	.	.	.
4.200	0.1693	0.54	.Q V	.	.	.	.
4.217	0.1701	0.54	.Q V	.	.	.	.
4.233	0.1708	0.54	.Q V	.	.	.	.
4.250	0.1715	0.54	.Q V	.	.	.	.
4.267	0.1723	0.54	.Q V	.	.	.	.
4.283	0.1730	0.54	.Q V	.	.	.	.
4.300	0.1738	0.54	.Q V	.	.	.	.
4.317	0.1745	0.54	.Q V	.	.	.	.
4.333	0.1753	0.54	.Q V	.	.	.	.
4.350	0.1760	0.54	.Q V	.	.	.	.
4.367	0.1768	0.54	.Q V	.	.	.	.
4.383	0.1775	0.54	.Q V	.	.	.	.
4.400	0.1782	0.54	.Q V	.	.	.	.
4.417	0.1790	0.54	.Q V	.	.	.	.
4.433	0.1797	0.54	.Q V	.	.	.	.
4.450	0.1805	0.54	.Q V	.	.	.	.
4.467	0.1812	0.54	.Q V	.	.	.	.
4.483	0.1820	0.54	.Q V	.	.	.	.
4.500	0.1827	0.54	.Q V	.	.	.	.
4.517	0.1835	0.54	.Q V	.	.	.	.
4.533	0.1842	0.54	.Q V	.	.	.	.
4.550	0.1850	0.55	.Q V	.	.	.	.
4.567	0.1857	0.55	.Q V	.	.	.	.
4.583	0.1865	0.55	.Q V	.	.	.	.
4.600	0.1872	0.55	.Q V	.	.	.	.
4.617	0.1880	0.55	.Q V	.	.	.	.
4.633	0.1887	0.55	.Q V	.	.	.	.
4.650	0.1895	0.55	.Q V	.	.	.	.

4.667	0.1903	0.55	.Q	V	.	.	.	.
4.683	0.1910	0.55	.Q	V	.	.	.	.
4.700	0.1918	0.55	.Q	V	.	.	.	.
4.717	0.1925	0.55	.Q	V	.	.	.	.
4.733	0.1933	0.55	.Q	V	.	.	.	.
4.750	0.1940	0.55	.Q	V	.	.	.	.
4.767	0.1948	0.55	.Q	V	.	.	.	.
4.783	0.1956	0.55	.Q	V	.	.	.	.
4.800	0.1963	0.55	.Q	V	.	.	.	.
4.817	0.1971	0.55	.Q	V	.	.	.	.
4.833	0.1978	0.55	.Q	V	.	.	.	.
4.850	0.1986	0.55	.Q	V	.	.	.	.
4.867	0.1994	0.55	.Q	V	.	.	.	.
4.883	0.2001	0.55	.Q	V	.	.	.	.
4.900	0.2009	0.55	.Q	V	.	.	.	.
4.917	0.2017	0.55	.Q	V	.	.	.	.
4.933	0.2024	0.55	.Q	V	.	.	.	.
4.950	0.2032	0.56	.Q	V	.	.	.	.
4.967	0.2039	0.56	.Q	V	.	.	.	.
4.983	0.2047	0.56	.Q	V	.	.	.	.
5.000	0.2055	0.56	.Q	V	.	.	.	.
5.017	0.2062	0.56	.Q	V	.	.	.	.
5.033	0.2070	0.56	.Q	V	.	.	.	.
5.050	0.2078	0.56	.Q	V	.	.	.	.
5.067	0.2086	0.56	.Q	V	.	.	.	.
5.083	0.2093	0.56	.Q	V	.	.	.	.
5.100	0.2101	0.56	.Q	V	.	.	.	.
5.117	0.2109	0.56	.Q	V	.	.	.	.
5.133	0.2116	0.56	.Q	V	.	.	.	.
5.150	0.2124	0.56	.Q	V	.	.	.	.
5.167	0.2132	0.56	.Q	V	.	.	.	.
5.183	0.2140	0.56	.Q	V	.	.	.	.
5.200	0.2147	0.56	.Q	V	.	.	.	.
5.217	0.2155	0.56	.Q	V	.	.	.	.
5.233	0.2163	0.56	.Q	V	.	.	.	.
5.250	0.2170	0.56	.Q	V	.	.	.	.
5.267	0.2178	0.56	.Q	V	.	.	.	.
5.283	0.2186	0.56	.Q	V	.	.	.	.
5.300	0.2194	0.56	.Q	V	.	.	.	.
5.317	0.2202	0.56	.Q	V	.	.	.	.
5.333	0.2209	0.57	.Q	V	.	.	.	.
5.350	0.2217	0.57	.Q	V	.	.	.	.
5.367	0.2225	0.57	.Q	V	.	.	.	.
5.383	0.2233	0.57	.Q	V	.	.	.	.
5.400	0.2241	0.57	.Q	V	.	.	.	.
5.417	0.2248	0.57	.Q	V	.	.	.	.
5.433	0.2256	0.57	.Q	V	.	.	.	.
5.450	0.2264	0.57	.Q	V	.	.	.	.
5.467	0.2272	0.57	.Q	V	.	.	.	.
5.483	0.2280	0.57	.Q	V	.	.	.	.
5.500	0.2288	0.57	.Q	V	.	.	.	.
5.517	0.2295	0.57	.Q	V	.	.	.	.
5.533	0.2303	0.57	.Q	V	.	.	.	.
5.550	0.2311	0.57	.Q	V	.	.	.	.
5.567	0.2319	0.57	.Q	V	.	.	.	.
5.583	0.2327	0.57	.Q	V	.	.	.	.
5.600	0.2335	0.57	.Q	V	.	.	.	.
5.617	0.2343	0.57	.Q	V	.	.	.	.
5.633	0.2350	0.57	.Q	V	.	.	.	.
5.650	0.2358	0.57	.Q	V	.	.	.	.
5.667	0.2366	0.57	.Q	V	.	.	.	.
5.683	0.2374	0.57	.Q	V	.	.	.	.
5.700	0.2382	0.58	.Q	V	.	.	.	.
5.717	0.2390	0.58	.Q	V	.	.	.	.
5.733	0.2398	0.58	.Q	V	.	.	.	.
5.750	0.2406	0.58	.Q	V	.	.	.	.
5.767	0.2414	0.58	.Q	V	.	.	.	.
5.783	0.2422	0.58	.Q	V	.	.	.	.
5.800	0.2430	0.58	.Q	V	.	.	.	.
5.817	0.2438	0.58	.Q	V	.	.	.	.
5.833	0.2446	0.58	.Q	V	.	.	.	.
5.850	0.2454	0.58	.Q	V	.	.	.	.
5.867	0.2462	0.58	.Q	V	.	.	.	.
5.883	0.2470	0.58	.Q	V	.	.	.	.
5.900	0.2478	0.58	.Q	V	.	.	.	.
5.917	0.2486	0.58	.Q	V	.	.	.	.
5.933	0.2494	0.58	.Q	V	.	.	.	.
5.950	0.2502	0.58	.Q	V	.	.	.	.
5.967	0.2510	0.58	.Q	V	.	.	.	.
5.983	0.2518	0.58	.Q	V	.	.	.	.
6.000	0.2526	0.58	.Q	V	.	.	.	.
6.017	0.2534	0.58	.Q	V	.	.	.	.
6.033	0.2542	0.58	.Q	V	.	.	.	.
6.050	0.2550	0.59	.Q	V	.	.	.	.
6.067	0.2558	0.59	.Q	V	.	.	.	.
6.083	0.2566	0.59	.Q	V	.	.	.	.
6.100	0.2574	0.59	.Q	V	.	.	.	.
6.117	0.2582	0.59	.Q	V	.	.	.	.
6.133	0.2590	0.59	.Q	V	.	.	.	.
6.150	0.2598	0.59	.Q	V	.	.	.	.
6.167	0.2607	0.59	.Q	V	.	.	.	.
6.183	0.2615	0.59	.Q	V	.	.	.	.
6.200	0.2623	0.59	.Q	V	.	.	.	.
6.217	0.2631	0.59	.Q	V	.	.	.	.
6.233	0.2639	0.59	.Q	V	.	.	.	.
6.250	0.2647	0.59	.Q	V	.	.	.	.
6.267	0.2655	0.59	.Q	V	.	.	.	.
6.283	0.2664	0.59	.Q	V	.	.	.	.
6.300	0.2672	0.59	.Q	V	.	.	.	.
6.317	0.2680	0.59	.Q	V	.	.	.	.
6.333	0.2688	0.59	.Q	V	.	.	.	.
6.350	0.2696	0.59	.Q	V	.	.	.	.
6.367	0.2704	0.59	.Q	V	.	.	.	.
6.383	0.2713	0.59	.Q	V	.	.	.	.
6.400	0.2721	0.60	.Q	V	.	.	.	.
6.417	0.2729	0.60	.Q	V	.	.	.	.
6.433	0.2737	0.60	.Q	V	.	.	.	.
6.450	0.2745	0.60	.Q	V	.	.	.	.
6.467	0.2754	0.60	.Q	V	.	.	.	.
6.483	0.2762	0.60	.Q	V	.	.	.	.
6.500	0.2770	0.60	.Q	V	.	.	.	.
6.517	0.2778	0.60	.Q	V	.	.	.	.
6.533	0.2787	0.60	.Q	V	.	.	.	.
6.550	0.2795	0.60	.Q	V	.	.	.	.
6.567	0.2803	0.60	.Q	V	.	.	.	.
6.583	0.2812	0.60	.Q	V	.	.	.	.
6.600	0.2820	0.60	.Q	V	.	.	.	.
6.617	0.2828	0.60	.Q	V	.	.	.	.

6.633	0.2836	0.60	.Q	V	.	.	.	.
6.650	0.2845	0.60	.Q	V	.	.	.	.
6.667	0.2853	0.60	.Q	V	.	.	.	.
6.683	0.2861	0.60	.Q	V	.	.	.	.
6.700	0.2870	0.60	.Q	V	.	.	.	.
6.717	0.2878	0.60	.Q	V	.	.	.	.
6.733	0.2886	0.61	.Q	V	.	.	.	.
6.750	0.2895	0.61	.Q	V	.	.	.	.
6.767	0.2903	0.61	.Q	V	.	.	.	.
6.783	0.2911	0.61	.Q	V	.	.	.	.
6.800	0.2920	0.61	.Q	V	.	.	.	.
6.817	0.2928	0.61	.Q	V	.	.	.	.
6.833	0.2937	0.61	.Q	V	.	.	.	.
6.850	0.2945	0.61	.Q	V	.	.	.	.
6.867	0.2953	0.61	.Q	V	.	.	.	.
6.883	0.2962	0.61	.Q	V	.	.	.	.
6.900	0.2970	0.61	.Q	V	.	.	.	.
6.917	0.2979	0.61	.Q	V	.	.	.	.
6.933	0.2987	0.61	.Q	V	.	.	.	.
6.950	0.2996	0.61	.Q	V	.	.	.	.
6.967	0.3004	0.61	.Q	V	.	.	.	.
6.983	0.3013	0.61	.Q	V	.	.	.	.
7.000	0.3021	0.61	.Q	V	.	.	.	.
7.017	0.3029	0.62	.Q	V	.	.	.	.
7.033	0.3038	0.62	.Q	V	.	.	.	.
7.050	0.3046	0.62	.Q	V	.	.	.	.
7.067	0.3055	0.62	.Q	V	.	.	.	.
7.083	0.3063	0.62	.Q	V	.	.	.	.
7.100	0.3072	0.62	.Q	V	.	.	.	.
7.117	0.3080	0.62	.Q	V	.	.	.	.
7.133	0.3089	0.62	.Q	V	.	.	.	.
7.150	0.3098	0.62	.Q	V	.	.	.	.
7.167	0.3106	0.62	.Q	V	.	.	.	.
7.183	0.3115	0.62	.Q	V	.	.	.	.
7.200	0.3123	0.62	.Q	V	.	.	.	.
7.217	0.3132	0.62	.Q	V	.	.	.	.
7.233	0.3140	0.62	.Q	V	.	.	.	.
7.250	0.3149	0.62	.Q	V	.	.	.	.
7.267	0.3158	0.63	.Q	V	.	.	.	.
7.283	0.3166	0.63	.Q	V	.	.	.	.
7.300	0.3175	0.63	.Q	V	.	.	.	.
7.317	0.3183	0.63	.Q	V	.	.	.	.
7.333	0.3192	0.63	.Q	V	.	.	.	.
7.350	0.3201	0.63	.Q	V	.	.	.	.
7.367	0.3209	0.63	.Q	V	.	.	.	.
7.383	0.3218	0.63	.Q	V	.	.	.	.
7.400	0.3227	0.63	.Q	V	.	.	.	.
7.417	0.3235	0.63	.Q	V	.	.	.	.
7.433	0.3244	0.63	.Q	V	.	.	.	.
7.450	0.3253	0.63	.Q	V	.	.	.	.
7.467	0.3261	0.63	.Q	V	.	.	.	.
7.483	0.3270	0.63	.Q	V	.	.	.	.
7.500	0.3279	0.63	.Q	V	.	.	.	.
7.517	0.3287	0.63	.Q	V	.	.	.	.
7.533	0.3296	0.63	.Q	V	.	.	.	.
7.550	0.3305	0.63	.Q	V	.	.	.	.
7.567	0.3314	0.64	.Q	V	.	.	.	.
7.583	0.3322	0.64	.Q	V	.	.	.	.
7.600	0.3331	0.64	.Q	V	.	.	.	.
7.617	0.3340	0.64	.Q	V	.	.	.	.
7.633	0.3349	0.64	.Q	V	.	.	.	.
7.650	0.3358	0.64	.Q	V	.	.	.	.
7.667	0.3366	0.64	.Q	V	.	.	.	.
7.683	0.3375	0.64	. Q	V	.	.	.	.
7.700	0.3384	0.64	. Q	V	.	.	.	.
7.717	0.3393	0.64	. Q	V	.	.	.	.
7.733	0.3402	0.64	. Q	V	.	.	.	.
7.750	0.3411	0.64	. Q	V	.	.	.	.
7.767	0.3419	0.64	. Q	V	.	.	.	.
7.783	0.3428	0.64	. Q	V	.	.	.	.
7.800	0.3437	0.64	. Q	V	.	.	.	.
7.817	0.3446	0.64	. Q	V	.	.	.	.
7.833	0.3455	0.64	. Q	V	.	.	.	.
7.850	0.3464	0.65	. Q	V	.	.	.	.
7.867	0.3473	0.65	. Q	V	.	.	.	.
7.883	0.3482	0.65	. Q	V	.	.	.	.
7.900	0.3491	0.65	. Q	V	.	.	.	.
7.917	0.3499	0.65	. Q	V	.	.	.	.
7.933	0.3508	0.65	. Q	V	.	.	.	.
7.950	0.3517	0.65	. Q	V	.	.	.	.
7.967	0.3526	0.65	. Q	V	.	.	.	.
7.983	0.3535	0.65	. Q	V	.	.	.	.
8.000	0.3544	0.65	. Q	V	.	.	.	.
8.017	0.3553	0.65	. Q	V	.	.	.	.
8.033	0.3562	0.65	. Q	V	.	.	.	.
8.050	0.3571	0.65	. Q	V	.	.	.	.
8.067	0.3580	0.66	. Q	V	.	.	.	.
8.083	0.3589	0.66	. Q	V	.	.	.	.
8.100	0.3598	0.66	. Q	V	.	.	.	.
8.117	0.3607	0.66	. Q	V	.	.	.	.
8.133	0.3617	0.66	. Q	V	.	.	.	.
8.150	0.3626	0.66	. Q	V	.	.	.	.
8.167	0.3635	0.66	. Q	V	.	.	.	.
8.183	0.3644	0.66	. Q	V	.	.	.	.
8.200	0.3653	0.66	. Q	V	.	.	.	.
8.217	0.3662	0.66	. Q	V	.	.	.	.
8.233	0.3671	0.66	. Q	V	.	.	.	.
8.250	0.3680	0.66	. Q	V	.	.	.	.
8.267	0.3689	0.66	. Q	V	.	.	.	.
8.283	0.3698	0.66	. Q	V	.	.	.	.
8.300	0.3708	0.66	. Q	V	.	.	.	.
8.317	0.3717	0.67	. Q	V	.	.	.	.
8.333	0.3726	0.67	. Q	V	.	.	.	.
8.350	0.3735	0.67	. Q	V	.	.	.	.
8.367	0.3744	0.67	. Q	V	.	.	.	.
8.383	0.3754	0.67	. Q	V	.	.	.	.
8.400	0.3763	0.67	. Q	V	.	.	.	.
8.417	0.3772	0.67	. Q	V	.	.	.	.
8.433	0.3781	0.67	. Q	V	.	.	.	.
8.450	0.3790	0.67	. Q	V	.	.	.	.
8.467	0.3800	0.67	. Q	V	.	.	.	.
8.483	0.3809	0.67	. Q	V	.	.	.	.
8.500	0.3818	0.67	. Q	V	.	.	.	.
8.517	0.3828	0.67	. Q	V	.	.	.	.
8.533	0.3837	0.67	. Q	V	.	.	.	.
8.550	0.3846	0.67	. Q	V	.	.	.	.
8.567	0.3855	0.67	. Q	V	.	.	.	.
8.583	0.3865	0.68	. Q	V	.	.	.	.

8.600	0.3874	0.68	.	Q	V	.	.	.
8.617	0.3883	0.68	.	Q	V	.	.	.
8.633	0.3893	0.68	.	Q	V	.	.	.
8.650	0.3902	0.68	.	Q	V	.	.	.
8.667	0.3911	0.68	.	Q	V	.	.	.
8.683	0.3921	0.68	.	Q	V	.	.	.
8.700	0.3930	0.68	.	Q	V	.	.	.
8.717	0.3940	0.68	.	Q	V	.	.	.
8.733	0.3949	0.69	.	Q	V	.	.	.
8.750	0.3959	0.69	.	Q	V	.	.	.
8.767	0.3968	0.69	.	Q	V	.	.	.
8.783	0.3977	0.69	.	Q	V	.	.	.
8.800	0.3987	0.69	.	Q	V	.	.	.
8.817	0.3996	0.69	.	Q	V	.	.	.
8.833	0.4006	0.69	.	Q	V	.	.	.
8.850	0.4015	0.69	.	Q	V	.	.	.
8.867	0.4025	0.69	.	Q	V	.	.	.
8.883	0.4034	0.69	.	Q	V	.	.	.
8.900	0.4044	0.69	.	Q	V	.	.	.
8.917	0.4053	0.69	.	Q	V	.	.	.
8.933	0.4063	0.69	.	Q	V	.	.	.
8.950	0.4073	0.69	.	Q	V	.	.	.
8.967	0.4082	0.69	.	Q	V	.	.	.
8.983	0.4092	0.70	.	Q	V	.	.	.
9.000	0.4101	0.70	.	Q	V	.	.	.
9.017	0.4111	0.70	.	Q	V	.	.	.
9.033	0.4120	0.70	.	Q	V	.	.	.
9.050	0.4130	0.70	.	Q	V	.	.	.
9.067	0.4140	0.70	.	Q	V	.	.	.
9.083	0.4149	0.70	.	Q	V	.	.	.
9.100	0.4159	0.70	.	Q	V	.	.	.
9.117	0.4169	0.70	.	Q	V	.	.	.
9.133	0.4179	0.70	.	Q	V	.	.	.
9.150	0.4188	0.71	.	Q	V	.	.	.
9.167	0.4198	0.71	.	Q	V	.	.	.
9.183	0.4208	0.71	.	Q	V	.	.	.
9.200	0.4217	0.71	.	Q	V	.	.	.
9.217	0.4227	0.71	.	Q	V	.	.	.
9.233	0.4237	0.71	.	Q	V	.	.	.
9.250	0.4247	0.71	.	Q	V	.	.	.
9.267	0.4256	0.71	.	Q	V	.	.	.
9.283	0.4266	0.71	.	Q	V	.	.	.
9.300	0.4276	0.71	.	Q	V	.	.	.
9.317	0.4286	0.71	.	Q	V	.	.	.
9.333	0.4296	0.71	.	Q	V	.	.	.
9.350	0.4305	0.71	.	Q	V	.	.	.
9.367	0.4315	0.71	.	Q	V	.	.	.
9.383	0.4325	0.72	.	Q	V	.	.	.
9.400	0.4335	0.72	.	Q	V	.	.	.
9.417	0.4345	0.72	.	Q	V.	.	.	.
9.433	0.4355	0.72	.	Q	V.	.	.	.
9.450	0.4365	0.72	.	Q	V.	.	.	.
9.467	0.4375	0.72	.	Q	V.	.	.	.
9.483	0.4385	0.72	.	Q	V.	.	.	.
9.500	0.4395	0.72	.	Q	V.	.	.	.
9.517	0.4405	0.72	.	Q	V.	.	.	.
9.533	0.4415	0.73	.	Q	V.	.	.	.
9.550	0.4425	0.73	.	Q	V.	.	.	.
9.567	0.4435	0.73	.	Q	V.	.	.	.
9.583	0.4445	0.73	.	Q	V.	.	.	.
9.600	0.4455	0.73	.	Q	V.	.	.	.
9.617	0.4465	0.73	.	Q	V.	.	.	.
9.633	0.4475	0.73	.	Q	V.	.	.	.
9.650	0.4485	0.73	.	Q	V.	.	.	.
9.667	0.4495	0.73	.	Q	V.	.	.	.
9.683	0.4505	0.73	.	Q	V.	.	.	.
9.700	0.4515	0.73	.	Q	V.	.	.	.
9.717	0.4525	0.73	.	Q	V.	.	.	.
9.733	0.4535	0.74	.	Q	V.	.	.	.
9.750	0.4545	0.74	.	Q	V.	.	.	.
9.767	0.4556	0.74	.	Q	V.	.	.	.
9.783	0.4566	0.74	.	Q	V.	.	.	.
9.800	0.4576	0.74	.	Q	V.	.	.	.
9.817	0.4586	0.74	.	Q	V.	.	.	.
9.833	0.4596	0.74	.	Q	V.	.	.	.
9.850	0.4607	0.74	.	Q	V.	.	.	.
9.867	0.4617	0.75	.	Q	V.	.	.	.
9.883	0.4627	0.75	.	Q	V.	.	.	.
9.900	0.4637	0.75	.	Q	V.	.	.	.
9.917	0.4648	0.75	.	Q	V.	.	.	.
9.933	0.4658	0.75	.	Q	V.	.	.	.
9.950	0.4668	0.75	.	Q	V.	.	.	.
9.967	0.4679	0.75	.	Q	V.	.	.	.
9.983	0.4689	0.75	.	Q	V.	.	.	.
10.000	0.4699	0.75	.	Q	V.	.	.	.
10.017	0.4710	0.75	.	Q	V.	.	.	.
10.033	0.4720	0.75	.	Q	V.	.	.	.
10.050	0.4730	0.75	.	Q	V.	.	.	.
10.067	0.4741	0.75	.	Q	V.	.	.	.
10.083	0.4751	0.76	.	Q	V.	.	.	.
10.100	0.4762	0.76	.	Q	V.	.	.	.
10.117	0.4772	0.76	.	Q	V.	.	.	.
10.133	0.4783	0.76	.	Q	V.	.	.	.
10.150	0.4793	0.76	.	Q	V.	.	.	.
10.167	0.4804	0.76	.	Q	V.	.	.	.
10.183	0.4814	0.76	.	Q	V.	.	.	.
10.200	0.4825	0.77	.	Q	V	.	.	.
10.217	0.4835	0.77	.	Q	V	.	.	.
10.233	0.4846	0.77	.	Q	V	.	.	.
10.250	0.4856	0.77	.	Q	V	.	.	.
10.267	0.4867	0.77	.	Q	V	.	.	.
10.283	0.4878	0.77	.	Q	V	.	.	.
10.300	0.4888	0.77	.	Q	V	.	.	.
10.317	0.4899	0.77	.	Q	V	.	.	.
10.333	0.4910	0.77	.	Q	V	.	.	.
10.350	0.4920	0.77	.	Q	V	.	.	.
10.367	0.4931	0.77	.	Q	V	.	.	.
10.383	0.4942	0.78	.	Q	V	.	.	.
10.400	0.4952	0.78	.	Q	V	.	.	.
10.417	0.4963	0.78	.	Q	V	.	.	.
10.433	0.4974	0.78	.	Q	V	.	.	.
10.450	0.4984	0.78	.	Q	V	.	.	.
10.467	0.4995	0.78	.	Q	V	.	.	.
10.483	0.5006	0.78	.	Q	V	.	.	.
10.500	0.5017	0.78	.	Q	V	.	.	.
10.517	0.5028	0.79	.	Q	V	.	.	.
10.533	0.5038	0.79	.	Q	V	.	.	.
10.550	0.5049	0.79	.	Q	V	.	.	.

10.567	0.5060	0.79	. Q	V	.	.	.
10.583	0.5071	0.79	. Q	V	.	.	.
10.600	0.5082	0.79	. Q	V	.	.	.
10.617	0.5093	0.79	. Q	V	.	.	.
10.633	0.5104	0.80	. Q	V	.	.	.
10.650	0.5115	0.80	. Q	V	.	.	.
10.667	0.5126	0.80	. Q	V	.	.	.
10.683	0.5137	0.80	. Q	V	.	.	.
10.700	0.5148	0.80	. Q	V	.	.	.
10.717	0.5159	0.80	. Q	V	.	.	.
10.733	0.5170	0.80	. Q	V	.	.	.
10.750	0.5181	0.80	. Q	V	.	.	.
10.767	0.5192	0.80	. Q	V	.	.	.
10.783	0.5203	0.80	. Q	V	.	.	.
10.800	0.5214	0.80	. Q	V	.	.	.
10.817	0.5225	0.81	. Q	V	.	.	.
10.833	0.5236	0.81	. Q	V	.	.	.
10.850	0.5247	0.81	. Q	V	.	.	.
10.867	0.5259	0.81	. Q	V	.	.	.
10.883	0.5270	0.81	. Q	V	.	.	.
10.900	0.5281	0.81	. Q	V	.	.	.
10.917	0.5292	0.82	. Q	V	.	.	.
10.933	0.5304	0.82	. Q	.V	.	.	.
10.950	0.5315	0.82	. Q	.V	.	.	.
10.967	0.5326	0.82	. Q	.V	.	.	.
10.983	0.5338	0.82	. Q	.V	.	.	.
11.000	0.5349	0.82	. Q	.V	.	.	.
11.017	0.5360	0.82	. Q	.V	.	.	.
11.033	0.5372	0.83	. Q	.V	.	.	.
11.050	0.5383	0.83	. Q	.V	.	.	.
11.067	0.5394	0.83	. Q	.V	.	.	.
11.083	0.5406	0.83	. Q	.V	.	.	.
11.100	0.5417	0.83	. Q	.V	.	.	.
11.117	0.5429	0.83	. Q	.V	.	.	.
11.133	0.5440	0.83	. Q	.V	.	.	.
11.150	0.5452	0.83	. Q	.V	.	.	.
11.167	0.5463	0.83	. Q	.V	.	.	.
11.183	0.5475	0.84	. Q	.V	.	.	.
11.200	0.5486	0.84	. Q	.V	.	.	.
11.217	0.5498	0.84	. Q	.V	.	.	.
11.233	0.5509	0.84	. Q	.V	.	.	.
11.250	0.5521	0.84	. Q	.V	.	.	.
11.267	0.5533	0.84	. Q	.V	.	.	.
11.283	0.5544	0.85	. Q	.V	.	.	.
11.300	0.5556	0.85	. Q	.V	.	.	.
11.317	0.5568	0.85	. Q	.V	.	.	.
11.333	0.5579	0.85	. Q	.V	.	.	.
11.350	0.5591	0.85	. Q	.V	.	.	.
11.367	0.5603	0.86	. Q	.V	.	.	.
11.383	0.5615	0.86	. Q	.V	.	.	.
11.400	0.5627	0.86	. Q	.V	.	.	.
11.417	0.5638	0.86	. Q	.V	.	.	.
11.433	0.5650	0.86	. Q	.V	.	.	.
11.450	0.5662	0.86	. Q	.V	.	.	.
11.467	0.5674	0.86	. Q	.V	.	.	.
11.483	0.5686	0.86	. Q	.V	.	.	.
11.500	0.5698	0.86	. Q	.V	.	.	.
11.517	0.5710	0.86	. Q	.V	.	.	.
11.533	0.5722	0.87	. Q	.V	.	.	.
11.550	0.5733	0.87	. Q	.V	.	.	.
11.567	0.5745	0.87	. Q	.V	.	.	.
11.583	0.5757	0.87	. Q	.V	.	.	.
11.600	0.5770	0.87	. Q	.V	.	.	.
11.617	0.5782	0.88	. Q	.V	.	.	.
11.633	0.5794	0.88	. Q	. V	.	.	.
11.650	0.5806	0.88	. Q	. V	.	.	.
11.667	0.5818	0.88	. Q	. V	.	.	.
11.683	0.5830	0.89	. Q	. V	.	.	.
11.700	0.5842	0.89	. Q	. V	.	.	.
11.717	0.5855	0.89	. Q	. V	.	.	.
11.733	0.5867	0.89	. Q	. V	.	.	.
11.750	0.5879	0.89	. Q	. V	.	.	.
11.767	0.5892	0.89	. Q	. V	.	.	.
11.783	0.5904	0.89	. Q	. V	.	.	.
11.800	0.5916	0.90	. Q	. V	.	.	.
11.817	0.5929	0.90	. Q	. V	.	.	.
11.833	0.5941	0.90	. Q	. V	.	.	.
11.850	0.5953	0.90	. Q	. V	.	.	.
11.867	0.5966	0.90	. Q	. V	.	.	.
11.883	0.5978	0.90	. Q	. V	.	.	.
11.900	0.5991	0.90	. Q	. V	.	.	.
11.917	0.6003	0.90	. Q	. V	.	.	.
11.933	0.6016	0.91	. Q	. V	.	.	.
11.950	0.6028	0.91	. Q	. V	.	.	.
11.967	0.6041	0.91	. Q	. V	.	.	.
11.983	0.6053	0.91	. Q	. V	.	.	.
12.000	0.6066	0.91	. Q	. V	.	.	.
12.017	0.6078	0.92	. Q	. V	.	.	.
12.033	0.6091	0.92	. Q	. V	.	.	.
12.050	0.6104	0.92	. Q	. V	.	.	.
12.067	0.6116	0.92	. Q	. V	.	.	.
12.083	0.6129	0.92	. Q	. V	.	.	.
12.100	0.6142	0.92	. Q	. V	.	.	.
12.117	0.6154	0.92	. Q	. V	.	.	.
12.133	0.6167	0.92	. Q	. V	.	.	.
12.150	0.6180	0.92	. Q	. V	.	.	.
12.167	0.6192	0.92	. Q	. V	.	.	.
12.183	0.6205	0.92	. Q	. V	.	.	.
12.200	0.6218	0.92	. Q	. V	.	.	.
12.217	0.6230	0.91	. Q	. V	.	.	.
12.233	0.6243	0.91	. Q	. V	.	.	.
12.250	0.6255	0.91	. Q	. V	.	.	.
12.267	0.6268	0.91	. Q	. V	.	.	.
12.283	0.6280	0.91	. Q	. V	.	.	.
12.300	0.6293	0.91	. Q	. V	.	.	.
12.317	0.6306	0.92	. Q	. V	.	.	.
12.333	0.6318	0.92	. Q	. V	.	.	.
12.350	0.6331	0.92	. Q	. V	.	.	.
12.367	0.6344	0.92	. Q	. V	.	.	.
12.383	0.6357	0.93	. Q	. V	.	.	.
12.400	0.6369	0.93	. Q	. V	.	.	.
12.417	0.6382	0.93	. Q	. V	.	.	.
12.433	0.6395	0.94	. Q	. V	.	.	.
12.450	0.6408	0.94	. Q	. V	.	.	.
12.467	0.6421	0.94	. Q	. V	.	.	.
12.483	0.6434	0.94	. Q	. V	.	.	.
12.500	0.6447	0.94	. Q	. V	.	.	.
12.517	0.6460	0.95	. Q	. V	.	.	.

12.533	0.6473	0.95	.	Q	.	V	.	.	.
12.550	0.6486	0.95	.	Q	.	V	.	.	.
12.567	0.6499	0.95	.	Q	.	V	.	.	.
12.583	0.6512	0.95	.	Q	.	V	.	.	.
12.600	0.6525	0.95	.	Q	.	V	.	.	.
12.617	0.6539	0.96	.	Q	.	V	.	.	.
12.633	0.6552	0.96	.	Q	.	V	.	.	.
12.650	0.6565	0.96	.	Q	.	V	.	.	.
12.667	0.6578	0.96	.	Q	.	V	.	.	.
12.683	0.6592	0.96	.	Q	.	V	.	.	.
12.700	0.6605	0.97	.	Q	.	V	.	.	.
12.717	0.6618	0.97	.	Q	.	V	.	.	.
12.733	0.6632	0.97	.	Q	.	V	.	.	.
12.750	0.6645	0.98	.	Q	.	V	.	.	.
12.767	0.6659	0.98	.	Q	.	V	.	.	.
12.783	0.6672	0.98	.	Q	.	V	.	.	.
12.800	0.6686	0.99	.	Q	.	V	.	.	.
12.817	0.6700	0.99	.	Q	.	V	.	.	.
12.833	0.6713	0.99	.	Q	.	V	.	.	.
12.850	0.6727	1.00	.	Q	.	V	.	.	.
12.867	0.6741	1.00	.	Q	.	V	.	.	.
12.883	0.6754	1.00	.	Q	.	V	.	.	.
12.900	0.6768	1.00	.	Q	.	V	.	.	.
12.917	0.6782	1.00	.	Q	.	V	.	.	.
12.933	0.6796	1.01	.	Q	.	V	.	.	.
12.950	0.6810	1.01	.	Q	.	V	.	.	.
12.967	0.6824	1.01	.	Q	.	V	.	.	.
12.983	0.6838	1.01	.	Q	.	V	.	.	.
13.000	0.6852	1.01	.	Q	.	V	.	.	.
13.017	0.6866	1.02	.	Q	.	V	.	.	.
13.033	0.6880	1.02	.	Q	.	V	.	.	.
13.050	0.6894	1.02	.	Q	.	V	.	.	.
13.067	0.6908	1.03	.	Q	.	V	.	.	.
13.083	0.6922	1.03	.	Q	.	V	.	.	.
13.100	0.6936	1.03	.	Q	.	V	.	.	.
13.117	0.6951	1.04	.	Q	.	V	.	.	.
13.133	0.6965	1.04	.	Q	.	V	.	.	.
13.150	0.6979	1.05	.	Q	.	V	.	.	.
13.167	0.6994	1.05	.	Q	.	V	.	.	.
13.183	0.7008	1.05	.	Q	.	V	.	.	.
13.200	0.7023	1.06	.	Q	.	V	.	.	.
13.217	0.7038	1.06	.	Q	.	V	.	.	.
13.233	0.7052	1.06	.	Q	.	V	.	.	.
13.250	0.7067	1.07	.	Q	.	V	.	.	.
13.267	0.7082	1.07	.	Q	.	V	.	.	.
13.283	0.7096	1.07	.	Q	.	V	.	.	.
13.300	0.7111	1.07	.	Q	.	V	.	.	.
13.317	0.7126	1.07	.	Q	.	V	.	.	.
13.333	0.7141	1.08	.	Q	.	V	.	.	.
13.350	0.7156	1.08	.	Q	.	V	.	.	.
13.367	0.7171	1.08	.	Q	.	V	.	.	.
13.383	0.7185	1.08	.	Q	.	V	.	.	.
13.400	0.7200	1.09	.	Q	.	V	.	.	.
13.417	0.7215	1.09	.	Q	.	V	.	.	.
13.433	0.7231	1.10	.	Q	.	V	.	.	.
13.450	0.7246	1.10	.	Q	.	V	.	.	.
13.467	0.7261	1.11	.	Q	.	V	.	.	.
13.483	0.7276	1.11	.	Q	.	V	.	.	.
13.500	0.7292	1.11	.	Q	.	V	.	.	.
13.517	0.7307	1.12	.	Q	.	V	.	.	.
13.533	0.7322	1.12	.	Q	.	V	.	.	.
13.550	0.7338	1.13	.	Q	.	V	.	.	.
13.567	0.7354	1.13	.	Q	.	V	.	.	.
13.583	0.7369	1.14	.	Q	.	V	.	.	.
13.600	0.7385	1.14	.	Q	.	V	.	.	.
13.617	0.7401	1.15	.	Q	.	V	.	.	.
13.633	0.7417	1.15	.	Q	.	V	.	.	.
13.650	0.7432	1.15	.	Q	.	V	.	.	.
13.667	0.7448	1.15	.	Q	.	V	.	.	.
13.683	0.7464	1.16	.	Q	.	V	.	.	.
13.700	0.7480	1.16	.	Q	.	V	.	.	.
13.717	0.7496	1.16	.	Q	.	V	.	.	.
13.733	0.7512	1.16	.	Q	.	V	.	.	.
13.750	0.7528	1.17	.	Q	.	V	.	.	.
13.767	0.7544	1.17	.	Q	.	V	.	.	.
13.783	0.7561	1.17	.	Q	.	V	.	.	.
13.800	0.7577	1.18	.	Q	.	V	.	.	.
13.817	0.7593	1.19	.	Q	.	V	.	.	.
13.833	0.7610	1.19	.	Q	.	V	.	.	.
13.850	0.7626	1.20	.	Q	.	V	.	.	.
13.867	0.7643	1.21	.	Q	.	V	.	.	.
13.883	0.7659	1.21	.	Q	.	V	.	.	.
13.900	0.7676	1.22	.	Q	.	V	.	.	.
13.917	0.7693	1.22	.	Q	.	V	.	.	.
13.933	0.7710	1.23	.	Q	.	V	.	.	.
13.950	0.7727	1.24	.	Q	.	V	.	.	.
13.967	0.7744	1.24	.	Q	.	V	.	.	.
13.983	0.7761	1.24	.	Q	.	V	.	.	.
14.000	0.7778	1.25	.	Q	.	V	.	.	.
14.017	0.7796	1.25	.	Q	.	V	.	.	.
14.033	0.7813	1.25	.	Q	.	V	.	.	.
14.050	0.7830	1.25	.	Q	.	V	.	.	.
14.067	0.7847	1.26	.	Q	.	V	.	.	.
14.083	0.7865	1.26	.	Q	.	V	.	.	.
14.100	0.7882	1.26	.	Q	.	V	.	.	.
14.117	0.7900	1.26	.	Q	.	V	.	.	.
14.133	0.7917	1.27	.	Q	.	V	.	.	.
14.150	0.7934	1.27	.	Q	.	V	.	.	.
14.167	0.7952	1.27	.	Q	.	V	.	.	.
14.183	0.7969	1.27	.	Q	.	V	.	.	.
14.200	0.7987	1.27	.	Q	.	V	.	.	.
14.217	0.8005	1.27	.	Q	.	V	.	.	.
14.233	0.8022	1.27	.	Q	.	V	.	.	.
14.250	0.8040	1.27	.	Q	.	V	.	.	.
14.267	0.8057	1.28	.	Q	.	V	.	.	.
14.283	0.8075	1.28	.	Q	.	V	.	.	.
14.300	0.8092	1.28	.	Q	.	V	.	.	.
14.317	0.8110	1.28	.	Q	.	V	.	.	.
14.333	0.8128	1.28	.	Q	.	V	.	.	.
14.350	0.8145	1.28	.	Q	.	V	.	.	.
14.367	0.8163	1.29	.	Q	.	V	.	.	.
14.383	0.8181	1.29	.	Q	.	V	.	.	.
14.400	0.8199	1.30	.	Q	.	V	.	.	.
14.417	0.8217	1.30	.	Q	.	V	.	.	.
14.433	0.8235	1.31	.	Q	.	V	.	.	.
14.450	0.8253	1.31	.	Q	.	V	.	.	.
14.467	0.8271	1.32	.	Q	.	V	.	.	.
14.483	0.8289	1.32	.	Q	.	V	.	.	.

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14.500      0.8307      1.33  .   Q     .      V  .         .         .
14.517      0.8326      1.33  .   Q     .      V  .         .         .
14.533      0.8344      1.34  .   Q     .      V  .         .         .
14.550      0.8363      1.35  .   Q     .      V  .         .         .
14.567      0.8382      1.36  .   Q     .      V  .         .         .
14.583      0.8401      1.37  .   Q     .      V  .         .         .
14.600      0.8420      1.39  .   Q     .      V  .         .         .
14.617      0.8439      1.40  .   Q     .      V  .         .         .
14.633      0.8458      1.41  .   Q     .      V  .         .         .
14.650      0.8478      1.42  .   Q     .      V  .         .         .
14.667      0.8498      1.43  .   Q     .      V  .         .         .
14.683      0.8517      1.44  .   Q     .      V  .         .         .
14.700      0.8537      1.45  .   Q     .      V  .         .         .
14.717      0.8557      1.46  .   Q     .      V  .         .         .
14.733      0.8578      1.47  .   Q     .      V  .         .         .
14.750      0.8598      1.47  .   Q     .      V  .         .         .
14.767      0.8618      1.48  .   Q     .      V  .         .         .
14.783      0.8639      1.49  .   Q     .      V  .         .         .
14.800      0.8659      1.49  .   Q     .      V  .         .         .
14.817      0.8680      1.50  .   Q     .       V .         .         .
14.833      0.8701      1.51  .   Q     .       V .         .         .
14.850      0.8722      1.51  .   Q     .       V .         .         .
14.867      0.8743      1.52  .   Q     .       V .         .         .
14.883      0.8764      1.53  .   Q     .       V .         .         .
14.900      0.8785      1.54  .   Q     .       V .         .         .
14.917      0.8807      1.56  .   Q     .       V .         .         .
14.933      0.8828      1.58  .   Q     .       V .         .         .
14.950      0.8850      1.59  .   Q     .       V .         .         .
14.967      0.8872      1.61  .    Q    .       V .         .         .
14.983      0.8895      1.63  .    Q    .       V .         .         .
15.000      0.8917      1.64  .    Q    .       V .         .         .
15.017      0.8940      1.66  .    Q    .       V .         .         .
15.033      0.8963      1.68  .    Q    .       V .         .         .
15.050      0.8987      1.70  .    Q    .       V .         .         .
15.067      0.9010      1.71  .    Q    .       V .         .         .
15.083      0.9034      1.73  .    Q    .       V .         .         .
15.100      0.9058      1.74  .    Q    .       V .         .         .
15.117      0.9082      1.75  .    Q    .       V .         .         .
15.133      0.9106      1.76  .    Q    .       V .         .         .
15.150      0.9131      1.77  .    Q    .       V .         .         .
15.167      0.9155      1.78  .    Q    .        V.         .         .
15.183      0.9180      1.79  .    Q    .        V.         .         .
15.200      0.9205      1.81  .    Q    .        V.         .         .
15.217      0.9230      1.82  .    Q    .        V.         .         .
15.233      0.9255      1.83  .    Q    .        V.         .         .
15.250      0.9281      1.84  .    Q    .        V.         .         .
15.267      0.9306      1.86  .    Q    .        V.         .         .
15.283      0.9333      1.92  .     Q   .        V.         .         .
15.300      0.9360      1.98  .     Q   .        V.         .         .
15.317      0.9388      2.04  .     Q   .        V.         .         .
15.333      0.9417      2.11  .     Q   .        V.         .         .
15.350      0.9447      2.17  .     Q   .        V.         .         .
15.367      0.9478      2.23  .     Q   .        V.         .         .
15.383      0.9509      2.29  .      Q  .        V.         .         .
15.400      0.9542      2.35  .      Q  .        V.         .         .
15.417      0.9575      2.41  .      Q  .        V.         .         .
15.433      0.9609      2.47  .      Q  .        V.         .         .
15.450      0.9644      2.54  .      Q  .         V         .         .
15.467      0.9680      2.62  .       Q .         V         .         .
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15.483      0.9717      2.70  .       Q .        V         .         .
15.500      0.9756      2.79  .       Q .        V         .         .
15.517      0.9795      2.87  .       Q .        V         .         .
15.533      0.9836      2.95  .        Q.        V         .         .
15.550      0.9878      3.04  .        Q.        V         .         .
15.567      0.9921      3.12  .        Q.        V         .         .
15.583      0.9965      3.20  .         Q        V         .         .
15.600      1.0010      3.29  .         Q        V         .         .
15.617      1.0056      3.37  .         Q        V         .         .
15.633      1.0104      3.45  .         Q        V         .         .
15.650      1.0153      3.53  .        .Q       .V         .         .
15.667      1.0202      3.60  .        .Q       .V         .         .
15.683      1.0253      3.67  .        .Q       .V         .         .
15.700      1.0304      3.74  .        .Q       .V         .         .
15.717      1.0357      3.82  .        .Q       .V         .         .
15.733      1.0410      3.89  .       . Q       .V         .         .
15.750      1.0465      3.96  .       . Q       .V         .         .
15.767      1.0521      4.03  .       . Q       .V         .         .
15.783      1.0577      4.10  .       . Q       .V         .         .
15.800      1.0635      4.18  .       .  Q      . V        .         .
15.817      1.0693      4.25  .       .  Q      . V        .         .
15.833      1.0753      4.34  .       .  Q      . V        .         .
15.850      1.0814      4.45  .       .  Q      . V        .         .
15.867      1.0877      4.56  .       .   Q     . V        .         .
15.883      1.0941      4.67  .       .   Q     . V        .         .
15.900      1.1007      4.77  .       .   Q     . V        .         .
15.917      1.1074      4.88  .       .    Q    . V        .         .
15.933      1.1143      4.99  .       .    Q    .  V       .         .
15.950      1.1213      5.10  .       .    Q    .  V       .         .
15.967      1.1285      5.20  .       .     Q   .  V       .         .
15.983      1.1358      5.31  .       .     Q   .  V       .         .
16.000      1.1433      5.42  .       .     Q   .  V       .         .
16.017      1.1513      5.80  .       .       Q .  V       .         .
16.033      1.1602      6.46  .       .        Q   V       .         .
16.050      1.1700      7.11  .       .         . Q V      .         .
16.067      1.1807      7.77  .       .         .  Q       .         .
16.083      1.1923      8.42  .       .         .  V Q     .         .
16.100      1.2048      9.08  .       .         .   V  Q .           .
16.117      1.2182      9.73  .       .         .   V    Q          .
16.133      1.2325     10.39  .       .         .   V    . Q        .
16.150      1.2477     11.04  .       .         .   V    .  Q       .
16.167      1.2638     11.70  .       .         .    V   .    Q     .
16.183      1.2808     12.35  .       .         .    V   .      Q   .
16.200      1.2984     12.80  .       .         .    V   .        Q
16.217      1.3146     11.75  .       .         .     V  .    Q     .
16.233      1.3297     10.96  .       .         .     V  .  Q       .
16.250      1.3437     10.17  .       .         .     V .Q          .
16.267      1.3566      9.37  .       .         .      VQ.          .
16.283      1.3684      8.58  .       .         .    Q V .          .
16.300      1.3792      7.79  .       .         .  Q  V  .          .
16.317      1.3888      6.99  .       .        .Q    V  .          .
16.333      1.3974      6.20  .       .       Q.      V.          .
16.350      1.4048      5.41  .       .    Q  .       V.          .
16.367      1.4112      4.62  .       .  Q    .       V.          .
16.383      1.4166      3.95  .       . Q     .       V.          .
16.400      1.4217      3.74  .       .Q      .       V.          .
16.417      1.4267      3.56  .       .Q      .       V.          .
16.433      1.4313      3.39  .       Q       .       V.          .
16.450      1.4358      3.22  .       Q       .       V.          .
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16.467	1.4400	3.05	.		Q.	.		V.		.
16.483	1.4439	2.87	.		Q	.	.	V.		.
16.500	1.4476	2.70	.		Q	.	.	V		.
16.517	1.4511	2.53	.		Q	.	.	V		.
16.533	1.4544	2.35	.		Q	.	.	V		.
16.550	1.4574	2.18	.	Q		.	.	V		.
16.567	1.4602	2.02	.	Q		.	.	V		.
16.583	1.4629	1.97	.	Q		.	.	V		.
16.600	1.4655	1.93	.	Q		.	.	V		.
16.617	1.4681	1.90	.	Q		.	.	V		.
16.633	1.4707	1.87	.	Q		.	.	V		.
16.650	1.4732	1.83	.	Q		.	.	V		.
16.667	1.4757	1.80	.	Q		.	.	V		.
16.683	1.4781	1.76	.	Q		.	.	V		.
16.700	1.4805	1.73	.	Q		.	.	V		.
16.717	1.4829	1.70	.	Q		.	.	V		.
16.733	1.4852	1.66	.	Q		.	.	V		.
16.750	1.4874	1.63	.	Q		.	.	V		.
16.767	1.4896	1.60	.	Q		.	.	V		.
16.783	1.4918	1.58	.	Q		.	.	V		.
16.800	1.4939	1.56	.	Q		.	.	.V		.
16.817	1.4961	1.54	.	Q		.	.	.V		.
16.833	1.4982	1.52	.	Q		.	.	.V		.
16.850	1.5002	1.50	.	Q		.	.	.V		.
16.867	1.5023	1.48	.	Q		.	.	.V		.
16.883	1.5043	1.46	.	Q		.	.	.V		.
16.900	1.5062	1.44	.	Q		.	.	.V		.
16.917	1.5082	1.42	.	Q		.	.	.V		.
16.933	1.5101	1.40	.	Q		.	.	.V		.
16.950	1.5120	1.38	.	Q		.	.	.V		.
16.967	1.5139	1.37	.	Q		.	.	.V		.
16.983	1.5158	1.35	.	Q		.	.	.V		.
17.000	1.5176	1.34	.	Q		.	.	.V		.
17.017	1.5194	1.32	.	Q		.	.	.V		.
17.033	1.5212	1.31	.	Q		.	.	.V		.
17.050	1.5230	1.30	.	Q		.	.	.V		.
17.067	1.5248	1.28	.	Q		.	.	.V		.
17.083	1.5265	1.27	.	Q		.	.	.V		.
17.100	1.5283	1.25	.	Q		.	.	.V		.
17.117	1.5300	1.24	.	Q		.	.	.V		.
17.133	1.5317	1.23	.	Q		.	.	.V		.
17.150	1.5334	1.23	.	Q		.	.	.V		.
17.167	1.5351	1.23	.	Q		.	.	.V		.
17.183	1.5367	1.22	.	Q		.	.	.V		.
17.200	1.5384	1.22	.	Q		.	.	.V		.
17.217	1.5401	1.22	.	Q		.	.	.V		.
17.233	1.5418	1.22	.	Q		.	.	.V		.
17.250	1.5434	1.21	.	Q		.	.	. V		.
17.267	1.5451	1.21	.	Q		.	.	. V		.
17.283	1.5468	1.21	.	Q		.	.	. V		.
17.300	1.5484	1.21	.	Q		.	.	. V		.
17.317	1.5501	1.20	.	Q		.	.	. V		.
17.333	1.5517	1.19	.	Q		.	.	. V		.
17.350	1.5534	1.18	.	Q		.	.	. V		.
17.367	1.5550	1.18	.	Q		.	.	. V		.
17.383	1.5566	1.17	.	Q		.	.	. V		.
17.400	1.5582	1.16	.	Q		.	.	. V		.
17.417	1.5598	1.15	.	Q		.	.	. V		.
17.433	1.5614	1.14	.	Q		.	.	. V		.
17.450	1.5629	1.14	.	Q		.	.	. V		.
17.467	1.5645	1.13	.	Q		.	.	. V		.
17.483	1.5660	1.12	.	Q		.	.	. V		.
17.500	1.5676	1.11	.	Q		.	.	. V		.
17.517	1.5691	1.10	.	Q		.	.	. V		.
17.533	1.5706	1.10	.	Q		.	.	. V		.
17.550	1.5721	1.09	.	Q		.	.	. V		.
17.567	1.5736	1.09	.	Q		.	.	. V		.
17.583	1.5751	1.08	.	Q		.	.	. V		.
17.600	1.5765	1.07	.	Q		.	.	. V		.
17.617	1.5780	1.07	.	Q		.	.	. V		.
17.633	1.5795	1.06	.	Q		.	.	. V		.
17.650	1.5809	1.05	.	Q		.	.	. V		.
17.667	1.5824	1.05	.	Q		.	.	. V		.
17.683	1.5838	1.04	.	Q		.	.	. V		.
17.700	1.5852	1.03	.	Q		.	.	. V		.
17.717	1.5866	1.03	.	Q		.	.	. V		.
17.733	1.5880	1.02	.	Q		.	.	. V		.
17.750	1.5894	1.02	.	Q		.	.	. V		.
17.767	1.5908	1.01	.	Q		.	.	. V		.
17.783	1.5922	1.01	.	Q		.	.	. V		.
17.800	1.5936	1.00	.	Q		.	.	. V		.
17.817	1.5950	1.00	.	Q		.	.	. V		.
17.833	1.5963	0.99	.	Q		.	.	. V		.
17.850	1.5977	0.98	.	Q		.	.	. V		.
17.867	1.5990	0.98	.	Q		.	.	. V		.
17.883	1.6004	0.97	.	Q		.	.	. V		.
17.900	1.6017	0.97	.	Q		.	.	. V		.
17.917	1.6030	0.96	.	Q		.	.	. V		.
17.933	1.6044	0.96	.	Q		.	.	. V		.
17.950	1.6057	0.96	.	Q		.	.	. V		.
17.967	1.6070	0.95	.	Q		.	.	. V		.
17.983	1.6083	0.95	.	Q		.	.	. V		.
18.000	1.6096	0.94	.	Q		.	.	. V		.
18.017	1.6109	0.94	.	Q		.	.	. V		.
18.033	1.6122	0.93	.	Q		.	.	. V		.
18.050	1.6134	0.93	.	Q		.	.	. V		.
18.067	1.6147	0.92	.	Q		.	.	. V		.
18.083	1.6160	0.92	.	Q		.	.	. V		.
18.100	1.6173	0.92	.	Q		.	.	. V		.
18.117	1.6185	0.92	.	Q		.	.	. V		.
18.133	1.6198	0.92	.	Q		.	.	. V		.
18.150	1.6211	0.92	.	Q		.	.	. V		.
18.167	1.6223	0.92	.	Q		.	.	. V		.
18.183	1.6236	0.92	.	Q		.	.	. V		.
18.200	1.6249	0.92	.	Q		.	.	. V		.
18.217	1.6261	0.92	.	Q		.	.	. V		.
18.233	1.6274	0.92	.	Q		.	.	. V		.
18.250	1.6287	0.92	.	Q		.	.	. V		.
18.267	1.6299	0.91	.	Q		.	.	. V		.
18.283	1.6312	0.91	.	Q		.	.	. V		.
18.300	1.6324	0.91	.	Q		.	.	. V		.
18.317	1.6337	0.90	.	Q		.	.	. V		.
18.333	1.6349	0.90	.	Q		.	.	. V		.
18.350	1.6361	0.89	.	Q		.	.	. V		.
18.367	1.6374	0.89	.	Q		.	.	. V		.
18.383	1.6386	0.89	.	Q		.	.	. V		.
18.400	1.6398	0.88	.	Q		.	.	. V		.
18.417	1.6410	0.88	.	Q		.	.	. V		.

18.433	1.6422	0.88	.	Q	.	.	.	V	.
18.450	1.6434	0.87	.	Q	.	.	.	V	.
18.467	1.6446	0.87	.	Q	.	.	.	V	.
18.483	1.6458	0.87	.	Q	.	.	.	V	.
18.500	1.6470	0.87	.	Q	.	.	.	V	.
18.517	1.6482	0.86	.	Q	.	.	.	V	.
18.533	1.6494	0.86	.	Q	.	.	.	V	.
18.550	1.6506	0.86	.	Q	.	.	.	V	.
18.567	1.6517	0.85	.	Q	.	.	.	V	.
18.583	1.6529	0.85	.	Q	.	.	.	V	.
18.600	1.6541	0.85	.	Q	.	.	.	V	.
18.617	1.6552	0.84	.	Q	.	.	.	V	.
18.633	1.6564	0.84	.	Q	.	.	.	V	.
18.650	1.6575	0.84	.	Q	.	.	.	V	.
18.667	1.6587	0.84	.	Q	.	.	.	V	.
18.683	1.6598	0.83	.	Q	.	.	.	V	.
18.700	1.6610	0.83	.	Q	.	.	.	V	.
18.717	1.6621	0.83	.	Q	.	.	.	V	.
18.733	1.6633	0.82	.	Q	.	.	.	V	.
18.750	1.6644	0.82	.	Q	.	.	.	V	.
18.767	1.6655	0.82	.	Q	.	.	.	V	.
18.783	1.6666	0.82	.	Q	.	.	.	V	.
18.800	1.6678	0.81	.	Q	.	.	.	V	.
18.817	1.6689	0.81	.	Q	.	.	.	V	.
18.833	1.6700	0.81	.	Q	.	.	.	V	.
18.850	1.6711	0.81	.	Q	.	.	.	V	.
18.867	1.6722	0.80	.	Q	.	.	.	V	.
18.883	1.6733	0.80	.	Q	.	.	.	V	.
18.900	1.6744	0.80	.	Q	.	.	.	V	.
18.917	1.6755	0.80	.	Q	.	.	.	V	.
18.933	1.6766	0.79	.	Q	.	.	.	V	.
18.950	1.6777	0.79	.	Q	.	.	.	V	.
18.967	1.6788	0.79	.	Q	.	.	.	V	.
18.983	1.6799	0.79	.	Q	.	.	.	V	.
19.000	1.6809	0.78	.	Q	.	.	.	V	.
19.017	1.6820	0.78	.	Q	.	.	.	V	.
19.033	1.6831	0.78	.	Q	.	.	.	V	.
19.050	1.6842	0.78	.	Q	.	.	.	V	.
19.067	1.6852	0.78	.	Q	.	.	.	V	.
19.083	1.6863	0.77	.	Q	.	.	.	V	.
19.100	1.6874	0.77	.	Q	.	.	.	V	.
19.117	1.6884	0.77	.	Q	.	.	.	V	.
19.133	1.6895	0.77	.	Q	.	.	.	V	.
19.150	1.6905	0.76	.	Q	.	.	.	V	.
19.167	1.6916	0.76	.	Q	.	.	.	V	.
19.183	1.6926	0.76	.	Q	.	.	.	V	.
19.200	1.6937	0.76	.	Q	.	.	.	V	.
19.217	1.6947	0.76	.	Q	.	.	.	V	.
19.233	1.6957	0.75	.	Q	.	.	.	V	.
19.250	1.6968	0.75	.	Q	.	.	.	V	.
19.267	1.6978	0.75	.	Q	.	.	.	V	.
19.283	1.6988	0.75	.	Q	.	.	.	V	.
19.300	1.6999	0.75	.	Q	.	.	.	V	.
19.317	1.7009	0.74	.	Q	.	.	.	V	.
19.333	1.7019	0.74	.	Q	.	.	.	V	.
19.350	1.7029	0.74	.	Q	.	.	.	V	.
19.367	1.7039	0.74	.	Q	.	.	.	V	.
19.383	1.7050	0.74	.	Q	.	.	.	V	.
19.400	1.7060	0.73	.	Q	.	.	.	V	.
19.417	1.7070	0.73	.	Q	.	.	.	V	.
19.433	1.7080	0.73	.	Q	.	.	.	V	.
19.450	1.7090	0.73	.	Q	.	.	.	V	.
19.467	1.7100	0.73	.	Q	.	.	.	V	.
19.483	1.7110	0.72	.	Q	.	.	.	V	.
19.500	1.7120	0.72	.	Q	.	.	.	V	.
19.517	1.7130	0.72	.	Q	.	.	.	V	.
19.533	1.7140	0.72	.	Q	.	.	.	V	.
19.550	1.7149	0.72	.	Q	.	.	.	V	.
19.567	1.7159	0.71	.	Q	.	.	.	V	.
19.583	1.7169	0.71	.	Q	.	.	.	V	.
19.600	1.7179	0.71	.	Q	.	.	.	V	.
19.617	1.7189	0.71	.	Q	.	.	.	V	.
19.633	1.7198	0.71	.	Q	.	.	.	V	.
19.650	1.7208	0.71	.	Q	.	.	.	V	.
19.667	1.7218	0.70	.	Q	.	.	.	V	.
19.683	1.7228	0.70	.	Q	.	.	.	V	.
19.700	1.7237	0.70	.	Q	.	.	.	V	.
19.717	1.7247	0.70	.	Q	.	.	.	V	.
19.733	1.7256	0.70	.	Q	.	.	.	V	.
19.750	1.7266	0.70	.	Q	.	.	.	V	.
19.767	1.7276	0.69	.	Q	.	.	.	V	.
19.783	1.7285	0.69	.	Q	.	.	.	V	.
19.800	1.7295	0.69	.	Q	.	.	.	V	.
19.817	1.7304	0.69	.	Q	.	.	.	V	.
19.833	1.7314	0.69	.	Q	.	.	.	V	.
19.850	1.7323	0.69	.	Q	.	.	.	V	.
19.867	1.7333	0.69	.	Q	.	.	.	V	.
19.883	1.7342	0.68	.	Q	.	.	.	V	.
19.900	1.7351	0.68	.	Q	.	.	.	V	.
19.917	1.7361	0.68	.	Q	.	.	.	V	.
19.933	1.7370	0.68	.	Q	.	.	.	V	.
19.950	1.7379	0.68	.	Q	.	.	.	V	.
19.967	1.7389	0.68	.	Q	.	.	.	V	.
19.983	1.7398	0.67	.	Q	.	.	.	V	.
20.000	1.7407	0.67	.	Q	.	.	.	V	.
20.017	1.7417	0.67	.	Q	.	.	.	V	.
20.033	1.7426	0.67	.	Q	.	.	.	V	.
20.050	1.7435	0.67	.	Q	.	.	.	V	.
20.067	1.7444	0.67	.	Q	.	.	.	V	.
20.083	1.7453	0.67	.	Q	.	.	.	V	.
20.100	1.7462	0.66	.	Q	.	.	.	V	.
20.117	1.7472	0.66	.	Q	.	.	.	V	.
20.133	1.7481	0.66	.	Q	.	.	.	V	.
20.150	1.7490	0.66	.	Q	.	.	.	V	.
20.167	1.7499	0.66	.	Q	.	.	.	V	.
20.183	1.7508	0.66	.	Q	.	.	.	V	.
20.200	1.7517	0.66	.	Q	.	.	.	V	.
20.217	1.7526	0.65	.	Q	.	.	.	V	.
20.233	1.7535	0.65	.	Q	.	.	.	V	.
20.250	1.7544	0.65	.	Q	.	.	.	V	.
20.267	1.7553	0.65	.	Q	.	.	.	V	.
20.283	1.7562	0.65	.	Q	.	.	.	V	.
20.300	1.7571	0.65	.	Q	.	.	.	V	.
20.317	1.7580	0.65	.	Q	.	.	.	V	.
20.333	1.7589	0.65	.	Q	.	.	.	V	.
20.350	1.7597	0.64	.	Q	.	.	.	V	.
20.367	1.7606	0.64	.	Q	.	.	.	V	.
20.383	1.7615	0.64	.	Q	.	.	.	V	.

20.400	1.7624	0.64	. Q	.	.	.	V	.
20.417	1.7633	0.64	.Q	.	.	.	V	.
20.433	1.7641	0.64	.Q	.	.	.	V	.
20.450	1.7650	0.64	.Q	.	.	.	V	.
20.467	1.7659	0.63	.Q	.	.	.	V	.
20.483	1.7668	0.63	.Q	.	.	.	V	.
20.500	1.7676	0.63	.Q	.	.	.	V	.
20.517	1.7685	0.63	.Q	.	.	.	V	.
20.533	1.7694	0.63	.Q	.	.	.	V	.
20.550	1.7702	0.63	.Q	.	.	.	V	.
20.567	1.7711	0.63	.Q	.	.	.	V	.
20.583	1.7720	0.63	.Q	.	.	.	V	.
20.600	1.7728	0.63	.Q	.	.	.	V	.
20.617	1.7737	0.62	.Q	.	.	.	V	.
20.633	1.7746	0.62	.Q	.	.	.	V	.
20.650	1.7754	0.62	.Q	.	.	.	V	.
20.667	1.7763	0.62	.Q	.	.	.	V	.
20.683	1.7771	0.62	.Q	.	.	.	V	.
20.700	1.7780	0.62	.Q	.	.	.	V	.
20.717	1.7788	0.62	.Q	.	.	.	V	.
20.733	1.7797	0.62	.Q	.	.	.	V	.
20.750	1.7805	0.61	.Q	.	.	.	V	.
20.767	1.7814	0.61	.Q	.	.	.	V	.
20.783	1.7822	0.61	.Q	.	.	.	V	.
20.800	1.7830	0.61	.Q	.	.	.	V	.
20.817	1.7839	0.61	.Q	.	.	.	V	.
20.833	1.7847	0.61	.Q	.	.	.	V	.
20.850	1.7856	0.61	.Q	.	.	.	V	.
20.867	1.7864	0.61	.Q	.	.	.	V	.
20.883	1.7872	0.61	.Q	.	.	.	V	.
20.900	1.7881	0.60	.Q	.	.	.	V	.
20.917	1.7889	0.60	.Q	.	.	.	V	.
20.933	1.7897	0.60	.Q	.	.	.	V	.
20.950	1.7906	0.60	.Q	.	.	.	V	.
20.967	1.7914	0.60	.Q	.	.	.	V	.
20.983	1.7922	0.60	.Q	.	.	.	V	.
21.000	1.7930	0.60	.Q	.	.	.	V	.
21.017	1.7939	0.60	.Q	.	.	.	V	.
21.033	1.7947	0.60	.Q	.	.	.	V	.
21.050	1.7955	0.60	.Q	.	.	.	V	.
21.067	1.7963	0.59	.Q	.	.	.	V	.
21.083	1.7971	0.59	.Q	.	.	.	V	.
21.100	1.7979	0.59	.Q	.	.	.	V	.
21.117	1.7988	0.59	.Q	.	.	.	V	.
21.133	1.7996	0.59	.Q	.	.	.	V	.
21.150	1.8004	0.59	.Q	.	.	.	V	.
21.167	1.8012	0.59	.Q	.	.	.	V	.
21.183	1.8020	0.59	.Q	.	.	.	V	.
21.200	1.8028	0.59	.Q	.	.	.	V	.
21.217	1.8036	0.59	.Q	.	.	.	V	.
21.233	1.8044	0.58	.Q	.	.	.	V	.
21.250	1.8052	0.58	.Q	.	.	.	V	.
21.267	1.8060	0.58	.Q	.	.	.	V	.
21.283	1.8068	0.58	.Q	.	.	.	V	.
21.300	1.8076	0.58	.Q	.	.	.	V	.
21.317	1.8084	0.58	.Q	.	.	.	V	.
21.333	1.8092	0.58	.Q	.	.	.	V	.
21.350	1.8100	0.58	.Q	.	.	.	V	.
21.367	1.8108	0.58	.Q	.	.	.	V	.
21.383	1.8116	0.58	.Q	.	.	.	V	.
21.400	1.8124	0.57	.Q	.	.	.	V	.
21.417	1.8132	0.57	.Q	.	.	.	V	.
21.433	1.8140	0.57	.Q	.	.	.	V	.
21.450	1.8148	0.57	.Q	.	.	.	V	.
21.467	1.8156	0.57	.Q	.	.	.	V	.
21.483	1.8163	0.57	.Q	.	.	.	V	.
21.500	1.8171	0.57	.Q	.	.	.	V	.
21.517	1.8179	0.57	.Q	.	.	.	V	.
21.533	1.8187	0.57	.Q	.	.	.	V	.
21.550	1.8195	0.57	.Q	.	.	.	V	.
21.567	1.8202	0.57	.Q	.	.	.	V	.
21.583	1.8210	0.56	.Q	.	.	.	V	.
21.600	1.8218	0.56	.Q	.	.	.	V	.
21.617	1.8226	0.56	.Q	.	.	.	V	.
21.633	1.8234	0.56	.Q	.	.	.	V	.
21.650	1.8241	0.56	.Q	.	.	.	V	.
21.667	1.8249	0.56	.Q	.	.	.	V	.
21.683	1.8257	0.56	.Q	.	.	.	V	.
21.700	1.8264	0.56	.Q	.	.	.	V	.
21.717	1.8272	0.56	.Q	.	.	.	V	.
21.733	1.8280	0.56	.Q	.	.	.	V	.
21.750	1.8287	0.56	.Q	.	.	.	V	.
21.767	1.8295	0.56	.Q	.	.	.	V	.
21.783	1.8303	0.55	.Q	.	.	.	V	.
21.800	1.8310	0.55	.Q	.	.	.	V	.
21.817	1.8318	0.55	.Q	.	.	.	V	.
21.833	1.8326	0.55	.Q	.	.	.	V	.
21.850	1.8333	0.55	.Q	.	.	.	V	.
21.867	1.8341	0.55	.Q	.	.	.	V	.
21.883	1.8348	0.55	.Q	.	.	.	V	.
21.900	1.8356	0.55	.Q	.	.	.	V	.
21.917	1.8363	0.55	.Q	.	.	.	V	.
21.933	1.8371	0.55	.Q	.	.	.	V	.
21.950	1.8378	0.55	.Q	.	.	.	V	.
21.967	1.8386	0.55	.Q	.	.	.	V	.
21.983	1.8393	0.54	.Q	.	.	.	V	.
22.000	1.8401	0.54	.Q	.	.	.	V	.
22.017	1.8408	0.54	.Q	.	.	.	V	.
22.033	1.8416	0.54	.Q	.	.	.	V	.
22.050	1.8423	0.54	.Q	.	.	.	V	.
22.067	1.8431	0.54	.Q	.	.	.	V	.
22.083	1.8438	0.54	.Q	.	.	.	V	.
22.100	1.8446	0.54	.Q	.	.	.	V	.
22.117	1.8453	0.54	.Q	.	.	.	V	.
22.133	1.8461	0.54	.Q	.	.	.	V	.
22.150	1.8468	0.54	.Q	.	.	.	V	.
22.167	1.8475	0.54	.Q	.	.	.	V	.
22.183	1.8483	0.54	.Q	.	.	.	V	.
22.200	1.8490	0.53	.Q	.	.	.	V	.
22.217	1.8497	0.53	.Q	.	.	.	V	.
22.233	1.8505	0.53	.Q	.	.	.	V	.
22.250	1.8512	0.53	.Q	.	.	.	V	.
22.267	1.8519	0.53	.Q	.	.	.	V	.
22.283	1.8527	0.53	.Q	.	.	.	V	.
22.300	1.8534	0.53	.Q	.	.	.	V	.
22.317	1.8541	0.53	.Q	.	.	.	V	.
22.333	1.8549	0.53	.Q	.	.	.	V	.
22.350	1.8556	0.53	.Q	.	.	.	V	.

22.367	1.8563	0.53	.Q	.	.	.	V .
22.383	1.8570	0.53	.Q	.	.	.	V .
22.400	1.8578	0.53	.Q	.	.	.	V .
22.417	1.8585	0.53	.Q	.	.	.	V .
22.433	1.8592	0.52	.Q	.	.	.	V .
22.450	1.8599	0.52	.Q	.	.	.	V .
22.467	1.8607	0.52	.Q	.	.	.	V .
22.483	1.8614	0.52	.Q	.	.	.	V .
22.500	1.8621	0.52	.Q	.	.	.	V .
22.517	1.8628	0.52	.Q	.	.	.	V .
22.533	1.8635	0.52	.Q	.	.	.	V .
22.550	1.8642	0.52	.Q	.	.	.	V .
22.567	1.8650	0.52	.Q	.	.	.	V .
22.583	1.8657	0.52	.Q	.	.	.	V .
22.600	1.8664	0.52	.Q	.	.	.	V .
22.617	1.8671	0.52	.Q	.	.	.	V .
22.633	1.8678	0.52	.Q	.	.	.	V .
22.650	1.8685	0.52	.Q	.	.	.	V .
22.667	1.8692	0.52	.Q	.	.	.	V .
22.683	1.8699	0.51	.Q	.	.	.	V .
22.700	1.8706	0.51	.Q	.	.	.	V .
22.717	1.8714	0.51	.Q	.	.	.	V .
22.733	1.8721	0.51	.Q	.	.	.	V .
22.750	1.8728	0.51	.Q	.	.	.	V .
22.767	1.8735	0.51	.Q	.	.	.	V .
22.783	1.8742	0.51	.Q	.	.	.	V .
22.800	1.8749	0.51	.Q	.	.	.	V .
22.817	1.8756	0.51	.Q	.	.	.	V .
22.833	1.8763	0.51	.Q	.	.	.	V .
22.850	1.8770	0.51	.Q	.	.	.	V .
22.867	1.8777	0.51	.Q	.	.	.	V .
22.883	1.8784	0.51	.Q	.	.	.	V .
22.900	1.8791	0.51	.Q	.	.	.	V .
22.917	1.8798	0.51	.Q	.	.	.	V.
22.933	1.8805	0.50	.Q	.	.	.	V.
22.950	1.8812	0.50	.Q	.	.	.	V.
22.967	1.8818	0.50	.Q	.	.	.	V.
22.983	1.8825	0.50	.Q	.	.	.	V.
23.000	1.8832	0.50	.Q	.	.	.	V.
23.017	1.8839	0.50	.Q	.	.	.	V.
23.033	1.8846	0.50	.Q	.	.	.	V.
23.050	1.8853	0.50	.Q	.	.	.	V.
23.067	1.8860	0.50	.Q	.	.	.	V.
23.083	1.8867	0.50	.Q	.	.	.	V.
23.100	1.8874	0.50	.Q	.	.	.	V.
23.117	1.8881	0.50	.Q	.	.	.	V.
23.133	1.8887	0.50	.Q	.	.	.	V.
23.150	1.8894	0.50	.Q	.	.	.	V.
23.167	1.8901	0.50	.Q	.	.	.	V.
23.183	1.8908	0.50	.Q	.	.	.	V.
23.200	1.8915	0.49	.Q	.	.	.	V.
23.217	1.8922	0.49	.Q	.	.	.	V.
23.233	1.8928	0.49	.Q	.	.	.	V.
23.250	1.8935	0.49	.Q	.	.	.	V.
23.267	1.8942	0.49	.Q	.	.	.	V.
23.283	1.8949	0.49	.Q	.	.	.	V.
23.300	1.8955	0.49	.Q	.	.	.	V.
23.317	1.8962	0.49	.Q	.	.	.	V.
23.333	1.8969	0.49	.Q	.	.	.	V.
23.350	1.8976	0.49	.Q	.	.	.	V.
23.367	1.8982	0.49	.Q	.	.	.	V.
23.383	1.8989	0.49	.Q	.	.	.	V.
23.400	1.8996	0.49	.Q	.	.	.	V.
23.417	1.9003	0.49	.Q	.	.	.	V.
23.433	1.9009	0.49	.Q	.	.	.	V.
23.450	1.9016	0.49	.Q	.	.	.	V.
23.467	1.9023	0.49	.Q	.	.	.	V.
23.483	1.9029	0.49	.Q	.	.	.	V.
23.500	1.9036	0.48	.Q	.	.	.	V.
23.517	1.9043	0.48	.Q	.	.	.	V.
23.533	1.9049	0.48	.Q	.	.	.	V.
23.550	1.9056	0.48	.Q	.	.	.	V.
23.567	1.9063	0.48	.Q	.	.	.	V.
23.583	1.9069	0.48	.Q	.	.	.	V.
23.600	1.9076	0.48	.Q	.	.	.	V.
23.617	1.9083	0.48	.Q	.	.	.	V.
23.633	1.9089	0.48	.Q	.	.	.	V.
23.650	1.9096	0.48	.Q	.	.	.	V.
23.667	1.9102	0.48	.Q	.	.	.	V.
23.683	1.9109	0.48	.Q	.	.	.	V.
23.700	1.9116	0.48	.Q	.	.	.	V.
23.717	1.9122	0.48	.Q	.	.	.	V.
23.733	1.9129	0.48	.Q	.	.	.	V.
23.750	1.9135	0.48	.Q	.	.	.	V.
23.767	1.9142	0.48	.Q	.	.	.	V.
23.783	1.9148	0.48	.Q	.	.	.	V.
23.800	1.9155	0.47	.Q	.	.	.	V.
23.817	1.9161	0.47	.Q	.	.	.	V.
23.833	1.9168	0.47	.Q	.	.	.	V.
23.850	1.9174	0.47	.Q	.	.	.	V.
23.867	1.9181	0.47	.Q	.	.	.	V.
23.883	1.9187	0.47	.Q	.	.	.	V.
23.900	1.9194	0.47	.Q	.	.	.	V.
23.917	1.9200	0.47	.Q	.	.	.	V.
23.933	1.9207	0.47	.Q	.	.	.	V.
23.950	1.9213	0.47	.Q	.	.	.	V.
23.967	1.9220	0.47	.Q	.	.	.	V.
23.983	1.9226	0.47	.Q	.	.	.	V.
24.000	1.9233	0.47	.Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1441.0
10%	820.0
20%	315.0
30%	200.0
40%	120.0
50%	90.0
60%	75.0
70%	55.0
80%	35.0
90%	20.0

```
**************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE = 3.2
--------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
==========================================================================

                    INFLOW
                   (STREAM 1)
                        |
                        |
                        V                __effective depth
                    ------------         |   (and volume)
                   |            |    |    |
                   |            |    |....V........
                   | detention  |<-->|           outflow
                   |   basin    |    |.........______
                    ------------     |    ^    |  \
                        |            |  dead   |   basin outlet
                        V            | storage |
                     OUTFLOW          ---------
                   (STREAM 1)


        ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
        THROUGH A FLOW-THROUGH DETENTION BASIN
        SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
          DEAD STORAGE(AF) =      0.000
          SPECIFIED DEAD STORAGE(AF) FILLED =      0.000
          SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      0.000
          DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00


        BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

         INTERVAL    DEPTH      OUTFLOW     STORAGE
          NUMBER      (FT)       (CFS)       (AF)
              1       0.00        0.00       0.000
              2       0.50        0.01       0.045
              3       1.00        2.70       0.097
              4       2.00        4.80       0.222
              5       3.00        6.10       0.380
              6       4.00        7.30       0.568


==========================================================================
 MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
 (Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
        MEAN OUTFLOW is the average value during the unit interval.)

          CLOCK                                              MEAN
           TIME  DEAD-STORAGE  INFLOW    LOSS   EFFECTIVE OUTFLOW  EFFECTIVE
          (HRS)   FILLED(AF)    (CFS)    (CFS)  DEPTH(FT)  (CFS)   VOLUME(AF)
--------------------------------------------------------------------------------
          0.017       0.000     0.02     0.00      0.00      0.0      0.000
          0.033       0.000     0.07     0.00      0.00      0.0      0.000
          0.050       0.000     0.12     0.00      0.00      0.0      0.000
          0.067       0.000     0.17     0.00      0.01      0.0      0.001
          0.083       0.000     0.22     0.00      0.01      0.0      0.001
          0.100       0.000     0.26     0.00      0.01      0.0      0.001
          0.117       0.000     0.31     0.00      0.02      0.0      0.002
          0.133       0.000     0.36     0.00      0.02      0.0      0.002
          0.150       0.000     0.41     0.00      0.03      0.0      0.003
          0.167       0.000     0.45     0.00      0.04      0.0      0.003
          0.183       0.000     0.46     0.00      0.04      0.0      0.004
          0.200       0.000     0.46     0.00      0.05      0.0      0.005
          0.217       0.000     0.46     0.00      0.06      0.0      0.005
          0.233       0.000     0.47     0.00      0.06      0.0      0.006
          0.250       0.000     0.47     0.00      0.07      0.0      0.006
          0.267       0.000     0.47     0.00      0.08      0.0      0.007
          0.283       0.000     0.47     0.00      0.09      0.0      0.008
          0.300       0.000     0.47     0.00      0.09      0.0      0.008
          0.317       0.000     0.47     0.00      0.10      0.0      0.009
          0.333       0.000     0.47     0.00      0.11      0.0      0.010
          0.350       0.000     0.47     0.00      0.11      0.0      0.010
          0.367       0.000     0.47     0.00      0.12      0.0      0.011
          0.383       0.000     0.47     0.00      0.13      0.0      0.012
          0.400       0.000     0.47     0.00      0.14      0.0      0.012
          0.417       0.000     0.47     0.00      0.14      0.0      0.013
          0.433       0.000     0.47     0.00      0.15      0.0      0.014
          0.450       0.000     0.47     0.00      0.16      0.0      0.014
          0.467       0.000     0.47     0.00      0.16      0.0      0.015
          0.483       0.000     0.47     0.00      0.17      0.0      0.015
          0.500       0.000     0.47     0.00      0.18      0.0      0.016
          0.517       0.000     0.47     0.00      0.19      0.0      0.017
          0.533       0.000     0.47     0.00      0.19      0.0      0.017
          0.550       0.000     0.47     0.00      0.20      0.0      0.018
          0.567       0.000     0.47     0.00      0.21      0.0      0.019
          0.583       0.000     0.47     0.00      0.21      0.0      0.019
          0.600       0.000     0.47     0.00      0.22      0.0      0.020
          0.617       0.000     0.47     0.00      0.23      0.0      0.021
          0.633       0.000     0.47     0.00      0.24      0.0      0.021
          0.650       0.000     0.47     0.00      0.24      0.0      0.022
          0.667       0.000     0.47     0.00      0.25      0.0      0.022
          0.683       0.000     0.47     0.00      0.26      0.0      0.023
          0.700       0.000     0.47     0.00      0.26      0.0      0.024
          0.717       0.000     0.47     0.00      0.27      0.0      0.024
          0.733       0.000     0.47     0.00      0.28      0.0      0.025
          0.750       0.000     0.47     0.00      0.29      0.0      0.026
          0.767       0.000     0.47     0.00      0.29      0.0      0.026
          0.783       0.000     0.47     0.00      0.30      0.0      0.027
          0.800       0.000     0.47     0.00      0.31      0.0      0.028
          0.817       0.000     0.47     0.00      0.31      0.0      0.028
          0.833       0.000     0.47     0.00      0.32      0.0      0.029
          0.850       0.000     0.47     0.00      0.33      0.0      0.030
          0.867       0.000     0.47     0.00      0.34      0.0      0.030
          0.883       0.000     0.48     0.00      0.34      0.0      0.031
          0.900       0.000     0.48     0.00      0.35      0.0      0.031
          0.917       0.000     0.48     0.00      0.36      0.0      0.032
          0.933       0.000     0.48     0.00      0.36      0.0      0.033
          0.950       0.000     0.48     0.00      0.37      0.0      0.033
          0.967       0.000     0.48     0.00      0.38      0.0      0.034
          0.983       0.000     0.48     0.00      0.39      0.0      0.035
          1.000       0.000     0.48     0.00      0.39      0.0      0.035
          1.017       0.000     0.48     0.00      0.40      0.0      0.036
          1.033       0.000     0.48     0.00      0.41      0.0      0.037
          1.050       0.000     0.48     0.00      0.41      0.0      0.037
```

1.067	0.000	0.48	0.00	0.42	0.0	0.038
1.083	0.000	0.48	0.00	0.43	0.0	0.039
1.100	0.000	0.48	0.00	0.44	0.0	0.039
1.117	0.000	0.48	0.00	0.44	0.0	0.040
1.133	0.000	0.48	0.00	0.45	0.0	0.041
1.150	0.000	0.48	0.00	0.46	0.0	0.041
1.167	0.000	0.48	0.00	0.46	0.0	0.042
1.183	0.000	0.48	0.00	0.47	0.0	0.042
1.200	0.000	0.48	0.00	0.48	0.0	0.043
1.217	0.000	0.48	0.00	0.49	0.0	0.044
1.233	0.000	0.48	0.00	0.49	0.0	0.044
1.250	0.000	0.48	0.00	0.50	0.0	0.045
1.267	0.000	0.48	0.00	0.51	0.0	0.046
1.283	0.000	0.48	0.00	0.51	0.1	0.046
1.300	0.000	0.48	0.00	0.52	0.1	0.047
1.317	0.000	0.48	0.00	0.52	0.1	0.047
1.333	0.000	0.48	0.00	0.53	0.1	0.048
1.350	0.000	0.48	0.00	0.53	0.2	0.048
1.367	0.000	0.48	0.00	0.53	0.2	0.049
1.383	0.000	0.48	0.00	0.54	0.2	0.049
1.400	0.000	0.48	0.00	0.54	0.2	0.049
1.417	0.000	0.48	0.00	0.54	0.2	0.050
1.433	0.000	0.48	0.00	0.55	0.3	0.050
1.450	0.000	0.48	0.00	0.55	0.3	0.050
1.467	0.000	0.48	0.00	0.55	0.3	0.051
1.483	0.000	0.48	0.00	0.56	0.3	0.051
1.500	0.000	0.48	0.00	0.56	0.3	0.051
1.517	0.000	0.48	0.00	0.56	0.3	0.051
1.533	0.000	0.49	0.00	0.56	0.3	0.051
1.550	0.000	0.49	0.00	0.56	0.3	0.052
1.567	0.000	0.49	0.00	0.57	0.4	0.052
1.583	0.000	0.49	0.00	0.57	0.4	0.052
1.600	0.000	0.49	0.00	0.57	0.4	0.052
1.617	0.000	0.49	0.00	0.57	0.4	0.052
1.633	0.000	0.49	0.00	0.57	0.4	0.052
1.650	0.000	0.49	0.00	0.57	0.4	0.053
1.667	0.000	0.49	0.00	0.57	0.4	0.053
1.683	0.000	0.49	0.00	0.57	0.4	0.053
1.700	0.000	0.49	0.00	0.58	0.4	0.053
1.717	0.000	0.49	0.00	0.58	0.4	0.053
1.733	0.000	0.49	0.00	0.58	0.4	0.053
1.750	0.000	0.49	0.00	0.58	0.4	0.053
1.767	0.000	0.49	0.00	0.58	0.4	0.053
1.783	0.000	0.49	0.00	0.58	0.4	0.053
1.800	0.000	0.49	0.00	0.58	0.4	0.053
1.817	0.000	0.49	0.00	0.58	0.4	0.053
1.833	0.000	0.49	0.00	0.58	0.4	0.053
1.850	0.000	0.49	0.00	0.58	0.4	0.054
1.867	0.000	0.49	0.00	0.58	0.5	0.054
1.883	0.000	0.49	0.00	0.58	0.5	0.054
1.900	0.000	0.49	0.00	0.58	0.5	0.054
1.917	0.000	0.49	0.00	0.58	0.5	0.054
1.933	0.000	0.49	0.00	0.58	0.5	0.054
1.950	0.000	0.49	0.00	0.58	0.5	0.054
1.967	0.000	0.49	0.00	0.58	0.5	0.054
1.983	0.000	0.49	0.00	0.59	0.5	0.054
2.000	0.000	0.49	0.00	0.59	0.5	0.054
2.017	0.000	0.49	0.00	0.59	0.5	0.054
2.033	0.000	0.49	0.00	0.59	0.5	0.054
2.050	0.000	0.49	0.00	0.59	0.5	0.054
2.067	0.000	0.49	0.00	0.59	0.5	0.054
2.083	0.000	0.50	0.00	0.59	0.5	0.054
2.100	0.000	0.50	0.00	0.59	0.5	0.054
2.117	0.000	0.50	0.00	0.59	0.5	0.054
2.133	0.000	0.50	0.00	0.59	0.5	0.054
2.150	0.000	0.50	0.00	0.59	0.5	0.054
2.167	0.000	0.50	0.00	0.59	0.5	0.054
2.183	0.000	0.50	0.00	0.59	0.5	0.054
2.200	0.000	0.50	0.00	0.59	0.5	0.054
2.217	0.000	0.50	0.00	0.59	0.5	0.054
2.233	0.000	0.50	0.00	0.59	0.5	0.054
2.250	0.000	0.50	0.00	0.59	0.5	0.054
2.267	0.000	0.50	0.00	0.59	0.5	0.054
2.283	0.000	0.50	0.00	0.59	0.5	0.054
2.300	0.000	0.50	0.00	0.59	0.5	0.054
2.317	0.000	0.50	0.00	0.59	0.5	0.054
2.333	0.000	0.50	0.00	0.59	0.5	0.054
2.350	0.000	0.50	0.00	0.59	0.5	0.054
2.367	0.000	0.50	0.00	0.59	0.5	0.054
2.383	0.000	0.50	0.00	0.59	0.5	0.054
2.400	0.000	0.50	0.00	0.59	0.5	0.054
2.417	0.000	0.50	0.00	0.59	0.5	0.054
2.433	0.000	0.50	0.00	0.59	0.5	0.054
2.450	0.000	0.50	0.00	0.59	0.5	0.054
2.467	0.000	0.50	0.00	0.59	0.5	0.054
2.483	0.000	0.50	0.00	0.59	0.5	0.054
2.500	0.000	0.50	0.00	0.59	0.5	0.054
2.517	0.000	0.50	0.00	0.59	0.5	0.054
2.533	0.000	0.50	0.00	0.59	0.5	0.054
2.550	0.000	0.50	0.00	0.59	0.5	0.054
2.567	0.000	0.50	0.00	0.59	0.5	0.054
2.583	0.000	0.50	0.00	0.59	0.5	0.054
2.600	0.000	0.50	0.00	0.59	0.5	0.054
2.617	0.000	0.50	0.00	0.59	0.5	0.054
2.633	0.000	0.50	0.00	0.59	0.5	0.054
2.650	0.000	0.50	0.00	0.59	0.5	0.054
2.667	0.000	0.51	0.00	0.59	0.5	0.054
2.683	0.000	0.51	0.00	0.59	0.5	0.054
2.700	0.000	0.51	0.00	0.59	0.5	0.054
2.717	0.000	0.51	0.00	0.59	0.5	0.054
2.733	0.000	0.51	0.00	0.59	0.5	0.054
2.750	0.000	0.51	0.00	0.59	0.5	0.054
2.767	0.000	0.51	0.00	0.59	0.5	0.055
2.783	0.000	0.51	0.00	0.59	0.5	0.055
2.800	0.000	0.51	0.00	0.59	0.5	0.055
2.817	0.000	0.51	0.00	0.59	0.5	0.055
2.833	0.000	0.51	0.00	0.59	0.5	0.055
2.850	0.000	0.51	0.00	0.59	0.5	0.055
2.867	0.000	0.51	0.00	0.59	0.5	0.055
2.883	0.000	0.51	0.00	0.59	0.5	0.055
2.900	0.000	0.51	0.00	0.59	0.5	0.055
2.917	0.000	0.51	0.00	0.59	0.5	0.055
2.933	0.000	0.51	0.00	0.59	0.5	0.055
2.950	0.000	0.51	0.00	0.59	0.5	0.055
2.967	0.000	0.51	0.00	0.59	0.5	0.055
2.983	0.000	0.51	0.00	0.59	0.5	0.055
3.000	0.000	0.51	0.00	0.59	0.5	0.055
3.017	0.000	0.51	0.00	0.59	0.5	0.055

3.033	0.000	0.51	0.00	0.59	0.5	0.055
3.050	0.000	0.51	0.00	0.59	0.5	0.055
3.067	0.000	0.51	0.00	0.59	0.5	0.055
3.083	0.000	0.51	0.00	0.59	0.5	0.055
3.100	0.000	0.51	0.00	0.59	0.5	0.055
3.117	0.000	0.51	0.00	0.59	0.5	0.055
3.133	0.000	0.52	0.00	0.59	0.5	0.055
3.150	0.000	0.52	0.00	0.59	0.5	0.055
3.167	0.000	0.52	0.00	0.59	0.5	0.055
3.183	0.000	0.52	0.00	0.59	0.5	0.055
3.200	0.000	0.52	0.00	0.59	0.5	0.055
3.217	0.000	0.52	0.00	0.59	0.5	0.055
3.233	0.000	0.52	0.00	0.59	0.5	0.055
3.250	0.000	0.52	0.00	0.59	0.5	0.055
3.267	0.000	0.52	0.00	0.59	0.5	0.055
3.283	0.000	0.52	0.00	0.59	0.5	0.055
3.300	0.000	0.52	0.00	0.59	0.5	0.055
3.317	0.000	0.52	0.00	0.59	0.5	0.055
3.333	0.000	0.52	0.00	0.59	0.5	0.055
3.350	0.000	0.52	0.00	0.59	0.5	0.055
3.367	0.000	0.52	0.00	0.59	0.5	0.055
3.383	0.000	0.52	0.00	0.59	0.5	0.055
3.400	0.000	0.52	0.00	0.59	0.5	0.055
3.417	0.000	0.52	0.00	0.59	0.5	0.055
3.433	0.000	0.52	0.00	0.59	0.5	0.055
3.450	0.000	0.52	0.00	0.59	0.5	0.055
3.467	0.000	0.52	0.00	0.59	0.5	0.055
3.483	0.000	0.52	0.00	0.59	0.5	0.055
3.500	0.000	0.52	0.00	0.59	0.5	0.055
3.517	0.000	0.52	0.00	0.59	0.5	0.055
3.533	0.000	0.52	0.00	0.59	0.5	0.055
3.550	0.000	0.52	0.00	0.59	0.5	0.055
3.567	0.000	0.52	0.00	0.59	0.5	0.055
3.583	0.000	0.52	0.00	0.59	0.5	0.055
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3.783	0.000	0.53	0.00	0.60	0.5	0.055
3.800	0.000	0.53	0.00	0.60	0.5	0.055
3.817	0.000	0.53	0.00	0.60	0.5	0.055
3.833	0.000	0.53	0.00	0.60	0.5	0.055
3.850	0.000	0.53	0.00	0.60	0.5	0.055
3.867	0.000	0.53	0.00	0.60	0.5	0.055
3.883	0.000	0.53	0.00	0.60	0.5	0.055
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3.917	0.000	0.53	0.00	0.60	0.5	0.055
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3.950	0.000	0.53	0.00	0.60	0.5	0.055
3.967	0.000	0.53	0.00	0.60	0.5	0.055
3.983	0.000	0.53	0.00	0.60	0.5	0.055
4.000	0.000	0.53	0.00	0.60	0.5	0.055

4.017	0.000	0.53	0.00	0.60	0.5	0.055
4.033	0.000	0.53	0.00	0.60	0.5	0.055
4.050	0.000	0.53	0.00	0.60	0.5	0.055
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4.133	0.000	0.54	0.00	0.60	0.5	0.055
4.150	0.000	0.54	0.00	0.60	0.5	0.055
4.167	0.000	0.54	0.00	0.60	0.5	0.055
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4.200	0.000	0.54	0.00	0.60	0.5	0.055
4.217	0.000	0.54	0.00	0.60	0.5	0.055
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4.267	0.000	0.54	0.00	0.60	0.5	0.055
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4.600	0.000	0.55	0.00	0.60	0.5	0.055
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6.000	0.000	0.58	0.00	0.61	0.6	0.056
6.017	0.000	0.58	0.00	0.61	0.6	0.056
6.033	0.000	0.58	0.00	0.61	0.6	0.056
6.050	0.000	0.59	0.00	0.61	0.6	0.056
6.067	0.000	0.59	0.00	0.61	0.6	0.056
6.083	0.000	0.59	0.00	0.61	0.6	0.056
6.100	0.000	0.59	0.00	0.61	0.6	0.056
6.117	0.000	0.59	0.00	0.61	0.6	0.056
6.133	0.000	0.59	0.00	0.61	0.6	0.056
6.150	0.000	0.59	0.00	0.61	0.6	0.056
6.167	0.000	0.59	0.00	0.61	0.6	0.056
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6.983	0.000	0.61	0.00	0.61	0.6	0.057
7.000	0.000	0.61	0.00	0.61	0.6	0.057
7.017	0.000	0.62	0.00	0.61	0.6	0.057
7.033	0.000	0.62	0.00	0.61	0.6	0.057
7.050	0.000	0.62	0.00	0.61	0.6	0.057
7.067	0.000	0.62	0.00	0.61	0.6	0.057
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7.133	0.000	0.62	0.00	0.61	0.6	0.057
7.150	0.000	0.62	0.00	0.61	0.6	0.057
7.167	0.000	0.62	0.00	0.61	0.6	0.057
7.183	0.000	0.62	0.00	0.61	0.6	0.057
7.200	0.000	0.62	0.00	0.61	0.6	0.057
7.217	0.000	0.62	0.00	0.61	0.6	0.057
7.233	0.000	0.62	0.00	0.61	0.6	0.057
7.250	0.000	0.62	0.00	0.61	0.6	0.057
7.267	0.000	0.63	0.00	0.61	0.6	0.057
7.283	0.000	0.63	0.00	0.61	0.6	0.057
7.300	0.000	0.63	0.00	0.61	0.6	0.057
7.317	0.000	0.63	0.00	0.61	0.6	0.057
7.333	0.000	0.63	0.00	0.61	0.6	0.057
7.350	0.000	0.63	0.00	0.61	0.6	0.057
7.367	0.000	0.63	0.00	0.61	0.6	0.057
7.383	0.000	0.63	0.00	0.61	0.6	0.057
7.400	0.000	0.63	0.00	0.61	0.6	0.057
7.417	0.000	0.63	0.00	0.61	0.6	0.057
7.433	0.000	0.63	0.00	0.61	0.6	0.057
7.450	0.000	0.63	0.00	0.61	0.6	0.057
7.467	0.000	0.63	0.00	0.61	0.6	0.057
7.483	0.000	0.63	0.00	0.61	0.6	0.057
7.500	0.000	0.63	0.00	0.61	0.6	0.057
7.517	0.000	0.63	0.00	0.61	0.6	0.057
7.533	0.000	0.63	0.00	0.61	0.6	0.057
7.550	0.000	0.63	0.00	0.61	0.6	0.057
7.567	0.000	0.64	0.00	0.61	0.6	0.057
7.583	0.000	0.64	0.00	0.61	0.6	0.057
7.600	0.000	0.64	0.00	0.61	0.6	0.057
7.617	0.000	0.64	0.00	0.61	0.6	0.057
7.633	0.000	0.64	0.00	0.62	0.6	0.057
7.650	0.000	0.64	0.00	0.62	0.6	0.057
7.667	0.000	0.64	0.00	0.62	0.6	0.057
7.683	0.000	0.64	0.00	0.62	0.6	0.057
7.700	0.000	0.64	0.00	0.62	0.6	0.057
7.717	0.000	0.64	0.00	0.62	0.6	0.057
7.733	0.000	0.64	0.00	0.62	0.6	0.057
7.750	0.000	0.64	0.00	0.62	0.6	0.057
7.767	0.000	0.64	0.00	0.62	0.6	0.057
7.783	0.000	0.64	0.00	0.62	0.6	0.057
7.800	0.000	0.64	0.00	0.62	0.6	0.057
7.817	0.000	0.64	0.00	0.62	0.6	0.057
7.833	0.000	0.64	0.00	0.62	0.6	0.057
7.850	0.000	0.65	0.00	0.62	0.6	0.057
7.867	0.000	0.65	0.00	0.62	0.6	0.057
7.883	0.000	0.65	0.00	0.62	0.6	0.057
7.900	0.000	0.65	0.00	0.62	0.6	0.057
7.917	0.000	0.65	0.00	0.62	0.6	0.057
7.933	0.000	0.65	0.00	0.62	0.6	0.057
7.950	0.000	0.65	0.00	0.62	0.6	0.057
7.967	0.000	0.65	0.00	0.62	0.6	0.057
7.983	0.000	0.65	0.00	0.62	0.6	0.057
8.000	0.000	0.65	0.00	0.62	0.6	0.057
8.017	0.000	0.65	0.00	0.62	0.6	0.057
8.033	0.000	0.65	0.00	0.62	0.6	0.057
8.050	0.000	0.65	0.00	0.62	0.6	0.057
8.067	0.000	0.66	0.00	0.62	0.6	0.057
8.083	0.000	0.66	0.00	0.62	0.6	0.057
8.100	0.000	0.66	0.00	0.62	0.6	0.057
8.117	0.000	0.66	0.00	0.62	0.6	0.057
8.133	0.000	0.66	0.00	0.62	0.6	0.057
8.150	0.000	0.66	0.00	0.62	0.6	0.057
8.167	0.000	0.66	0.00	0.62	0.6	0.057
8.183	0.000	0.66	0.00	0.62	0.7	0.057
8.200	0.000	0.66	0.00	0.62	0.7	0.057
8.217	0.000	0.66	0.00	0.62	0.7	0.057
8.233	0.000	0.66	0.00	0.62	0.7	0.057
8.250	0.000	0.66	0.00	0.62	0.7	0.057
8.267	0.000	0.66	0.00	0.62	0.7	0.057
8.283	0.000	0.66	0.00	0.62	0.7	0.057
8.300	0.000	0.66	0.00	0.62	0.7	0.057
8.317	0.000	0.67	0.00	0.62	0.7	0.057
8.333	0.000	0.67	0.00	0.62	0.7	0.057
8.350	0.000	0.67	0.00	0.62	0.7	0.057
8.367	0.000	0.67	0.00	0.62	0.7	0.058
8.383	0.000	0.67	0.00	0.62	0.7	0.058
8.400	0.000	0.67	0.00	0.62	0.7	0.058
8.417	0.000	0.67	0.00	0.62	0.7	0.058
8.433	0.000	0.67	0.00	0.62	0.7	0.058
8.450	0.000	0.67	0.00	0.62	0.7	0.058
8.467	0.000	0.67	0.00	0.62	0.7	0.058
8.483	0.000	0.67	0.00	0.62	0.7	0.058
8.500	0.000	0.67	0.00	0.62	0.7	0.058
8.517	0.000	0.67	0.00	0.62	0.7	0.058
8.533	0.000	0.67	0.00	0.62	0.7	0.058
8.550	0.000	0.67	0.00	0.62	0.7	0.058
8.567	0.000	0.67	0.00	0.62	0.7	0.058
8.583	0.000	0.68	0.00	0.62	0.7	0.058
8.600	0.000	0.68	0.00	0.62	0.7	0.058
8.617	0.000	0.68	0.00	0.62	0.7	0.058
8.633	0.000	0.68	0.00	0.62	0.7	0.058
8.650	0.000	0.68	0.00	0.62	0.7	0.058
8.667	0.000	0.68	0.00	0.62	0.7	0.058
8.683	0.000	0.68	0.00	0.62	0.7	0.058
8.700	0.000	0.68	0.00	0.62	0.7	0.058
8.717	0.000	0.68	0.00	0.62	0.7	0.058
8.733	0.000	0.69	0.00	0.62	0.7	0.058
8.750	0.000	0.69	0.00	0.62	0.7	0.058
8.767	0.000	0.69	0.00	0.62	0.7	0.058
8.783	0.000	0.69	0.00	0.62	0.7	0.058
8.800	0.000	0.69	0.00	0.62	0.7	0.058
8.817	0.000	0.69	0.00	0.62	0.7	0.058
8.833	0.000	0.69	0.00	0.62	0.7	0.058
8.850	0.000	0.69	0.00	0.62	0.7	0.058
8.867	0.000	0.69	0.00	0.62	0.7	0.058
8.883	0.000	0.69	0.00	0.62	0.7	0.058
8.900	0.000	0.69	0.00	0.62	0.7	0.058
8.917	0.000	0.69	0.00	0.62	0.7	0.058

8.933	0.000	0.69	0.00	0.62	0.7	0.058
8.950	0.000	0.69	0.00	0.63	0.7	0.058
8.967	0.000	0.69	0.00	0.63	0.7	0.058
8.983	0.000	0.70	0.00	0.63	0.7	0.058
9.000	0.000	0.70	0.00	0.63	0.7	0.058
9.017	0.000	0.70	0.00	0.63	0.7	0.058
9.033	0.000	0.70	0.00	0.63	0.7	0.058
9.050	0.000	0.70	0.00	0.63	0.7	0.058
9.067	0.000	0.70	0.00	0.63	0.7	0.058
9.083	0.000	0.70	0.00	0.63	0.7	0.058
9.100	0.000	0.70	0.00	0.63	0.7	0.058
9.117	0.000	0.70	0.00	0.63	0.7	0.058
9.133	0.000	0.70	0.00	0.63	0.7	0.058
9.150	0.000	0.71	0.00	0.63	0.7	0.058
9.167	0.000	0.71	0.00	0.63	0.7	0.058
9.183	0.000	0.71	0.00	0.63	0.7	0.058
9.200	0.000	0.71	0.00	0.63	0.7	0.058
9.217	0.000	0.71	0.00	0.63	0.7	0.058
9.233	0.000	0.71	0.00	0.63	0.7	0.058
9.250	0.000	0.71	0.00	0.63	0.7	0.058
9.267	0.000	0.71	0.00	0.63	0.7	0.058
9.283	0.000	0.71	0.00	0.63	0.7	0.058
9.300	0.000	0.71	0.00	0.63	0.7	0.058
9.317	0.000	0.71	0.00	0.63	0.7	0.058
9.333	0.000	0.71	0.00	0.63	0.7	0.058
9.350	0.000	0.71	0.00	0.63	0.7	0.058
9.367	0.000	0.71	0.00	0.63	0.7	0.058
9.383	0.000	0.72	0.00	0.63	0.7	0.058
9.400	0.000	0.72	0.00	0.63	0.7	0.058
9.417	0.000	0.72	0.00	0.63	0.7	0.058
9.433	0.000	0.72	0.00	0.63	0.7	0.058
9.450	0.000	0.72	0.00	0.63	0.7	0.058
9.467	0.000	0.72	0.00	0.63	0.7	0.058
9.483	0.000	0.72	0.00	0.63	0.7	0.059
9.500	0.000	0.72	0.00	0.63	0.7	0.059
9.517	0.000	0.72	0.00	0.63	0.7	0.059
9.533	0.000	0.73	0.00	0.63	0.7	0.059
9.550	0.000	0.73	0.00	0.63	0.7	0.059
9.567	0.000	0.73	0.00	0.63	0.7	0.059
9.583	0.000	0.73	0.00	0.63	0.7	0.059
9.600	0.000	0.73	0.00	0.63	0.7	0.059
9.617	0.000	0.73	0.00	0.63	0.7	0.059
9.633	0.000	0.73	0.00	0.63	0.7	0.059
9.650	0.000	0.73	0.00	0.63	0.7	0.059
9.667	0.000	0.73	0.00	0.63	0.7	0.059
9.683	0.000	0.73	0.00	0.63	0.7	0.059
9.700	0.000	0.73	0.00	0.63	0.7	0.059
9.717	0.000	0.73	0.00	0.63	0.7	0.059
9.733	0.000	0.74	0.00	0.63	0.7	0.059
9.750	0.000	0.74	0.00	0.63	0.7	0.059
9.767	0.000	0.74	0.00	0.63	0.7	0.059
9.783	0.000	0.74	0.00	0.63	0.7	0.059
9.800	0.000	0.74	0.00	0.63	0.7	0.059
9.817	0.000	0.74	0.00	0.63	0.7	0.059
9.833	0.000	0.74	0.00	0.63	0.7	0.059
9.850	0.000	0.74	0.00	0.63	0.7	0.059
9.867	0.000	0.75	0.00	0.63	0.7	0.059
9.883	0.000	0.75	0.00	0.63	0.7	0.059
9.900	0.000	0.75	0.00	0.63	0.7	0.059
9.917	0.000	0.75	0.00	0.63	0.7	0.059
9.933	0.000	0.75	0.00	0.63	0.7	0.059
9.950	0.000	0.75	0.00	0.63	0.7	0.059
9.967	0.000	0.75	0.00	0.63	0.7	0.059
9.983	0.000	0.75	0.00	0.64	0.7	0.059
10.000	0.000	0.75	0.00	0.64	0.7	0.059
10.017	0.000	0.75	0.00	0.64	0.7	0.059
10.033	0.000	0.75	0.00	0.64	0.7	0.059
10.050	0.000	0.75	0.00	0.64	0.7	0.059
10.067	0.000	0.75	0.00	0.64	0.7	0.059
10.083	0.000	0.76	0.00	0.64	0.7	0.059
10.100	0.000	0.76	0.00	0.64	0.7	0.059
10.117	0.000	0.76	0.00	0.64	0.7	0.059
10.133	0.000	0.76	0.00	0.64	0.7	0.059
10.150	0.000	0.76	0.00	0.64	0.7	0.059
10.167	0.000	0.76	0.00	0.64	0.7	0.059
10.183	0.000	0.76	0.00	0.64	0.7	0.059
10.200	0.000	0.77	0.00	0.64	0.7	0.059
10.217	0.000	0.77	0.00	0.64	0.8	0.059
10.233	0.000	0.77	0.00	0.64	0.8	0.059
10.250	0.000	0.77	0.00	0.64	0.8	0.059
10.267	0.000	0.77	0.00	0.64	0.8	0.059
10.283	0.000	0.77	0.00	0.64	0.8	0.059
10.300	0.000	0.77	0.00	0.64	0.8	0.059
10.317	0.000	0.77	0.00	0.64	0.8	0.059
10.333	0.000	0.77	0.00	0.64	0.8	0.059
10.350	0.000	0.77	0.00	0.64	0.8	0.059
10.367	0.000	0.77	0.00	0.64	0.8	0.060
10.383	0.000	0.78	0.00	0.64	0.8	0.060
10.400	0.000	0.78	0.00	0.64	0.8	0.060
10.417	0.000	0.78	0.00	0.64	0.8	0.060
10.433	0.000	0.78	0.00	0.64	0.8	0.060
10.450	0.000	0.78	0.00	0.64	0.8	0.060
10.467	0.000	0.78	0.00	0.64	0.8	0.060
10.483	0.000	0.78	0.00	0.64	0.8	0.060
10.500	0.000	0.78	0.00	0.64	0.8	0.060
10.517	0.000	0.79	0.00	0.64	0.8	0.060
10.533	0.000	0.79	0.00	0.64	0.8	0.060
10.550	0.000	0.79	0.00	0.64	0.8	0.060
10.567	0.000	0.79	0.00	0.64	0.8	0.060
10.583	0.000	0.79	0.00	0.64	0.8	0.060
10.600	0.000	0.79	0.00	0.64	0.8	0.060
10.617	0.000	0.79	0.00	0.64	0.8	0.060
10.633	0.000	0.80	0.00	0.64	0.8	0.060
10.650	0.000	0.80	0.00	0.64	0.8	0.060
10.667	0.000	0.80	0.00	0.64	0.8	0.060
10.683	0.000	0.80	0.00	0.64	0.8	0.060
10.700	0.000	0.80	0.00	0.64	0.8	0.060
10.717	0.000	0.80	0.00	0.64	0.8	0.060
10.733	0.000	0.80	0.00	0.64	0.8	0.060
10.750	0.000	0.80	0.00	0.64	0.8	0.060
10.767	0.000	0.80	0.00	0.64	0.8	0.060
10.783	0.000	0.80	0.00	0.64	0.8	0.060
10.800	0.000	0.80	0.00	0.64	0.8	0.060
10.817	0.000	0.81	0.00	0.65	0.8	0.060
10.833	0.000	0.81	0.00	0.65	0.8	0.060
10.850	0.000	0.81	0.00	0.65	0.8	0.060
10.867	0.000	0.81	0.00	0.65	0.8	0.060
10.883	0.000	0.81	0.00	0.65	0.8	0.060

10.900	0.000	0.81	0.00	0.65	0.8	0.060
10.917	0.000	0.82	0.00	0.65	0.8	0.060
10.933	0.000	0.82	0.00	0.65	0.8	0.060
10.950	0.000	0.82	0.00	0.65	0.8	0.060
10.967	0.000	0.82	0.00	0.65	0.8	0.060
10.983	0.000	0.82	0.00	0.65	0.8	0.060
11.000	0.000	0.82	0.00	0.65	0.8	0.060
11.017	0.000	0.82	0.00	0.65	0.8	0.060
11.033	0.000	0.83	0.00	0.65	0.8	0.060
11.050	0.000	0.83	0.00	0.65	0.8	0.060
11.067	0.000	0.83	0.00	0.65	0.8	0.060
11.083	0.000	0.83	0.00	0.65	0.8	0.060
11.100	0.000	0.83	0.00	0.65	0.8	0.061
11.117	0.000	0.83	0.00	0.65	0.8	0.061
11.133	0.000	0.83	0.00	0.65	0.8	0.061
11.150	0.000	0.83	0.00	0.65	0.8	0.061
11.167	0.000	0.83	0.00	0.65	0.8	0.061
11.183	0.000	0.84	0.00	0.65	0.8	0.061
11.200	0.000	0.84	0.00	0.65	0.8	0.061
11.217	0.000	0.84	0.00	0.65	0.8	0.061
11.233	0.000	0.84	0.00	0.65	0.8	0.061
11.250	0.000	0.84	0.00	0.65	0.8	0.061
11.267	0.000	0.84	0.00	0.65	0.8	0.061
11.283	0.000	0.85	0.00	0.65	0.8	0.061
11.300	0.000	0.85	0.00	0.65	0.8	0.061
11.317	0.000	0.85	0.00	0.65	0.8	0.061
11.333	0.000	0.85	0.00	0.65	0.8	0.061
11.350	0.000	0.85	0.00	0.65	0.8	0.061
11.367	0.000	0.86	0.00	0.65	0.8	0.061
11.383	0.000	0.86	0.00	0.65	0.8	0.061
11.400	0.000	0.86	0.00	0.65	0.8	0.061
11.417	0.000	0.86	0.00	0.65	0.8	0.061
11.433	0.000	0.86	0.00	0.65	0.8	0.061
11.450	0.000	0.86	0.00	0.65	0.8	0.061
11.467	0.000	0.86	0.00	0.65	0.8	0.061
11.483	0.000	0.86	0.00	0.66	0.8	0.061
11.500	0.000	0.86	0.00	0.66	0.8	0.061
11.517	0.000	0.86	0.00	0.66	0.8	0.061
11.533	0.000	0.87	0.00	0.66	0.8	0.061
11.550	0.000	0.87	0.00	0.66	0.8	0.061
11.567	0.000	0.87	0.00	0.66	0.9	0.061
11.583	0.000	0.87	0.00	0.66	0.9	0.061
11.600	0.000	0.87	0.00	0.66	0.9	0.061
11.617	0.000	0.88	0.00	0.66	0.9	0.061
11.633	0.000	0.88	0.00	0.66	0.9	0.061
11.650	0.000	0.88	0.00	0.66	0.9	0.061
11.667	0.000	0.88	0.00	0.66	0.9	0.061
11.683	0.000	0.89	0.00	0.66	0.9	0.061
11.700	0.000	0.89	0.00	0.66	0.9	0.061
11.717	0.000	0.89	0.00	0.66	0.9	0.062
11.733	0.000	0.89	0.00	0.66	0.9	0.062
11.750	0.000	0.89	0.00	0.66	0.9	0.062
11.767	0.000	0.89	0.00	0.66	0.9	0.062
11.783	0.000	0.89	0.00	0.66	0.9	0.062
11.800	0.000	0.90	0.00	0.66	0.9	0.062
11.817	0.000	0.90	0.00	0.66	0.9	0.062
11.833	0.000	0.90	0.00	0.66	0.9	0.062
11.850	0.000	0.90	0.00	0.66	0.9	0.062
11.867	0.000	0.90	0.00	0.66	0.9	0.062
11.883	0.000	0.90	0.00	0.66	0.9	0.062
11.900	0.000	0.90	0.00	0.66	0.9	0.062
11.917	0.000	0.90	0.00	0.66	0.9	0.062
11.933	0.000	0.91	0.00	0.66	0.9	0.062
11.950	0.000	0.91	0.00	0.66	0.9	0.062
11.967	0.000	0.91	0.00	0.66	0.9	0.062
11.983	0.000	0.91	0.00	0.66	0.9	0.062
12.000	0.000	0.91	0.00	0.66	0.9	0.062
12.017	0.000	0.92	0.00	0.66	0.9	0.062
12.033	0.000	0.92	0.00	0.66	0.9	0.062
12.050	0.000	0.92	0.00	0.66	0.9	0.062
12.067	0.000	0.92	0.00	0.67	0.9	0.062
12.083	0.000	0.92	0.00	0.67	0.9	0.062
12.100	0.000	0.92	0.00	0.67	0.9	0.062
12.117	0.000	0.92	0.00	0.67	0.9	0.062
12.133	0.000	0.92	0.00	0.67	0.9	0.062
12.150	0.000	0.92	0.00	0.67	0.9	0.062
12.167	0.000	0.92	0.00	0.67	0.9	0.062
12.183	0.000	0.92	0.00	0.67	0.9	0.062
12.200	0.000	0.92	0.00	0.67	0.9	0.062
12.217	0.000	0.91	0.00	0.67	0.9	0.062
12.233	0.000	0.91	0.00	0.67	0.9	0.062
12.250	0.000	0.91	0.00	0.67	0.9	0.062
12.267	0.000	0.91	0.00	0.67	0.9	0.062
12.283	0.000	0.91	0.00	0.67	0.9	0.062
12.300	0.000	0.91	0.00	0.67	0.9	0.062
12.317	0.000	0.92	0.00	0.67	0.9	0.062
12.333	0.000	0.92	0.00	0.67	0.9	0.062
12.350	0.000	0.92	0.00	0.67	0.9	0.062
12.367	0.000	0.92	0.00	0.67	0.9	0.062
12.383	0.000	0.93	0.00	0.67	0.9	0.062
12.400	0.000	0.93	0.00	0.67	0.9	0.062
12.417	0.000	0.93	0.00	0.67	0.9	0.062
12.433	0.000	0.94	0.00	0.67	0.9	0.063
12.450	0.000	0.94	0.00	0.67	0.9	0.063
12.467	0.000	0.94	0.00	0.67	0.9	0.063
12.483	0.000	0.94	0.00	0.67	0.9	0.063
12.500	0.000	0.94	0.00	0.67	0.9	0.063
12.517	0.000	0.95	0.00	0.67	0.9	0.063
12.533	0.000	0.95	0.00	0.67	0.9	0.063
12.550	0.000	0.95	0.00	0.67	0.9	0.063
12.567	0.000	0.95	0.00	0.67	0.9	0.063
12.583	0.000	0.95	0.00	0.67	0.9	0.063
12.600	0.000	0.95	0.00	0.67	0.9	0.063
12.617	0.000	0.96	0.00	0.67	0.9	0.063
12.633	0.000	0.96	0.00	0.67	0.9	0.063
12.650	0.000	0.96	0.00	0.67	0.9	0.063
12.667	0.000	0.96	0.00	0.67	0.9	0.063
12.683	0.000	0.96	0.00	0.67	0.9	0.063
12.700	0.000	0.97	0.00	0.67	0.9	0.063
12.717	0.000	0.97	0.00	0.67	0.9	0.063
12.733	0.000	0.97	0.00	0.67	0.9	0.063
12.750	0.000	0.98	0.00	0.67	0.9	0.063
12.767	0.000	0.98	0.00	0.67	0.9	0.063
12.783	0.000	0.98	0.00	0.68	1.0	0.063
12.800	0.000	0.99	0.00	0.68	1.0	0.063
12.817	0.000	0.99	0.00	0.68	1.0	0.063
12.833	0.000	0.99	0.00	0.68	1.0	0.063
12.850	0.000	1.00	0.00	0.68	1.0	0.063

12.867	0.000	1.00	0.00	0.68	1.0	0.063
12.883	0.000	1.00	0.00	0.68	1.0	0.064
12.900	0.000	1.00	0.00	0.68	1.0	0.064
12.917	0.000	1.00	0.00	0.68	1.0	0.064
12.933	0.000	1.01	0.00	0.68	1.0	0.064
12.950	0.000	1.01	0.00	0.68	1.0	0.064
12.967	0.000	1.01	0.00	0.68	1.0	0.064
12.983	0.000	1.01	0.00	0.68	1.0	0.064
13.000	0.000	1.01	0.00	0.68	1.0	0.064
13.017	0.000	1.02	0.00	0.68	1.0	0.064
13.033	0.000	1.02	0.00	0.68	1.0	0.064
13.050	0.000	1.02	0.00	0.68	1.0	0.064
13.067	0.000	1.03	0.00	0.68	1.0	0.064
13.083	0.000	1.03	0.00	0.68	1.0	0.064
13.100	0.000	1.03	0.00	0.68	1.0	0.064
13.117	0.000	1.04	0.00	0.68	1.0	0.064
13.133	0.000	1.04	0.00	0.68	1.0	0.064
13.150	0.000	1.05	0.00	0.69	1.0	0.064
13.167	0.000	1.05	0.00	0.69	1.0	0.064
13.183	0.000	1.05	0.00	0.69	1.0	0.064
13.200	0.000	1.06	0.00	0.69	1.0	0.064
13.217	0.000	1.06	0.00	0.69	1.0	0.064
13.233	0.000	1.06	0.00	0.69	1.0	0.065
13.250	0.000	1.07	0.00	0.69	1.0	0.065
13.267	0.000	1.07	0.00	0.69	1.0	0.065
13.283	0.000	1.07	0.00	0.69	1.0	0.065
13.300	0.000	1.07	0.00	0.69	1.0	0.065
13.317	0.000	1.07	0.00	0.69	1.0	0.065
13.333	0.000	1.08	0.00	0.69	1.0	0.065
13.350	0.000	1.08	0.00	0.69	1.0	0.065
13.367	0.000	1.08	0.00	0.69	1.0	0.065
13.383	0.000	1.08	0.00	0.69	1.0	0.065
13.400	0.000	1.09	0.00	0.69	1.0	0.065
13.417	0.000	1.09	0.00	0.69	1.1	0.065
13.433	0.000	1.10	0.00	0.69	1.1	0.065
13.450	0.000	1.10	0.00	0.69	1.1	0.065
13.467	0.000	1.11	0.00	0.70	1.1	0.065
13.483	0.000	1.11	0.00	0.70	1.1	0.065
13.500	0.000	1.11	0.00	0.70	1.1	0.065
13.517	0.000	1.12	0.00	0.70	1.1	0.066
13.533	0.000	1.12	0.00	0.70	1.1	0.066
13.550	0.000	1.13	0.00	0.70	1.1	0.066
13.567	0.000	1.13	0.00	0.70	1.1	0.066
13.583	0.000	1.14	0.00	0.70	1.1	0.066
13.600	0.000	1.14	0.00	0.70	1.1	0.066
13.617	0.000	1.15	0.00	0.70	1.1	0.066
13.633	0.000	1.15	0.00	0.70	1.1	0.066
13.650	0.000	1.15	0.00	0.70	1.1	0.066
13.667	0.000	1.15	0.00	0.70	1.1	0.066
13.683	0.000	1.16	0.00	0.70	1.1	0.066
13.700	0.000	1.16	0.00	0.70	1.1	0.066
13.717	0.000	1.16	0.00	0.71	1.1	0.066
13.733	0.000	1.16	0.00	0.71	1.1	0.066
13.750	0.000	1.17	0.00	0.71	1.1	0.066
13.767	0.000	1.17	0.00	0.71	1.1	0.067
13.783	0.000	1.17	0.00	0.71	1.1	0.067
13.800	0.000	1.18	0.00	0.71	1.1	0.067
13.817	0.000	1.19	0.00	0.71	1.1	0.067
13.833	0.000	1.19	0.00	0.71	1.1	0.067
13.850	0.000	1.20	0.00	0.71	1.1	0.067
13.867	0.000	1.21	0.00	0.71	1.1	0.067
13.883	0.000	1.21	0.00	0.71	1.2	0.067
13.900	0.000	1.22	0.00	0.71	1.2	0.067
13.917	0.000	1.22	0.00	0.71	1.2	0.067
13.933	0.000	1.23	0.00	0.71	1.2	0.067
13.950	0.000	1.24	0.00	0.72	1.2	0.067
13.967	0.000	1.24	0.00	0.72	1.2	0.068
13.983	0.000	1.24	0.00	0.72	1.2	0.068
14.000	0.000	1.25	0.00	0.72	1.2	0.068
14.017	0.000	1.25	0.00	0.72	1.2	0.068
14.033	0.000	1.25	0.00	0.72	1.2	0.068
14.050	0.000	1.25	0.00	0.72	1.2	0.068
14.067	0.000	1.26	0.00	0.72	1.2	0.068
14.083	0.000	1.26	0.00	0.72	1.2	0.068
14.100	0.000	1.26	0.00	0.72	1.2	0.068
14.117	0.000	1.26	0.00	0.72	1.2	0.068
14.133	0.000	1.27	0.00	0.72	1.2	0.068
14.150	0.000	1.27	0.00	0.72	1.2	0.068
14.167	0.000	1.27	0.00	0.73	1.2	0.068
14.183	0.000	1.27	0.00	0.73	1.2	0.069
14.200	0.000	1.27	0.00	0.73	1.2	0.069
14.217	0.000	1.27	0.00	0.73	1.2	0.069
14.233	0.000	1.27	0.00	0.73	1.2	0.069
14.250	0.000	1.27	0.00	0.73	1.2	0.069
14.267	0.000	1.28	0.00	0.73	1.2	0.069
14.283	0.000	1.28	0.00	0.73	1.2	0.069
14.300	0.000	1.28	0.00	0.73	1.2	0.069
14.317	0.000	1.28	0.00	0.73	1.2	0.069
14.333	0.000	1.28	0.00	0.73	1.2	0.069
14.350	0.000	1.28	0.00	0.73	1.3	0.069
14.367	0.000	1.29	0.00	0.73	1.3	0.069
14.383	0.000	1.29	0.00	0.73	1.3	0.069
14.400	0.000	1.30	0.00	0.73	1.3	0.069
14.417	0.000	1.30	0.00	0.73	1.3	0.069
14.433	0.000	1.31	0.00	0.73	1.3	0.069
14.450	0.000	1.31	0.00	0.73	1.3	0.069
14.467	0.000	1.32	0.00	0.73	1.3	0.069
14.483	0.000	1.32	0.00	0.74	1.3	0.069
14.500	0.000	1.33	0.00	0.74	1.3	0.070
14.517	0.000	1.33	0.00	0.74	1.3	0.070
14.533	0.000	1.34	0.00	0.74	1.3	0.070
14.550	0.000	1.35	0.00	0.74	1.3	0.070
14.567	0.000	1.36	0.00	0.74	1.3	0.070
14.583	0.000	1.37	0.00	0.74	1.3	0.070
14.600	0.000	1.39	0.00	0.74	1.3	0.070
14.617	0.000	1.40	0.00	0.74	1.3	0.070
14.633	0.000	1.41	0.00	0.74	1.3	0.070
14.650	0.000	1.42	0.00	0.74	1.3	0.070
14.667	0.000	1.43	0.00	0.75	1.3	0.071
14.683	0.000	1.44	0.00	0.75	1.3	0.071
14.700	0.000	1.45	0.00	0.75	1.3	0.071
14.717	0.000	1.46	0.00	0.75	1.4	0.071
14.733	0.000	1.47	0.00	0.75	1.4	0.071
14.750	0.000	1.47	0.00	0.75	1.4	0.071
14.767	0.000	1.48	0.00	0.75	1.4	0.071
14.783	0.000	1.49	0.00	0.76	1.4	0.072
14.800	0.000	1.49	0.00	0.76	1.4	0.072
14.817	0.000	1.50	0.00	0.76	1.4	0.072

14.833	0.000	1.51	0.00	0.76	1.4	0.072
14.850	0.000	1.51	0.00	0.76	1.4	0.072
14.867	0.000	1.52	0.00	0.76	1.4	0.072
14.883	0.000	1.53	0.00	0.76	1.4	0.072
14.900	0.000	1.54	0.00	0.77	1.4	0.073
14.917	0.000	1.56	0.00	0.77	1.4	0.073
14.933	0.000	1.58	0.00	0.77	1.5	0.073
14.950	0.000	1.59	0.00	0.77	1.5	0.073
14.967	0.000	1.61	0.00	0.77	1.5	0.073
14.983	0.000	1.63	0.00	0.77	1.5	0.074
15.000	0.000	1.64	0.00	0.78	1.5	0.074
15.017	0.000	1.66	0.00	0.78	1.5	0.074
15.033	0.000	1.68	0.00	0.78	1.5	0.074
15.050	0.000	1.70	0.00	0.78	1.5	0.074
15.067	0.000	1.71	0.00	0.79	1.5	0.075
15.083	0.000	1.73	0.00	0.79	1.6	0.075
15.100	0.000	1.74	0.00	0.79	1.6	0.075
15.117	0.000	1.75	0.00	0.79	1.6	0.075
15.133	0.000	1.76	0.00	0.79	1.6	0.076
15.150	0.000	1.77	0.00	0.80	1.6	0.076
15.167	0.000	1.78	0.00	0.80	1.6	0.076
15.183	0.000	1.79	0.00	0.80	1.6	0.076
15.200	0.000	1.81	0.00	0.80	1.6	0.077
15.217	0.000	1.82	0.00	0.81	1.6	0.077
15.233	0.000	1.83	0.00	0.81	1.7	0.077
15.250	0.000	1.84	0.00	0.81	1.7	0.077
15.267	0.000	1.86	0.00	0.81	1.7	0.077
15.283	0.000	1.92	0.00	0.82	1.7	0.078
15.300	0.000	1.98	0.00	0.82	1.7	0.078
15.317	0.000	2.04	0.00	0.82	1.7	0.079
15.333	0.000	2.11	0.00	0.83	1.8	0.079
15.350	0.000	2.17	0.00	0.83	1.8	0.080
15.367	0.000	2.23	0.00	0.84	1.8	0.080
15.383	0.000	2.29	0.00	0.84	1.8	0.081
15.400	0.000	2.35	0.00	0.85	1.9	0.081
15.417	0.000	2.41	0.00	0.86	1.9	0.082
15.433	0.000	2.47	0.00	0.86	1.9	0.083
15.450	0.000	2.54	0.00	0.87	2.0	0.084
15.467	0.000	2.62	0.00	0.88	2.0	0.084
15.483	0.000	2.70	0.00	0.89	2.1	0.085
15.500	0.000	2.79	0.00	0.90	2.1	0.086
15.517	0.000	2.87	0.00	0.91	2.2	0.087
15.533	0.000	2.95	0.00	0.92	2.2	0.088
15.550	0.000	3.04	0.00	0.93	2.3	0.089
15.567	0.000	3.12	0.00	0.94	2.3	0.090
15.583	0.000	3.20	0.00	0.95	2.4	0.091
15.600	0.000	3.29	0.00	0.96	2.4	0.093
15.617	0.000	3.37	0.00	0.97	2.5	0.094
15.633	0.000	3.45	0.00	0.98	2.6	0.095
15.650	0.000	3.53	0.00	0.99	2.6	0.096
15.667	0.000	3.60	0.00	1.00	2.7	0.098
15.683	0.000	3.67	0.00	1.01	2.7	0.099
15.700	0.000	3.74	0.00	1.03	2.7	0.100
15.717	0.000	3.82	0.00	1.04	2.8	0.102
15.733	0.000	3.89	0.00	1.05	2.8	0.103
15.750	0.000	3.96	0.00	1.06	2.8	0.105
15.767	0.000	4.03	0.00	1.08	2.8	0.106
15.783	0.000	4.10	0.00	1.09	2.9	0.108
15.800	0.000	4.18	0.00	1.10	2.9	0.110
15.817	0.000	4.25	0.00	1.12	2.9	0.112
15.833	0.000	4.34	0.00	1.13	3.0	0.114
15.850	0.000	4.45	0.00	1.15	3.0	0.116
15.867	0.000	4.56	0.00	1.17	3.0	0.118
15.883	0.000	4.67	0.00	1.18	3.1	0.120
15.900	0.000	4.77	0.00	1.20	3.1	0.122
15.917	0.000	4.88	0.00	1.22	3.1	0.125
15.933	0.000	4.99	0.00	1.24	3.2	0.127
15.950	0.000	5.10	0.00	1.26	3.2	0.130
15.967	0.000	5.20	0.00	1.28	3.3	0.132
15.983	0.000	5.31	0.00	1.30	3.3	0.135
16.000	0.000	5.42	0.00	1.33	3.4	0.138
16.017	0.000	5.80	0.00	1.35	3.4	0.141
16.033	0.000	6.46	0.00	1.39	3.5	0.145
16.050	0.000	7.11	0.00	1.43	3.6	0.150
16.067	0.000	7.77	0.00	1.47	3.6	0.156
16.083	0.000	8.42	0.00	1.52	3.7	0.162
16.100	0.000	9.08	0.00	1.58	3.9	0.169
16.117	0.000	9.73	0.00	1.64	4.0	0.177
16.133	0.000	10.39	0.00	1.71	4.1	0.186
16.150	0.000	11.04	0.00	1.79	4.3	0.195
16.167	0.000	11.70	0.00	1.87	4.4	0.205
16.183	0.000	12.35	0.00	1.95	4.6	0.216
16.200	0.000	12.80	0.00	2.03	4.8	0.227
16.217	0.000	11.75	0.00	2.09	4.9	0.237
16.233	0.000	10.96	0.00	2.14	5.0	0.245
16.250	0.000	10.17	0.00	2.19	5.0	0.252
16.267	0.000	9.37	0.00	2.23	5.1	0.258
16.283	0.000	8.58	0.00	2.26	5.1	0.263
16.300	0.000	7.79	0.00	2.28	5.1	0.266
16.317	0.000	6.99	0.00	2.30	5.2	0.269
16.333	0.000	6.20	0.00	2.30	5.2	0.270
16.350	0.000	5.41	0.00	2.31	5.2	0.270
16.367	0.000	4.62	0.00	2.30	5.2	0.270
16.383	0.000	3.95	0.00	2.29	5.2	0.268
16.400	0.000	3.74	0.00	2.28	5.2	0.266
16.417	0.000	3.56	0.00	2.26	5.2	0.264
16.433	0.000	3.39	0.00	2.25	5.1	0.261
16.450	0.000	3.22	0.00	2.23	5.1	0.259
16.467	0.000	3.05	0.00	2.21	5.1	0.256
16.483	0.000	2.87	0.00	2.20	5.1	0.253
16.500	0.000	2.70	0.00	2.18	5.0	0.250
16.517	0.000	2.53	0.00	2.15	5.0	0.246
16.533	0.000	2.35	0.00	2.13	5.0	0.243
16.550	0.000	2.18	0.00	2.11	5.0	0.239
16.567	0.000	2.02	0.00	2.08	4.9	0.235
16.583	0.000	1.97	0.00	2.06	4.9	0.231
16.600	0.000	1.93	0.00	2.03	4.9	0.227
16.617	0.000	1.90	0.00	2.00	4.8	0.223
16.633	0.000	1.87	0.00	1.97	4.8	0.219
16.650	0.000	1.83	0.00	1.94	4.7	0.215
16.667	0.000	1.80	0.00	1.91	4.6	0.211
16.683	0.000	1.76	0.00	1.88	4.6	0.207
16.700	0.000	1.73	0.00	1.85	4.5	0.203
16.717	0.000	1.70	0.00	1.82	4.5	0.199
16.733	0.000	1.66	0.00	1.79	4.4	0.196
16.750	0.000	1.63	0.00	1.76	4.3	0.192
16.767	0.000	1.60	0.00	1.73	4.3	0.188
16.783	0.000	1.58	0.00	1.70	4.2	0.185

16.800	0.000	1.56	0.00	1.67	4.1	0.181
16.817	0.000	1.54	0.00	1.64	4.1	0.178
16.833	0.000	1.52	0.00	1.62	4.0	0.174
16.850	0.000	1.50	0.00	1.59	4.0	0.171
16.867	0.000	1.48	0.00	1.56	3.9	0.167
16.883	0.000	1.46	0.00	1.54	3.9	0.164
16.900	0.000	1.44	0.00	1.51	3.8	0.161
16.917	0.000	1.42	0.00	1.48	3.7	0.158
16.933	0.000	1.40	0.00	1.46	3.7	0.154
16.950	0.000	1.38	0.00	1.43	3.6	0.151
16.967	0.000	1.37	0.00	1.41	3.6	0.148
16.983	0.000	1.35	0.00	1.39	3.5	0.145
17.000	0.000	1.34	0.00	1.36	3.5	0.142
17.017	0.000	1.32	0.00	1.34	3.4	0.139
17.033	0.000	1.31	0.00	1.32	3.4	0.137
17.050	0.000	1.30	0.00	1.29	3.3	0.134
17.067	0.000	1.28	0.00	1.27	3.3	0.131
17.083	0.000	1.27	0.00	1.25	3.2	0.128
17.100	0.000	1.25	0.00	1.23	3.2	0.126
17.117	0.000	1.24	0.00	1.21	3.2	0.123
17.133	0.000	1.23	0.00	1.19	3.1	0.120
17.150	0.000	1.23	0.00	1.17	3.1	0.118
17.167	0.000	1.23	0.00	1.15	3.0	0.115
17.183	0.000	1.22	0.00	1.13	3.0	0.113
17.200	0.000	1.22	0.00	1.11	2.9	0.110
17.217	0.000	1.22	0.00	1.09	2.9	0.108
17.233	0.000	1.22	0.00	1.07	2.9	0.106
17.250	0.000	1.21	0.00	1.05	2.8	0.104
17.267	0.000	1.21	0.00	1.04	2.8	0.101
17.283	0.000	1.21	0.00	1.02	2.8	0.099
17.300	0.000	1.21	0.00	1.00	2.7	0.097
17.317	0.000	1.20	0.00	0.98	2.7	0.095
17.333	0.000	1.19	0.00	0.97	2.6	0.093
17.350	0.000	1.18	0.00	0.95	2.5	0.092
17.367	0.000	1.18	0.00	0.93	2.4	0.090
17.383	0.000	1.17	0.00	0.92	2.3	0.088
17.400	0.000	1.16	0.00	0.90	2.2	0.087
17.417	0.000	1.15	0.00	0.89	2.1	0.086
17.433	0.000	1.14	0.00	0.88	2.1	0.084
17.450	0.000	1.14	0.00	0.87	2.0	0.083
17.467	0.000	1.13	0.00	0.86	2.0	0.082
17.483	0.000	1.12	0.00	0.85	1.9	0.081
17.500	0.000	1.11	0.00	0.84	1.8	0.080
17.517	0.000	1.10	0.00	0.83	1.8	0.079
17.533	0.000	1.10	0.00	0.82	1.7	0.078
17.550	0.000	1.09	0.00	0.81	1.7	0.077
17.567	0.000	1.09	0.00	0.80	1.7	0.076
17.583	0.000	1.08	0.00	0.80	1.6	0.076
17.600	0.000	1.07	0.00	0.79	1.6	0.075
17.617	0.000	1.07	0.00	0.78	1.5	0.074
17.633	0.000	1.06	0.00	0.78	1.5	0.074
17.650	0.000	1.05	0.00	0.77	1.5	0.073
17.667	0.000	1.05	0.00	0.76	1.5	0.073
17.683	0.000	1.04	0.00	0.76	1.4	0.072
17.700	0.000	1.03	0.00	0.76	1.4	0.072
17.717	0.000	1.03	0.00	0.75	1.4	0.071
17.733	0.000	1.02	0.00	0.75	1.3	0.071
17.750	0.000	1.02	0.00	0.74	1.3	0.070
17.767	0.000	1.01	0.00	0.74	1.3	0.070
17.783	0.000	1.01	0.00	0.73	1.3	0.069
17.800	0.000	1.00	0.00	0.73	1.3	0.069
17.817	0.000	1.00	0.00	0.73	1.2	0.069
17.833	0.000	0.99	0.00	0.72	1.2	0.068
17.850	0.000	0.98	0.00	0.72	1.2	0.068
17.867	0.000	0.98	0.00	0.72	1.2	0.068
17.883	0.000	0.97	0.00	0.72	1.2	0.067
17.900	0.000	0.97	0.00	0.71	1.2	0.067
17.917	0.000	0.96	0.00	0.71	1.2	0.067
17.933	0.000	0.96	0.00	0.71	1.1	0.067
17.950	0.000	0.96	0.00	0.71	1.1	0.066
17.967	0.000	0.95	0.00	0.70	1.1	0.066
17.983	0.000	0.95	0.00	0.70	1.1	0.066
18.000	0.000	0.94	0.00	0.70	1.1	0.066
18.017	0.000	0.94	0.00	0.70	1.1	0.066
18.033	0.000	0.93	0.00	0.70	1.1	0.065
18.050	0.000	0.93	0.00	0.69	1.1	0.065
18.067	0.000	0.92	0.00	0.69	1.1	0.065
18.083	0.000	0.92	0.00	0.69	1.0	0.065
18.100	0.000	0.92	0.00	0.69	1.0	0.065
18.117	0.000	0.92	0.00	0.69	1.0	0.065
18.133	0.000	0.92	0.00	0.69	1.0	0.064
18.150	0.000	0.92	0.00	0.69	1.0	0.064
18.167	0.000	0.92	0.00	0.68	1.0	0.064
18.183	0.000	0.92	0.00	0.68	1.0	0.064
18.200	0.000	0.92	0.00	0.68	1.0	0.064
18.217	0.000	0.92	0.00	0.68	1.0	0.064
18.233	0.000	0.92	0.00	0.68	1.0	0.064
18.250	0.000	0.92	0.00	0.68	1.0	0.064
18.267	0.000	0.91	0.00	0.68	1.0	0.064
18.283	0.000	0.91	0.00	0.68	1.0	0.064
18.300	0.000	0.91	0.00	0.68	1.0	0.063
18.317	0.000	0.90	0.00	0.68	1.0	0.063
18.333	0.000	0.90	0.00	0.68	1.0	0.063
18.350	0.000	0.89	0.00	0.67	1.0	0.063
18.367	0.000	0.89	0.00	0.67	0.9	0.063
18.383	0.000	0.89	0.00	0.67	0.9	0.063
18.400	0.000	0.88	0.00	0.67	0.9	0.063
18.417	0.000	0.88	0.00	0.67	0.9	0.063
18.433	0.000	0.88	0.00	0.67	0.9	0.063
18.450	0.000	0.87	0.00	0.67	0.9	0.063
18.467	0.000	0.87	0.00	0.67	0.9	0.063
18.483	0.000	0.87	0.00	0.67	0.9	0.063
18.500	0.000	0.87	0.00	0.67	0.9	0.063
18.517	0.000	0.86	0.00	0.67	0.9	0.062
18.533	0.000	0.86	0.00	0.67	0.9	0.062
18.550	0.000	0.86	0.00	0.67	0.9	0.062
18.567	0.000	0.85	0.00	0.67	0.9	0.062
18.583	0.000	0.85	0.00	0.66	0.9	0.062
18.600	0.000	0.85	0.00	0.66	0.9	0.062
18.617	0.000	0.84	0.00	0.66	0.9	0.062
18.633	0.000	0.84	0.00	0.66	0.9	0.062
18.650	0.000	0.84	0.00	0.66	0.9	0.062
18.667	0.000	0.84	0.00	0.66	0.9	0.062
18.683	0.000	0.83	0.00	0.66	0.9	0.062
18.700	0.000	0.83	0.00	0.66	0.9	0.062
18.717	0.000	0.83	0.00	0.66	0.9	0.062
18.733	0.000	0.82	0.00	0.66	0.9	0.062
18.750	0.000	0.82	0.00	0.66	0.9	0.062

18.767	0.000	0.82	0.00	0.66	0.9	0.061
18.783	0.000	0.82	0.00	0.66	0.9	0.061
18.800	0.000	0.81	0.00	0.66	0.9	0.061
18.817	0.000	0.81	0.00	0.66	0.9	0.061
18.833	0.000	0.81	0.00	0.66	0.9	0.061
18.850	0.000	0.81	0.00	0.66	0.8	0.061
18.867	0.000	0.80	0.00	0.65	0.8	0.061
18.883	0.000	0.80	0.00	0.65	0.8	0.061
18.900	0.000	0.80	0.00	0.65	0.8	0.061
18.917	0.000	0.80	0.00	0.65	0.8	0.061
18.933	0.000	0.79	0.00	0.65	0.8	0.061
18.950	0.000	0.79	0.00	0.65	0.8	0.061
18.967	0.000	0.79	0.00	0.65	0.8	0.061
18.983	0.000	0.79	0.00	0.65	0.8	0.061
19.000	0.000	0.78	0.00	0.65	0.8	0.061
19.017	0.000	0.78	0.00	0.65	0.8	0.061
19.033	0.000	0.78	0.00	0.65	0.8	0.061
19.050	0.000	0.78	0.00	0.65	0.8	0.061
19.067	0.000	0.78	0.00	0.65	0.8	0.060
19.083	0.000	0.77	0.00	0.65	0.8	0.060
19.100	0.000	0.77	0.00	0.65	0.8	0.060
19.117	0.000	0.77	0.00	0.65	0.8	0.060
19.133	0.000	0.77	0.00	0.65	0.8	0.060
19.150	0.000	0.76	0.00	0.65	0.8	0.060
19.167	0.000	0.76	0.00	0.65	0.8	0.060
19.183	0.000	0.76	0.00	0.65	0.8	0.060
19.200	0.000	0.76	0.00	0.64	0.8	0.060
19.217	0.000	0.76	0.00	0.64	0.8	0.060
19.233	0.000	0.75	0.00	0.64	0.8	0.060
19.250	0.000	0.75	0.00	0.64	0.8	0.060
19.267	0.000	0.75	0.00	0.64	0.8	0.060
19.283	0.000	0.75	0.00	0.64	0.8	0.060
19.300	0.000	0.75	0.00	0.64	0.8	0.060
19.317	0.000	0.74	0.00	0.64	0.8	0.060
19.333	0.000	0.74	0.00	0.64	0.8	0.060
19.350	0.000	0.74	0.00	0.64	0.8	0.060
19.367	0.000	0.74	0.00	0.64	0.8	0.060
19.383	0.000	0.74	0.00	0.64	0.8	0.060
19.400	0.000	0.73	0.00	0.64	0.8	0.060
19.417	0.000	0.73	0.00	0.64	0.8	0.059
19.433	0.000	0.73	0.00	0.64	0.8	0.059
19.450	0.000	0.73	0.00	0.64	0.8	0.059
19.467	0.000	0.73	0.00	0.64	0.8	0.059
19.483	0.000	0.72	0.00	0.64	0.8	0.059
19.500	0.000	0.72	0.00	0.64	0.8	0.059
19.517	0.000	0.72	0.00	0.64	0.7	0.059
19.533	0.000	0.72	0.00	0.64	0.7	0.059
19.550	0.000	0.72	0.00	0.64	0.7	0.059
19.567	0.000	0.71	0.00	0.64	0.7	0.059
19.583	0.000	0.71	0.00	0.64	0.7	0.059
19.600	0.000	0.71	0.00	0.64	0.7	0.059
19.617	0.000	0.71	0.00	0.63	0.7	0.059
19.633	0.000	0.71	0.00	0.63	0.7	0.059
19.650	0.000	0.71	0.00	0.63	0.7	0.059
19.667	0.000	0.70	0.00	0.63	0.7	0.059
19.683	0.000	0.70	0.00	0.63	0.7	0.059
19.700	0.000	0.70	0.00	0.63	0.7	0.059
19.717	0.000	0.70	0.00	0.63	0.7	0.059
19.733	0.000	0.70	0.00	0.63	0.7	0.059
19.750	0.000	0.70	0.00	0.63	0.7	0.059
19.767	0.000	0.69	0.00	0.63	0.7	0.059
19.783	0.000	0.69	0.00	0.63	0.7	0.059
19.800	0.000	0.69	0.00	0.63	0.7	0.059
19.817	0.000	0.69	0.00	0.63	0.7	0.059
19.833	0.000	0.69	0.00	0.63	0.7	0.059
19.850	0.000	0.69	0.00	0.63	0.7	0.059
19.867	0.000	0.69	0.00	0.63	0.7	0.058
19.883	0.000	0.68	0.00	0.63	0.7	0.058
19.900	0.000	0.68	0.00	0.63	0.7	0.058
19.917	0.000	0.68	0.00	0.63	0.7	0.058
19.933	0.000	0.68	0.00	0.63	0.7	0.058
19.950	0.000	0.68	0.00	0.63	0.7	0.058
19.967	0.000	0.68	0.00	0.63	0.7	0.058
19.983	0.000	0.67	0.00	0.63	0.7	0.058
20.000	0.000	0.67	0.00	0.63	0.7	0.058
20.017	0.000	0.67	0.00	0.63	0.7	0.058
20.033	0.000	0.67	0.00	0.63	0.7	0.058
20.050	0.000	0.67	0.00	0.63	0.7	0.058
20.067	0.000	0.67	0.00	0.63	0.7	0.058
20.083	0.000	0.67	0.00	0.63	0.7	0.058
20.100	0.000	0.66	0.00	0.63	0.7	0.058
20.117	0.000	0.66	0.00	0.63	0.7	0.058
20.133	0.000	0.66	0.00	0.62	0.7	0.058
20.150	0.000	0.66	0.00	0.62	0.7	0.058
20.167	0.000	0.66	0.00	0.62	0.7	0.058
20.183	0.000	0.66	0.00	0.62	0.7	0.058
20.200	0.000	0.66	0.00	0.62	0.7	0.058
20.217	0.000	0.65	0.00	0.62	0.7	0.058
20.233	0.000	0.65	0.00	0.62	0.7	0.058
20.250	0.000	0.65	0.00	0.62	0.7	0.058
20.267	0.000	0.65	0.00	0.62	0.7	0.058
20.283	0.000	0.65	0.00	0.62	0.7	0.058
20.300	0.000	0.65	0.00	0.62	0.7	0.058
20.317	0.000	0.65	0.00	0.62	0.7	0.058
20.333	0.000	0.65	0.00	0.62	0.7	0.058
20.350	0.000	0.64	0.00	0.62	0.7	0.058
20.367	0.000	0.64	0.00	0.62	0.7	0.058
20.383	0.000	0.64	0.00	0.62	0.7	0.058
20.400	0.000	0.64	0.00	0.62	0.7	0.058
20.417	0.000	0.64	0.00	0.62	0.7	0.058
20.433	0.000	0.64	0.00	0.62	0.7	0.057
20.450	0.000	0.64	0.00	0.62	0.7	0.057
20.467	0.000	0.63	0.00	0.62	0.7	0.057
20.483	0.000	0.63	0.00	0.62	0.7	0.057
20.500	0.000	0.63	0.00	0.62	0.7	0.057
20.517	0.000	0.63	0.00	0.62	0.6	0.057
20.533	0.000	0.63	0.00	0.62	0.6	0.057
20.550	0.000	0.63	0.00	0.62	0.6	0.057
20.567	0.000	0.63	0.00	0.62	0.6	0.057
20.583	0.000	0.63	0.00	0.62	0.6	0.057
20.600	0.000	0.63	0.00	0.62	0.6	0.057
20.617	0.000	0.62	0.00	0.62	0.6	0.057
20.633	0.000	0.62	0.00	0.62	0.6	0.057
20.650	0.000	0.62	0.00	0.62	0.6	0.057
20.667	0.000	0.62	0.00	0.62	0.6	0.057
20.683	0.000	0.62	0.00	0.62	0.6	0.057
20.700	0.000	0.62	0.00	0.62	0.6	0.057
20.717	0.000	0.62	0.00	0.62	0.6	0.057

20.733	0.000	0.62	0.00	0.62	0.6	0.057
20.750	0.000	0.61	0.00	0.62	0.6	0.057
20.767	0.000	0.61	0.00	0.62	0.6	0.057
20.783	0.000	0.61	0.00	0.61	0.6	0.057
20.800	0.000	0.61	0.00	0.61	0.6	0.057
20.817	0.000	0.61	0.00	0.61	0.6	0.057
20.833	0.000	0.61	0.00	0.61	0.6	0.057
20.850	0.000	0.61	0.00	0.61	0.6	0.057
20.867	0.000	0.61	0.00	0.61	0.6	0.057
20.883	0.000	0.61	0.00	0.61	0.6	0.057
20.900	0.000	0.60	0.00	0.61	0.6	0.057
20.917	0.000	0.60	0.00	0.61	0.6	0.057
20.933	0.000	0.60	0.00	0.61	0.6	0.057
20.950	0.000	0.60	0.00	0.61	0.6	0.057
20.967	0.000	0.60	0.00	0.61	0.6	0.057
20.983	0.000	0.60	0.00	0.61	0.6	0.057
21.000	0.000	0.60	0.00	0.61	0.6	0.057
21.017	0.000	0.60	0.00	0.61	0.6	0.057
21.033	0.000	0.60	0.00	0.61	0.6	0.057
21.050	0.000	0.60	0.00	0.61	0.6	0.057
21.067	0.000	0.59	0.00	0.61	0.6	0.057
21.083	0.000	0.59	0.00	0.61	0.6	0.057
21.100	0.000	0.59	0.00	0.61	0.6	0.057
21.117	0.000	0.59	0.00	0.61	0.6	0.057
21.133	0.000	0.59	0.00	0.61	0.6	0.056
21.150	0.000	0.59	0.00	0.61	0.6	0.056
21.167	0.000	0.59	0.00	0.61	0.6	0.056
21.183	0.000	0.59	0.00	0.61	0.6	0.056
21.200	0.000	0.59	0.00	0.61	0.6	0.056
21.217	0.000	0.59	0.00	0.61	0.6	0.056
21.233	0.000	0.58	0.00	0.61	0.6	0.056
21.250	0.000	0.58	0.00	0.61	0.6	0.056
21.267	0.000	0.58	0.00	0.61	0.6	0.056
21.283	0.000	0.58	0.00	0.61	0.6	0.056
21.300	0.000	0.58	0.00	0.61	0.6	0.056
21.317	0.000	0.58	0.00	0.61	0.6	0.056
21.333	0.000	0.58	0.00	0.61	0.6	0.056
21.350	0.000	0.58	0.00	0.61	0.6	0.056
21.367	0.000	0.58	0.00	0.61	0.6	0.056
21.383	0.000	0.58	0.00	0.61	0.6	0.056
21.400	0.000	0.57	0.00	0.61	0.6	0.056
21.417	0.000	0.57	0.00	0.61	0.6	0.056
21.433	0.000	0.57	0.00	0.61	0.6	0.056
21.450	0.000	0.57	0.00	0.61	0.6	0.056
21.467	0.000	0.57	0.00	0.61	0.6	0.056
21.483	0.000	0.57	0.00	0.61	0.6	0.056
21.500	0.000	0.57	0.00	0.61	0.6	0.056
21.517	0.000	0.57	0.00	0.61	0.6	0.056
21.533	0.000	0.57	0.00	0.61	0.6	0.056
21.550	0.000	0.57	0.00	0.61	0.6	0.056
21.567	0.000	0.57	0.00	0.61	0.6	0.056
21.583	0.000	0.56	0.00	0.61	0.6	0.056
21.600	0.000	0.56	0.00	0.61	0.6	0.056
21.617	0.000	0.56	0.00	0.61	0.6	0.056
21.633	0.000	0.56	0.00	0.60	0.6	0.056
21.650	0.000	0.56	0.00	0.60	0.6	0.056
21.667	0.000	0.56	0.00	0.60	0.6	0.056
21.683	0.000	0.56	0.00	0.60	0.6	0.056
21.700	0.000	0.56	0.00	0.60	0.6	0.056
21.717	0.000	0.56	0.00	0.60	0.6	0.056
21.733	0.000	0.56	0.00	0.60	0.6	0.056
21.750	0.000	0.56	0.00	0.60	0.6	0.056
21.767	0.000	0.56	0.00	0.60	0.6	0.056
21.783	0.000	0.55	0.00	0.60	0.6	0.056
21.800	0.000	0.55	0.00	0.60	0.6	0.056
21.817	0.000	0.55	0.00	0.60	0.6	0.056
21.833	0.000	0.55	0.00	0.60	0.6	0.056
21.850	0.000	0.55	0.00	0.60	0.6	0.056
21.867	0.000	0.55	0.00	0.60	0.6	0.056
21.883	0.000	0.55	0.00	0.60	0.6	0.056
21.900	0.000	0.55	0.00	0.60	0.6	0.056
21.917	0.000	0.55	0.00	0.60	0.6	0.056
21.933	0.000	0.55	0.00	0.60	0.6	0.056
21.950	0.000	0.55	0.00	0.60	0.6	0.056
21.967	0.000	0.55	0.00	0.60	0.6	0.056
21.983	0.000	0.54	0.00	0.60	0.6	0.056
22.000	0.000	0.54	0.00	0.60	0.6	0.056
22.017	0.000	0.54	0.00	0.60	0.6	0.056
22.033	0.000	0.54	0.00	0.60	0.6	0.055
22.050	0.000	0.54	0.00	0.60	0.6	0.055
22.067	0.000	0.54	0.00	0.60	0.6	0.055
22.083	0.000	0.54	0.00	0.60	0.6	0.055
22.100	0.000	0.54	0.00	0.60	0.6	0.055
22.117	0.000	0.54	0.00	0.60	0.6	0.055
22.133	0.000	0.54	0.00	0.60	0.5	0.055
22.150	0.000	0.54	0.00	0.60	0.5	0.055
22.167	0.000	0.54	0.00	0.60	0.5	0.055
22.183	0.000	0.54	0.00	0.60	0.5	0.055
22.200	0.000	0.53	0.00	0.60	0.5	0.055
22.216	0.000	0.53	0.00	0.60	0.5	0.055
22.233	0.000	0.53	0.00	0.60	0.5	0.055
22.250	0.000	0.53	0.00	0.60	0.5	0.055
22.266	0.000	0.53	0.00	0.60	0.5	0.055
22.283	0.000	0.53	0.00	0.60	0.5	0.055
22.300	0.000	0.53	0.00	0.60	0.5	0.055
22.316	0.000	0.53	0.00	0.60	0.5	0.055
22.333	0.000	0.53	0.00	0.60	0.5	0.055
22.350	0.000	0.53	0.00	0.60	0.5	0.055
22.366	0.000	0.53	0.00	0.60	0.5	0.055
22.383	0.000	0.53	0.00	0.60	0.5	0.055
22.400	0.000	0.53	0.00	0.60	0.5	0.055
22.416	0.000	0.53	0.00	0.60	0.5	0.055
22.433	0.000	0.52	0.00	0.60	0.5	0.055
22.450	0.000	0.52	0.00	0.60	0.5	0.055
22.466	0.000	0.52	0.00	0.60	0.5	0.055
22.483	0.000	0.52	0.00	0.60	0.5	0.055
22.500	0.000	0.52	0.00	0.60	0.5	0.055
22.516	0.000	0.52	0.00	0.60	0.5	0.055
22.533	0.000	0.52	0.00	0.60	0.5	0.055
22.550	0.000	0.52	0.00	0.60	0.5	0.055
22.566	0.000	0.52	0.00	0.60	0.5	0.055
22.583	0.000	0.52	0.00	0.60	0.5	0.055
22.600	0.000	0.52	0.00	0.60	0.5	0.055
22.616	0.000	0.52	0.00	0.60	0.5	0.055
22.633	0.000	0.52	0.00	0.60	0.5	0.055
22.650	0.000	0.52	0.00	0.60	0.5	0.055
22.666	0.000	0.52	0.00	0.60	0.5	0.055
22.683	0.000	0.51	0.00	0.60	0.5	0.055

22.700	0.000	0.51	0.00	0.60	0.5	0.055
22.716	0.000	0.51	0.00	0.60	0.5	0.055
22.733	0.000	0.51	0.00	0.59	0.5	0.055
22.750	0.000	0.51	0.00	0.59	0.5	0.055
22.766	0.000	0.51	0.00	0.59	0.5	0.055
22.783	0.000	0.51	0.00	0.59	0.5	0.055
22.800	0.000	0.51	0.00	0.59	0.5	0.055
22.816	0.000	0.51	0.00	0.59	0.5	0.055
22.833	0.000	0.51	0.00	0.59	0.5	0.055
22.850	0.000	0.51	0.00	0.59	0.5	0.055
22.866	0.000	0.51	0.00	0.59	0.5	0.055
22.883	0.000	0.51	0.00	0.59	0.5	0.055
22.900	0.000	0.51	0.00	0.59	0.5	0.055
22.916	0.000	0.51	0.00	0.59	0.5	0.055
22.933	0.000	0.50	0.00	0.59	0.5	0.055
22.950	0.000	0.50	0.00	0.59	0.5	0.055
22.966	0.000	0.50	0.00	0.59	0.5	0.055
22.983	0.000	0.50	0.00	0.59	0.5	0.055
23.000	0.000	0.50	0.00	0.59	0.5	0.055
23.016	0.000	0.50	0.00	0.59	0.5	0.055
23.033	0.000	0.50	0.00	0.59	0.5	0.055
23.050	0.000	0.50	0.00	0.59	0.5	0.055
23.066	0.000	0.50	0.00	0.59	0.5	0.055
23.083	0.000	0.50	0.00	0.59	0.5	0.055
23.100	0.000	0.50	0.00	0.59	0.5	0.055
23.116	0.000	0.50	0.00	0.59	0.5	0.055
23.133	0.000	0.50	0.00	0.59	0.5	0.055
23.150	0.000	0.50	0.00	0.59	0.5	0.055
23.166	0.000	0.50	0.00	0.59	0.5	0.055
23.183	0.000	0.50	0.00	0.59	0.5	0.055
23.200	0.000	0.49	0.00	0.59	0.5	0.055
23.216	0.000	0.49	0.00	0.59	0.5	0.055
23.233	0.000	0.49	0.00	0.59	0.5	0.054
23.250	0.000	0.49	0.00	0.59	0.5	0.054
23.266	0.000	0.49	0.00	0.59	0.5	0.054
23.283	0.000	0.49	0.00	0.59	0.5	0.054
23.300	0.000	0.49	0.00	0.59	0.5	0.054
23.316	0.000	0.49	0.00	0.59	0.5	0.054
23.333	0.000	0.49	0.00	0.59	0.5	0.054
23.350	0.000	0.49	0.00	0.59	0.5	0.054
23.366	0.000	0.49	0.00	0.59	0.5	0.054
23.383	0.000	0.49	0.00	0.59	0.5	0.054
23.400	0.000	0.49	0.00	0.59	0.5	0.054
23.416	0.000	0.49	0.00	0.59	0.5	0.054
23.433	0.000	0.49	0.00	0.59	0.5	0.054
23.450	0.000	0.49	0.00	0.59	0.5	0.054
23.466	0.000	0.49	0.00	0.59	0.5	0.054
23.483	0.000	0.49	0.00	0.59	0.5	0.054
23.500	0.000	0.48	0.00	0.59	0.5	0.054
23.516	0.000	0.48	0.00	0.59	0.5	0.054
23.533	0.000	0.48	0.00	0.59	0.5	0.054
23.550	0.000	0.48	0.00	0.59	0.5	0.054
23.566	0.000	0.48	0.00	0.59	0.5	0.054
23.583	0.000	0.48	0.00	0.59	0.5	0.054
23.600	0.000	0.48	0.00	0.59	0.5	0.054
23.616	0.000	0.48	0.00	0.59	0.5	0.054
23.633	0.000	0.48	0.00	0.59	0.5	0.054
23.650	0.000	0.48	0.00	0.59	0.5	0.054
23.666	0.000	0.48	0.00	0.59	0.5	0.054
23.683	0.000	0.48	0.00	0.59	0.5	0.054
23.700	0.000	0.48	0.00	0.59	0.5	0.054
23.716	0.000	0.48	0.00	0.59	0.5	0.054
23.733	0.000	0.48	0.00	0.59	0.5	0.054
23.750	0.000	0.48	0.00	0.59	0.5	0.054
23.766	0.000	0.48	0.00	0.59	0.5	0.054
23.783	0.000	0.48	0.00	0.59	0.5	0.054
23.800	0.000	0.47	0.00	0.59	0.5	0.054
23.816	0.000	0.47	0.00	0.59	0.5	0.054
23.833	0.000	0.47	0.00	0.59	0.5	0.054
23.850	0.000	0.47	0.00	0.59	0.5	0.054
23.866	0.000	0.47	0.00	0.59	0.5	0.054
23.883	0.000	0.47	0.00	0.59	0.5	0.054
23.900	0.000	0.47	0.00	0.59	0.5	0.054
23.916	0.000	0.47	0.00	0.59	0.5	0.054
23.933	0.000	0.47	0.00	0.59	0.5	0.054
23.950	0.000	0.47	0.00	0.59	0.5	0.054
23.966	0.000	0.47	0.00	0.59	0.5	0.054
23.983	0.000	0.47	0.00	0.59	0.5	0.054
24.000	0.000	0.47	0.00	0.59	0.5	0.054

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1.927 AF
BASIN STORAGE = 0.003 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 1.925 AF
LOSS VOLUME = 0.000 AF

****

FLOW PROCESS FROM NODE 110.00 TO NODE 110.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

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STREAM HYDROGRAPH IN ONE-MINUTE UNIT INTERVALS(CFS)
(Notes: Time indicated is at END of Each Unit Intervals.
Peak 5-minute rainfall intensity is modeled as
a constant value for entire 5-minute period.)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.017	0.0000	0.00	Q	.	.	.	.
0.033	0.0000	0.00	Q	.	.	.	.
0.050	0.0000	0.00	Q	.	.	.	.
0.067	0.0000	0.00	Q	.	.	.	.
0.083	0.0000	0.00	Q	.	.	.	.
0.100	0.0000	0.00	Q	.	.	.	.
0.117	0.0000	0.00	Q	.	.	.	.
0.133	0.0000	0.00	Q	.	.	.	.
0.150	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.183	0.0000	0.00	Q	.	.	.	.
0.200	0.0000	0.00	Q	.	.	.	.
0.217	0.0000	0.00	Q	.	.	.	.
0.233	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.267	0.0000	0.00	Q	.	.	.	.
0.283	0.0000	0.00	Q	.	.	.	.
0.300	0.0000	0.00	Q	.	.	.	.

0.317	0.0000	0.00	Q	.	.	.	.
0.333	0.0000	0.00	Q	.	.	.	.
0.350	0.0000	0.00	Q	.	.	.	.
0.367	0.0000	0.00	Q	.	.	.	.
0.383	0.0000	0.00	Q	.	.	.	.
0.400	0.0000	0.00	Q	.	.	.	.
0.417	0.0000	0.00	Q	.	.	.	.
0.433	0.0000	0.00	Q	.	.	.	.
0.450	0.0001	0.00	Q	.	.	.	.
0.467	0.0001	0.00	Q	.	.	.	.
0.483	0.0001	0.00	Q	.	.	.	.
0.500	0.0001	0.00	Q	.	.	.	.
0.517	0.0001	0.00	Q	.	.	.	.
0.533	0.0001	0.00	Q	.	.	.	.
0.550	0.0001	0.00	Q	.	.	.	.
0.567	0.0001	0.00	Q	.	.	.	.
0.583	0.0001	0.00	Q	.	.	.	.
0.600	0.0001	0.00	Q	.	.	.	.
0.617	0.0001	0.00	Q	.	.	.	.
0.633	0.0001	0.01	Q	.	.	.	.
0.650	0.0001	0.01	Q	.	.	.	.
0.667	0.0001	0.01	Q	.	.	.	.
0.683	0.0001	0.01	Q	.	.	.	.
0.700	0.0001	0.01	Q	.	.	.	.
0.717	0.0002	0.01	Q	.	.	.	.
0.733	0.0002	0.01	Q	.	.	.	.
0.750	0.0002	0.01	Q	.	.	.	.
0.767	0.0002	0.01	Q	.	.	.	.
0.783	0.0002	0.01	Q	.	.	.	.
0.800	0.0002	0.01	Q	.	.	.	.
0.817	0.0002	0.01	Q	.	.	.	.
0.833	0.0002	0.01	Q	.	.	.	.
0.850	0.0002	0.01	Q	.	.	.	.
0.867	0.0002	0.01	Q	.	.	.	.
0.883	0.0003	0.01	Q	.	.	.	.
0.900	0.0003	0.01	Q	.	.	.	.
0.917	0.0003	0.01	Q	.	.	.	.
0.933	0.0003	0.01	Q	.	.	.	.
0.950	0.0003	0.01	Q	.	.	.	.
0.967	0.0003	0.01	Q	.	.	.	.
0.983	0.0003	0.01	Q	.	.	.	.
1.000	0.0003	0.01	Q	.	.	.	.
1.017	0.0003	0.01	Q	.	.	.	.
1.033	0.0004	0.01	Q	.	.	.	.
1.050	0.0004	0.01	Q	.	.	.	.
1.067	0.0004	0.01	Q	.	.	.	.
1.083	0.0004	0.01	Q	.	.	.	.
1.100	0.0004	0.01	Q	.	.	.	.
1.117	0.0004	0.01	Q	.	.	.	.
1.133	0.0004	0.01	Q	.	.	.	.
1.150	0.0004	0.01	Q	.	.	.	.
1.167	0.0005	0.01	Q	.	.	.	.
1.183	0.0005	0.01	Q	.	.	.	.
1.200	0.0005	0.01	Q	.	.	.	.
1.217	0.0005	0.01	Q	.	.	.	.
1.233	0.0005	0.01	Q	.	.	.	.
1.250	0.0005	0.01	Q	.	.	.	.
1.267	0.0006	0.03	Q	.	.	.	.
1.283	0.0007	0.06	Q	.	.	.	.
1.300	0.0008	0.09	Q	.	.	.	.
1.317	0.0009	0.12	Q	.	.	.	.
1.333	0.0011	0.14	Q	.	.	.	.
1.350	0.0014	0.16	Q	.	.	.	.
1.367	0.0016	0.19	Q	.	.	.	.
1.383	0.0019	0.21	Q	.	.	.	.
1.400	0.0022	0.23	Q	.	.	.	.
1.417	0.0026	0.24	Q	.	.	.	.
1.433	0.0029	0.26	VQ	.	.	.	.
1.450	0.0033	0.28	VQ	.	.	.	.
1.467	0.0037	0.29	VQ	.	.	.	.
1.483	0.0041	0.30	VQ	.	.	.	.
1.500	0.0045	0.32	VQ	.	.	.	.
1.517	0.0050	0.33	VQ	.	.	.	.
1.533	0.0055	0.34	VQ	.	.	.	.
1.550	0.0059	0.35	VQ	.	.	.	.
1.567	0.0064	0.36	VQ	.	.	.	.
1.583	0.0069	0.37	VQ	.	.	.	.
1.600	0.0075	0.37	VQ	.	.	.	.
1.617	0.0080	0.38	VQ	.	.	.	.
1.633	0.0085	0.39	VQ	.	.	.	.
1.650	0.0091	0.40	VQ	.	.	.	.
1.667	0.0096	0.40	VQ	.	.	.	.
1.683	0.0102	0.41	VQ	.	.	.	.
1.700	0.0107	0.41	VQ	.	.	.	.
1.717	0.0113	0.42	VQ	.	.	.	.
1.733	0.0119	0.42	VQ	.	.	.	.
1.750	0.0125	0.43	VQ	.	.	.	.
1.767	0.0131	0.43	VQ	.	.	.	.
1.783	0.0137	0.44	VQ	.	.	.	.
1.800	0.0143	0.44	VQ	.	.	.	.
1.817	0.0149	0.44	VQ	.	.	.	.
1.833	0.0155	0.45	VQ	.	.	.	.
1.850	0.0161	0.45	VQ	.	.	.	.
1.867	0.0168	0.45	VQ	.	.	.	.
1.883	0.0174	0.46	VQ	.	.	.	.
1.900	0.0180	0.46	VQ	.	.	.	.
1.917	0.0187	0.46	VQ	.	.	.	.
1.933	0.0193	0.46	VQ	.	.	.	.
1.950	0.0199	0.46	VQ	.	.	.	.
1.967	0.0206	0.47	VQ	.	.	.	.
1.983	0.0212	0.47	VQ	.	.	.	.
2.000	0.0219	0.47	VQ	.	.	.	.
2.017	0.0225	0.47	VQ	.	.	.	.
2.033	0.0232	0.47	VQ	.	.	.	.
2.050	0.0238	0.47	VQ	.	.	.	.
2.067	0.0245	0.48	VQ	.	.	.	.
2.083	0.0251	0.48	VQ	.	.	.	.
2.100	0.0258	0.48	VQ	.	.	.	.
2.117	0.0265	0.48	VQ	.	.	.	.
2.133	0.0271	0.48	VQ	.	.	.	.
2.150	0.0278	0.48	VQ	.	.	.	.
2.167	0.0285	0.48	VQ	.	.	.	.
2.183	0.0291	0.48	VQ	.	.	.	.
2.200	0.0298	0.48	VQ	.	.	.	.
2.217	0.0305	0.49	VQ	.	.	.	.
2.233	0.0311	0.49	VQ	.	.	.	.
2.250	0.0318	0.49	VQ	.	.	.	.
2.267	0.0325	0.49	VQ	.	.	.	.

2.283	0.0331	0.49	VQ	.	.	.	.
2.300	0.0338	0.49	VQ	.	.	.	.
2.317	0.0345	0.49	VQ	.	.	.	.
2.333	0.0352	0.49	VQ	.	.	.	.
2.350	0.0358	0.49	VQ	.	.	.	.
2.367	0.0365	0.49	VQ	.	.	.	.
2.383	0.0372	0.49	VQ	.	.	.	.
2.400	0.0379	0.49	VQ	.	.	.	.
2.417	0.0386	0.49	VQ	.	.	.	.
2.433	0.0392	0.49	VQ	.	.	.	.
2.450	0.0399	0.49	VQ	.	.	.	.
2.467	0.0406	0.49	VQ	.	.	.	.
2.483	0.0413	0.50	VQ	.	.	.	.
2.500	0.0420	0.50	VQ	.	.	.	.
2.517	0.0426	0.50	VQ	.	.	.	.
2.533	0.0433	0.50	VQ	.	.	.	.
2.550	0.0440	0.50	VQ	.	.	.	.
2.567	0.0447	0.50	VQ	.	.	.	.
2.583	0.0454	0.50	VQ	.	.	.	.
2.600	0.0461	0.50	VQ	.	.	.	.
2.617	0.0468	0.50	VQ	.	.	.	.
2.633	0.0474	0.50	VQ	.	.	.	.
2.650	0.0481	0.50	.Q	.	.	.	.
2.667	0.0488	0.50	.Q	.	.	.	.
2.683	0.0495	0.50	.VQ	.	.	.	.
2.700	0.0502	0.50	.VQ	.	.	.	.
2.717	0.0509	0.50	.VQ	.	.	.	.
2.733	0.0516	0.50	.VQ	.	.	.	.
2.750	0.0523	0.50	.VQ	.	.	.	.
2.767	0.0530	0.50	.VQ	.	.	.	.
2.783	0.0537	0.50	.VQ	.	.	.	.
2.800	0.0544	0.50	.VQ	.	.	.	.
2.817	0.0550	0.50	.VQ	.	.	.	.
2.833	0.0557	0.50	.VQ	.	.	.	.
2.850	0.0564	0.50	.VQ	.	.	.	.
2.867	0.0571	0.50	.VQ	.	.	.	.
2.883	0.0578	0.50	.VQ	.	.	.	.
2.900	0.0585	0.51	.VQ	.	.	.	.
2.917	0.0592	0.51	.VQ	.	.	.	.
2.933	0.0599	0.51	.VQ	.	.	.	.
2.950	0.0606	0.51	.VQ	.	.	.	.
2.967	0.0613	0.51	.VQ	.	.	.	.
2.983	0.0620	0.51	.VQ	.	.	.	.
3.000	0.0627	0.51	.VQ	.	.	.	.
3.017	0.0634	0.51	.VQ	.	.	.	.
3.033	0.0641	0.51	.VQ	.	.	.	.
3.050	0.0648	0.51	.VQ	.	.	.	.
3.067	0.0655	0.51	.VQ	.	.	.	.
3.083	0.0662	0.51	.VQ	.	.	.	.
3.100	0.0669	0.51	.VQ	.	.	.	.
3.117	0.0676	0.51	.VQ	.	.	.	.
3.133	0.0683	0.51	.VQ	.	.	.	.
3.150	0.0690	0.51	.VQ	.	.	.	.
3.167	0.0697	0.51	.VQ	.	.	.	.
3.183	0.0704	0.51	.VQ	.	.	.	.
3.200	0.0711	0.51	.VQ	.	.	.	.
3.217	0.0718	0.51	.VQ	.	.	.	.
3.233	0.0725	0.51	.VQ	.	.	.	.
3.250	0.0732	0.51	.VQ	.	.	.	.
3.267	0.0739	0.51	.VQ	.	.	.	.
3.283	0.0747	0.51	.VQ	.	.	.	.
3.300	0.0754	0.51	.VQ	.	.	.	.
3.317	0.0761	0.51	.VQ	.	.	.	.
3.333	0.0768	0.51	.VQ	.	.	.	.
3.350	0.0775	0.51	.VQ	.	.	.	.
3.367	0.0782	0.51	.VQ	.	.	.	.
3.383	0.0789	0.51	.VQ	.	.	.	.
3.400	0.0796	0.52	.VQ	.	.	.	.
3.417	0.0803	0.52	.VQ	.	.	.	.
3.433	0.0810	0.52	.VQ	.	.	.	.
3.450	0.0817	0.52	.VQ	.	.	.	.
3.467	0.0825	0.52	.VQ	.	.	.	.
3.483	0.0832	0.52	.VQ	.	.	.	.
3.500	0.0839	0.52	.VQ	.	.	.	.
3.517	0.0846	0.52	.VQ	.	.	.	.
3.533	0.0853	0.52	.VQ	.	.	.	.
3.550	0.0860	0.52	.VQ	.	.	.	.
3.567	0.0867	0.52	.VQ	.	.	.	.
3.583	0.0874	0.52	.VQ	.	.	.	.
3.600	0.0882	0.52	.VQ	.	.	.	.
3.617	0.0889	0.52	.VQ	.	.	.	.
3.633	0.0896	0.52	.VQ	.	.	.	.
3.650	0.0903	0.52	.VQ	.	.	.	.
3.667	0.0910	0.52	.VQ	.	.	.	.
3.683	0.0917	0.52	.VQ	.	.	.	.
3.700	0.0925	0.52	.VQ	.	.	.	.
3.717	0.0932	0.52	.VQ	.	.	.	.
3.733	0.0939	0.52	.VQ	.	.	.	.
3.750	0.0946	0.52	.VQ	.	.	.	.
3.767	0.0953	0.52	.VQ	.	.	.	.
3.783	0.0961	0.52	.VQ	.	.	.	.
3.800	0.0968	0.52	. Q	.	.	.	.
3.817	0.0975	0.52	. Q	.	.	.	.
3.833	0.0982	0.52	. Q	.	.	.	.
3.850	0.0989	0.52	. Q	.	.	.	.
3.867	0.0997	0.52	. Q	.	.	.	.
3.883	0.1004	0.53	. Q	.	.	.	.
3.900	0.1011	0.53	. Q	.	.	.	.
3.917	0.1018	0.53	. Q	.	.	.	.
3.933	0.1026	0.53	. Q	.	.	.	.
3.950	0.1033	0.53	. Q	.	.	.	.
3.967	0.1040	0.53	. Q	.	.	.	.
3.983	0.1047	0.53	. Q	.	.	.	.
4.000	0.1055	0.53	. Q	.	.	.	.
4.017	0.1062	0.53	. Q	.	.	.	.
4.033	0.1069	0.53	. Q	.	.	.	.
4.050	0.1077	0.53	. Q	.	.	.	.
4.067	0.1084	0.53	. Q	.	.	.	.
4.083	0.1091	0.53	. Q	.	.	.	.
4.100	0.1098	0.53	. Q	.	.	.	.
4.117	0.1106	0.53	. Q	.	.	.	.
4.133	0.1113	0.53	. Q	.	.	.	.
4.150	0.1120	0.53	. Q	.	.	.	.
4.167	0.1128	0.53	. Q	.	.	.	.
4.183	0.1135	0.53	. Q	.	.	.	.
4.200	0.1142	0.53	. Q	.	.	.	.
4.217	0.1150	0.53	. Q	.	.	.	.
4.233	0.1157	0.53	. Q	.	.	.	.

4.250	0.1164	0.53	. Q	.	.	.	.
4.267	0.1172	0.53	. Q	.	.	.	.
4.283	0.1179	0.53	. Q	.	.	.	.
4.300	0.1186	0.53	. Q	.	.	.	.
4.317	0.1194	0.53	. Q	.	.	.	.
4.333	0.1201	0.54	. Q	.	.	.	.
4.350	0.1209	0.54	. Q	.	.	.	.
4.367	0.1216	0.54	. Q	.	.	.	.
4.383	0.1223	0.54	. Q	.	.	.	.
4.400	0.1231	0.54	. Q	.	.	.	.
4.417	0.1238	0.54	. Q	.	.	.	.
4.433	0.1246	0.54	. Q	.	.	.	.
4.450	0.1253	0.54	. Q	.	.	.	.
4.467	0.1260	0.54	. Q	.	.	.	.
4.483	0.1268	0.54	. Q	.	.	.	.
4.500	0.1275	0.54	. Q	.	.	.	.
4.517	0.1283	0.54	. Q	.	.	.	.
4.533	0.1290	0.54	. Q	.	.	.	.
4.550	0.1297	0.54	. Q	.	.	.	.
4.567	0.1305	0.54	. Q	.	.	.	.
4.583	0.1312	0.54	. Q	.	.	.	.
4.600	0.1320	0.54	. Q	.	.	.	.
4.617	0.1327	0.54	. Q	.	.	.	.
4.633	0.1335	0.54	. Q	.	.	.	.
4.650	0.1342	0.54	. Q	.	.	.	.
4.667	0.1350	0.54	. Q	.	.	.	.
4.683	0.1357	0.54	. Q	.	.	.	.
4.700	0.1365	0.54	. Q	.	.	.	.
4.717	0.1372	0.54	. Q	.	.	.	.
4.733	0.1380	0.54	. Q	.	.	.	.
4.750	0.1387	0.54	. Q	.	.	.	.
4.767	0.1395	0.55	. Q	.	.	.	.
4.783	0.1402	0.55	. Q	.	.	.	.
4.800	0.1410	0.55	. Q	.	.	.	.
4.817	0.1417	0.55	. Q	.	.	.	.
4.833	0.1425	0.55	. Q	.	.	.	.
4.850	0.1432	0.55	. Q	.	.	.	.
4.867	0.1440	0.55	. Q	.	.	.	.
4.883	0.1447	0.55	. QV	.	.	.	.
4.900	0.1455	0.55	. QV	.	.	.	.
4.917	0.1463	0.55	. QV	.	.	.	.
4.933	0.1470	0.55	. QV	.	.	.	.
4.950	0.1478	0.55	. QV	.	.	.	.
4.967	0.1485	0.55	. QV	.	.	.	.
4.983	0.1493	0.55	. QV	.	.	.	.
5.000	0.1500	0.55	. QV	.	.	.	.
5.017	0.1508	0.55	. QV	.	.	.	.
5.033	0.1516	0.55	. QV	.	.	.	.
5.050	0.1523	0.55	. QV	.	.	.	.
5.067	0.1531	0.55	. QV	.	.	.	.
5.083	0.1538	0.55	. QV	.	.	.	.
5.100	0.1546	0.55	. QV	.	.	.	.
5.117	0.1554	0.55	. QV	.	.	.	.
5.133	0.1561	0.55	. QV	.	.	.	.
5.150	0.1569	0.55	. QV	.	.	.	.
5.167	0.1577	0.55	. QV	.	.	.	.
5.183	0.1584	0.56	. QV	.	.	.	.
5.200	0.1592	0.56	. QV	.	.	.	.
5.217	0.1600	0.56	. QV	.	.	.	.
5.233	0.1607	0.56	. QV	.	.	.	.
5.250	0.1615	0.56	. QV	.	.	.	.
5.267	0.1623	0.56	. QV	.	.	.	.
5.283	0.1630	0.56	. QV	.	.	.	.
5.300	0.1638	0.56	. QV	.	.	.	.
5.317	0.1646	0.56	. QV	.	.	.	.
5.333	0.1653	0.56	. QV	.	.	.	.
5.350	0.1661	0.56	. QV	.	.	.	.
5.367	0.1669	0.56	. QV	.	.	.	.
5.383	0.1676	0.56	. QV	.	.	.	.
5.400	0.1684	0.56	. QV	.	.	.	.
5.417	0.1692	0.56	. QV	.	.	.	.
5.433	0.1700	0.56	. QV	.	.	.	.
5.450	0.1707	0.56	. QV	.	.	.	.
5.467	0.1715	0.56	. QV	.	.	.	.
5.483	0.1723	0.56	. QV	.	.	.	.
5.500	0.1731	0.56	. QV	.	.	.	.
5.517	0.1738	0.56	. QV	.	.	.	.
5.533	0.1746	0.56	. QV	.	.	.	.
5.550	0.1754	0.56	. QV	.	.	.	.
5.567	0.1762	0.57	. QV	.	.	.	.
5.583	0.1770	0.57	. QV	.	.	.	.
5.600	0.1777	0.57	. QV	.	.	.	.
5.617	0.1785	0.57	. QV	.	.	.	.
5.633	0.1793	0.57	. QV	.	.	.	.
5.650	0.1801	0.57	. QV	.	.	.	.
5.667	0.1809	0.57	. QV	.	.	.	.
5.683	0.1816	0.57	. QV	.	.	.	.
5.700	0.1824	0.57	. QV	.	.	.	.
5.717	0.1832	0.57	. QV	.	.	.	.
5.733	0.1840	0.57	. QV	.	.	.	.
5.750	0.1848	0.57	. QV	.	.	.	.
5.767	0.1856	0.57	. QV	.	.	.	.
5.783	0.1864	0.57	. QV	.	.	.	.
5.800	0.1871	0.57	. QV	.	.	.	.
5.817	0.1879	0.57	. QV	.	.	.	.
5.833	0.1887	0.57	. QV	.	.	.	.
5.850	0.1895	0.57	. QV	.	.	.	.
5.867	0.1903	0.57	. QV	.	.	.	.
5.883	0.1911	0.57	. QV	.	.	.	.
5.900	0.1919	0.57	. QV	.	.	.	.
5.917	0.1927	0.57	. Q V	.	.	.	.
5.933	0.1935	0.58	. Q V	.	.	.	.
5.950	0.1943	0.58	. Q V	.	.	.	.
5.967	0.1950	0.58	. Q V	.	.	.	.
5.983	0.1958	0.58	. Q V	.	.	.	.
6.000	0.1966	0.58	. Q V	.	.	.	.
6.017	0.1974	0.58	. Q V	.	.	.	.
6.033	0.1982	0.58	. Q V	.	.	.	.
6.050	0.1990	0.58	. Q V	.	.	.	.
6.067	0.1998	0.58	. Q V	.	.	.	.
6.083	0.2006	0.58	. Q V	.	.	.	.
6.100	0.2014	0.58	. Q V	.	.	.	.
6.117	0.2022	0.58	. Q V	.	.	.	.
6.133	0.2030	0.58	. Q V	.	.	.	.
6.150	0.2038	0.58	. Q V	.	.	.	.
6.167	0.2046	0.58	. Q V	.	.	.	.
6.183	0.2054	0.58	. Q V	.	.	.	.
6.200	0.2062	0.58	. Q V	.	.	.	.

6.217	0.2070	0.58	. Q V	.	.	.	.
6.233	0.2078	0.58	. Q V	.	.	.	.
6.250	0.2086	0.58	. Q V	.	.	.	.
6.267	0.2094	0.58	. Q V	.	.	.	.
6.283	0.2102	0.59	. Q V	.	.	.	.
6.300	0.2111	0.59	. Q V	.	.	.	.
6.317	0.2119	0.59	. Q V	.	.	.	.
6.333	0.2127	0.59	. Q V	.	.	.	.
6.350	0.2135	0.59	. Q V	.	.	.	.
6.367	0.2143	0.59	. Q V	.	.	.	.
6.383	0.2151	0.59	. Q V	.	.	.	.
6.400	0.2159	0.59	. Q V	.	.	.	.
6.417	0.2167	0.59	. Q V	.	.	.	.
6.433	0.2175	0.59	. Q V	.	.	.	.
6.450	0.2183	0.59	. Q V	.	.	.	.
6.467	0.2192	0.59	. Q V	.	.	.	.
6.483	0.2200	0.59	. Q V	.	.	.	.
6.500	0.2208	0.59	. Q V	.	.	.	.
6.517	0.2216	0.59	. Q V	.	.	.	.
6.533	0.2224	0.59	. Q V	.	.	.	.
6.550	0.2232	0.59	. Q V	.	.	.	.
6.567	0.2240	0.59	. Q V	.	.	.	.
6.583	0.2249	0.59	. Q V	.	.	.	.
6.600	0.2257	0.59	. Q V	.	.	.	.
6.617	0.2265	0.60	. Q V	.	.	.	.
6.633	0.2273	0.60	. Q V	.	.	.	.
6.650	0.2281	0.60	. Q V	.	.	.	.
6.667	0.2290	0.60	. Q V	.	.	.	.
6.683	0.2298	0.60	. Q V	.	.	.	.
6.700	0.2306	0.60	. Q V	.	.	.	.
6.717	0.2314	0.60	. Q V	.	.	.	.
6.733	0.2323	0.60	. Q V	.	.	.	.
6.750	0.2331	0.60	. Q V	.	.	.	.
6.767	0.2339	0.60	. Q V	.	.	.	.
6.783	0.2347	0.60	. Q V	.	.	.	.
6.800	0.2356	0.60	. Q V	.	.	.	.
6.817	0.2364	0.60	. Q V	.	.	.	.
6.833	0.2372	0.60	. Q V	.	.	.	.
6.850	0.2381	0.60	. Q V	.	.	.	.
6.867	0.2389	0.60	. Q V	.	.	.	.
6.883	0.2397	0.60	. Q V	.	.	.	.
6.900	0.2406	0.60	. Q V	.	.	.	.
6.917	0.2414	0.60	. Q V	.	.	.	.
6.933	0.2422	0.61	. Q V	.	.	.	.
6.950	0.2431	0.61	. Q V	.	.	.	.
6.967	0.2439	0.61	. Q V	.	.	.	.
6.983	0.2447	0.61	. Q V	.	.	.	.
7.000	0.2456	0.61	. Q V	.	.	.	.
7.017	0.2464	0.61	. Q V	.	.	.	.
7.033	0.2472	0.61	. Q V	.	.	.	.
7.050	0.2481	0.61	. Q V	.	.	.	.
7.067	0.2489	0.61	. Q V	.	.	.	.
7.083	0.2498	0.61	. Q V	.	.	.	.
7.100	0.2506	0.61	. Q V	.	.	.	.
7.117	0.2514	0.61	. Q V	.	.	.	.
7.133	0.2523	0.61	. Q V	.	.	.	.
7.150	0.2531	0.61	. Q V	.	.	.	.
7.167	0.2540	0.61	. Q V	.	.	.	.
7.183	0.2548	0.61	. Q V	.	.	.	.
7.200	0.2557	0.61	. Q V	.	.	.	.
7.217	0.2565	0.61	. Q V	.	.	.	.
7.233	0.2573	0.62	. Q V	.	.	.	.
7.250	0.2582	0.62	. Q V	.	.	.	.
7.267	0.2590	0.62	. Q V	.	.	.	.
7.283	0.2599	0.62	. Q V	.	.	.	.
7.300	0.2607	0.62	. Q V	.	.	.	.
7.317	0.2616	0.62	. Q V	.	.	.	.
7.333	0.2625	0.62	. Q V	.	.	.	.
7.350	0.2633	0.62	. Q V	.	.	.	.
7.367	0.2642	0.62	. Q V	.	.	.	.
7.383	0.2650	0.62	. Q V	.	.	.	.
7.400	0.2659	0.62	. Q V	.	.	.	.
7.417	0.2667	0.62	. Q V	.	.	.	.
7.433	0.2676	0.62	. Q V	.	.	.	.
7.450	0.2684	0.62	. Q V	.	.	.	.
7.467	0.2693	0.62	. Q V	.	.	.	.
7.483	0.2702	0.62	. Q V	.	.	.	.
7.500	0.2710	0.62	. Q V	.	.	.	.
7.517	0.2719	0.62	. Q V	.	.	.	.
7.533	0.2727	0.63	. Q V	.	.	.	.
7.550	0.2736	0.63	. Q V	.	.	.	.
7.567	0.2745	0.63	. Q V	.	.	.	.
7.583	0.2753	0.63	. Q V	.	.	.	.
7.600	0.2762	0.63	. Q V	.	.	.	.
7.617	0.2771	0.63	. Q V	.	.	.	.
7.633	0.2779	0.63	. Q V	.	.	.	.
7.650	0.2788	0.63	. Q V	.	.	.	.
7.667	0.2797	0.63	. Q V	.	.	.	.
7.683	0.2805	0.63	. Q V	.	.	.	.
7.700	0.2814	0.63	. Q V	.	.	.	.
7.717	0.2823	0.63	. Q V	.	.	.	.
7.733	0.2831	0.63	. Q V	.	.	.	.
7.750	0.2840	0.63	. Q V	.	.	.	.
7.767	0.2849	0.63	. Q V	.	.	.	.
7.783	0.2858	0.63	. Q V	.	.	.	.
7.800	0.2866	0.64	. Q V	.	.	.	.
7.817	0.2875	0.64	. Q V	.	.	.	.
7.833	0.2884	0.64	. Q V	.	.	.	.
7.850	0.2893	0.64	. Q V	.	.	.	.
7.867	0.2901	0.64	. Q V	.	.	.	.
7.883	0.2910	0.64	. Q V	.	.	.	.
7.900	0.2919	0.64	. Q V	.	.	.	.
7.917	0.2928	0.64	. Q V	.	.	.	.
7.933	0.2937	0.64	. Q V	.	.	.	.
7.950	0.2946	0.64	. Q V	.	.	.	.
7.967	0.2954	0.64	. Q V	.	.	.	.
7.983	0.2963	0.64	. Q V	.	.	.	.
8.000	0.2972	0.64	. Q V	.	.	.	.
8.017	0.2981	0.64	. Q V	.	.	.	.
8.033	0.2990	0.64	. Q V	.	.	.	.
8.050	0.2999	0.65	. Q V	.	.	.	.
8.067	0.3008	0.65	. Q V	.	.	.	.
8.083	0.3016	0.65	. Q V	.	.	.	.
8.100	0.3025	0.65	. Q V	.	.	.	.
8.117	0.3034	0.65	. Q V	.	.	.	.
8.133	0.3043	0.65	. Q V	.	.	.	.
8.150	0.3052	0.65	. Q V	.	.	.	.
8.167	0.3061	0.65	. Q V	.	.	.	.

8.183	0.3070	0.65	. Q	V	.	.	.	.
8.200	0.3079	0.65	. Q	V	.	.	.	.
8.217	0.3088	0.65	. Q	V	.	.	.	.
8.233	0.3097	0.65	. Q	V	.	.	.	.
8.250	0.3106	0.65	. Q	V	.	.	.	.
8.267	0.3115	0.65	. Q	V	.	.	.	.
8.283	0.3124	0.65	. Q	V	.	.	.	.
8.300	0.3133	0.65	. Q	V	.	.	.	.
8.317	0.3142	0.66	. Q	V	.	.	.	.
8.333	0.3151	0.66	. Q	V	.	.	.	.
8.350	0.3160	0.66	. Q	V	.	.	.	.
8.367	0.3169	0.66	. Q	V	.	.	.	.
8.383	0.3178	0.66	. Q	V	.	.	.	.
8.400	0.3187	0.66	. Q	V	.	.	.	.
8.417	0.3196	0.66	. Q	V	.	.	.	.
8.433	0.3206	0.66	. Q	V	.	.	.	.
8.450	0.3215	0.66	. Q	V	.	.	.	.
8.467	0.3224	0.66	. Q	V	.	.	.	.
8.483	0.3233	0.66	. Q	V	.	.	.	.
8.500	0.3242	0.66	. Q	V	.	.	.	.
8.517	0.3251	0.66	. Q	V	.	.	.	.
8.533	0.3260	0.66	. Q	V	.	.	.	.
8.550	0.3269	0.67	. Q	V	.	.	.	.
8.567	0.3279	0.67	. Q	V	.	.	.	.
8.583	0.3288	0.67	. Q	V	.	.	.	.
8.600	0.3297	0.67	. Q	V	.	.	.	.
8.617	0.3306	0.67	. Q	V	.	.	.	.
8.633	0.3315	0.67	. Q	V	.	.	.	.
8.650	0.3325	0.67	. Q	V	.	.	.	.
8.667	0.3334	0.67	. Q	V	.	.	.	.
8.683	0.3343	0.67	. Q	V	.	.	.	.
8.700	0.3352	0.67	. Q	V	.	.	.	.
8.717	0.3362	0.67	. Q	V	.	.	.	.
8.733	0.3371	0.67	. Q	V	.	.	.	.
8.750	0.3380	0.67	. Q	V	.	.	.	.
8.767	0.3390	0.68	. Q	V	.	.	.	.
8.783	0.3399	0.68	. Q	V	.	.	.	.
8.800	0.3408	0.68	. Q	V	.	.	.	.
8.817	0.3417	0.68	. Q	V	.	.	.	.
8.833	0.3427	0.68	. Q	V	.	.	.	.
8.850	0.3436	0.68	. Q	V	.	.	.	.
8.867	0.3446	0.68	. Q	V	.	.	.	.
8.883	0.3455	0.68	. Q	V	.	.	.	.
8.900	0.3464	0.68	. Q	V	.	.	.	.
8.917	0.3474	0.68	. Q	V	.	.	.	.
8.933	0.3483	0.68	. Q	V	.	.	.	.
8.950	0.3492	0.68	. Q	V	.	.	.	.
8.967	0.3502	0.68	. Q	V	.	.	.	.
8.983	0.3511	0.68	. Q	V	.	.	.	.
9.000	0.3521	0.69	. Q	V	.	.	.	.
9.017	0.3530	0.69	. Q	V	.	.	.	.
9.033	0.3540	0.69	. Q	V	.	.	.	.
9.050	0.3549	0.69	. Q	V	.	.	.	.
9.067	0.3559	0.69	. Q	V	.	.	.	.
9.083	0.3568	0.69	. Q	V	.	.	.	.
9.100	0.3578	0.69	. Q	V	.	.	.	.
9.117	0.3587	0.69	. Q	V	.	.	.	.
9.133	0.3597	0.69	. Q	V	.	.	.	.
9.150	0.3606	0.69	. Q	V	.	.	.	.
9.167	0.3616	0.69	. Q	V	.	.	.	.
9.183	0.3625	0.69	. Q	V	.	.	.	.
9.200	0.3635	0.70	. Q	V	.	.	.	.
9.217	0.3645	0.70	. Q	V	.	.	.	.
9.233	0.3654	0.70	. Q	V	.	.	.	.
9.250	0.3664	0.70	. Q	V	.	.	.	.
9.267	0.3673	0.70	. Q	V	.	.	.	.
9.283	0.3683	0.70	. Q	V	.	.	.	.
9.300	0.3693	0.70	. Q	V	.	.	.	.
9.317	0.3702	0.70	. Q	V	.	.	.	.
9.333	0.3712	0.70	. Q	V	.	.	.	.
9.350	0.3722	0.70	. Q	V	.	.	.	.
9.367	0.3731	0.70	. Q	V	.	.	.	.
9.383	0.3741	0.70	. Q	V	.	.	.	.
9.400	0.3751	0.70	. Q	V	.	.	.	.
9.417	0.3760	0.71	. Q	V	.	.	.	.
9.433	0.3770	0.71	. Q	V	.	.	.	.
9.450	0.3780	0.71	. Q	V	.	.	.	.
9.467	0.3790	0.71	. Q	V	.	.	.	.
9.483	0.3799	0.71	. Q	V	.	.	.	.
9.500	0.3809	0.71	. Q	V	.	.	.	.
9.517	0.3819	0.71	. Q	V	.	.	.	.
9.533	0.3829	0.71	. Q	V	.	.	.	.
9.550	0.3839	0.71	. Q	V	.	.	.	.
9.567	0.3849	0.71	. Q	V	.	.	.	.
9.583	0.3858	0.72	. Q	V	.	.	.	.
9.600	0.3868	0.72	. Q	V	.	.	.	.
9.617	0.3878	0.72	. Q	V	.	.	.	.
9.633	0.3888	0.72	. Q	V	.	.	.	.
9.650	0.3898	0.72	. Q	V	.	.	.	.
9.667	0.3908	0.72	. Q	V	.	.	.	.
9.683	0.3918	0.72	. Q	V	.	.	.	.
9.700	0.3928	0.72	. Q	V	.	.	.	.
9.717	0.3938	0.72	. Q	V	.	.	.	.
9.733	0.3948	0.72	. Q	V	.	.	.	.
9.750	0.3958	0.72	. Q	V	.	.	.	.
9.767	0.3967	0.72	. Q	V	.	.	.	.
9.783	0.3977	0.73	. Q	V	.	.	.	.
9.800	0.3987	0.73	. Q	V	.	.	.	.
9.817	0.3997	0.73	. Q	V	.	.	.	.
9.833	0.4008	0.73	. Q	V	.	.	.	.
9.850	0.4018	0.73	. Q	V	.	.	.	.
9.867	0.4028	0.73	. Q	V	.	.	.	.
9.883	0.4038	0.73	. Q	V	.	.	.	.
9.900	0.4048	0.73	. Q	V	.	.	.	.
9.917	0.4058	0.73	. Q	V	.	.	.	.
9.933	0.4068	0.73	. Q	V	.	.	.	.
9.950	0.4078	0.74	. Q	V	.	.	.	.
9.967	0.4088	0.74	. Q	V	.	.	.	.
9.983	0.4098	0.74	. Q	V	.	.	.	.
10.000	0.4109	0.74	. Q	V	.	.	.	.
10.017	0.4119	0.74	. Q	V	.	.	.	.
10.033	0.4129	0.74	. Q	V	.	.	.	.
10.050	0.4139	0.74	. Q	V	.	.	.	.
10.067	0.4149	0.74	. Q	V	.	.	.	.
10.083	0.4160	0.74	. Q	V	.	.	.	.
10.100	0.4170	0.74	. Q	V	.	.	.	.
10.117	0.4180	0.74	. Q	V	.	.	.	.
10.133	0.4190	0.75	. Q	V	.	.	.	.

10.150	0.4201	0.75	.	Q	V	.	.	.
10.167	0.4211	0.75	.	Q	V	.	.	.
10.183	0.4221	0.75	.	Q	V	.	.	.
10.200	0.4232	0.75	.	Q	V	.	.	.
10.217	0.4242	0.75	.	Q	V	.	.	.
10.233	0.4252	0.75	.	Q	V	.	.	.
10.250	0.4263	0.75	.	Q	V	.	.	.
10.267	0.4273	0.75	.	Q	V	.	.	.
10.283	0.4284	0.76	.	Q	V	.	.	.
10.300	0.4294	0.76	.	Q	V	.	.	.
10.317	0.4304	0.76	.	Q	V	.	.	.
10.333	0.4315	0.76	.	Q	V	.	.	.
10.350	0.4325	0.76	.	Q	V	.	.	.
10.367	0.4336	0.76	.	Q	V	.	.	.
10.383	0.4346	0.76	.	Q	V	.	.	.
10.400	0.4357	0.76	.	Q	V	.	.	.
10.417	0.4367	0.76	.	Q	V	.	.	.
10.433	0.4378	0.76	.	Q	V	.	.	.
10.450	0.4388	0.77	.	Q	V	.	.	.
10.467	0.4399	0.77	.	Q	V	.	.	.
10.483	0.4409	0.77	.	Q	V	.	.	.
10.500	0.4420	0.77	.	Q	V	.	.	.
10.517	0.4431	0.77	.	Q	V	.	.	.
10.533	0.4441	0.77	.	Q	V	.	.	.
10.550	0.4452	0.77	.	Q	V	.	.	.
10.567	0.4463	0.77	.	Q	V	.	.	.
10.583	0.4473	0.77	.	Q	V	.	.	.
10.600	0.4484	0.78	.	Q	V	.	.	.
10.617	0.4495	0.78	.	Q	V	.	.	.
10.633	0.4505	0.78	.	Q	V	.	.	.
10.650	0.4516	0.78	.	Q	V	.	.	.
10.667	0.4527	0.78	.	Q	V	.	.	.
10.683	0.4538	0.78	.	Q	V	.	.	.
10.700	0.4548	0.78	.	Q	V	.	.	.
10.717	0.4559	0.78	.	Q	V	.	.	.
10.733	0.4570	0.79	.	Q	V	.	.	.
10.750	0.4581	0.79	.	Q	V	.	.	.
10.767	0.4592	0.79	.	Q	V	.	.	.
10.783	0.4603	0.79	.	Q	V	.	.	.
10.800	0.4613	0.79	.	Q	V	.	.	.
10.817	0.4624	0.79	.	Q	V	.	.	.
10.833	0.4635	0.79	.	Q	V	.	.	.
10.850	0.4646	0.79	.	Q	V	.	.	.
10.867	0.4657	0.79	.	Q	V	.	.	.
10.883	0.4668	0.80	.	Q	V	.	.	.
10.900	0.4679	0.80	.	Q	V	.	.	.
10.917	0.4690	0.80	.	Q	V	.	.	.
10.933	0.4701	0.80	.	Q	V	.	.	.
10.950	0.4712	0.80	.	Q	V	.	.	.
10.967	0.4723	0.80	.	Q	V	.	.	.
10.983	0.4734	0.80	.	Q	V	.	.	.
11.000	0.4745	0.80	.	Q	V	.	.	.
11.017	0.4756	0.81	.	Q	V	.	.	.
11.033	0.4767	0.81	.	Q	V	.	.	.
11.050	0.4779	0.81	.	Q	V	.	.	.
11.067	0.4790	0.81	.	Q	V	.	.	.
11.083	0.4801	0.81	.	Q	V	.	.	.
11.100	0.4812	0.81	.	Q	V	.	.	.
11.117	0.4823	0.81	.	Q	V	.	.	.
11.133	0.4835	0.81	.	Q	V	.	.	.
11.150	0.4846	0.82	.	Q	V	.	.	.
11.167	0.4857	0.82	.	Q	V	.	.	.
11.183	0.4868	0.82	.	Q	V	.	.	.
11.200	0.4880	0.82	.	Q	V	.	.	.
11.217	0.4891	0.82	.	Q	V	.	.	.
11.233	0.4902	0.82	.	Q	V	.	.	.
11.250	0.4914	0.82	.	Q	V	.	.	.
11.267	0.4925	0.82	.	Q	V	.	.	.
11.283	0.4936	0.83	.	Q	V	.	.	.
11.300	0.4948	0.83	.	Q	V	.	.	.
11.317	0.4959	0.83	.	Q	V	.	.	.
11.333	0.4971	0.83	.	Q	V	.	.	.
11.350	0.4982	0.83	.	Q	V	.	.	.
11.367	0.4994	0.83	.	Q	V	.	.	.
11.383	0.5005	0.84	.	Q	V	.	.	.
11.400	0.5017	0.84	.	Q	V	.	.	.
11.417	0.5028	0.84	.	Q	V	.	.	.
11.433	0.5040	0.84	.	Q	V	.	.	.
11.450	0.5051	0.84	.	Q	V	.	.	.
11.467	0.5063	0.84	.	Q	V	.	.	.
11.483	0.5075	0.84	.	Q	V	.	.	.
11.500	0.5086	0.85	.	Q	V	.	.	.
11.517	0.5098	0.85	.	Q	V	.	.	.
11.533	0.5110	0.85	.	Q	V	.	.	.
11.550	0.5121	0.85	.	Q	V	.	.	.
11.567	0.5133	0.85	.	Q	V	.	.	.
11.583	0.5145	0.85	.	Q	V	.	.	.
11.600	0.5156	0.85	.	Q	V	.	.	.
11.617	0.5168	0.86	.	Q	V	.	.	.
11.633	0.5180	0.86	.	Q	V	.	.	.
11.650	0.5192	0.86	.	Q	V	.	.	.
11.667	0.5204	0.86	.	Q	V	.	.	.
11.683	0.5216	0.86	.	Q	V	.	.	.
11.700	0.5227	0.86	.	Q	V	.	.	.
11.717	0.5239	0.86	.	Q	V	.	.	.
11.733	0.5251	0.87	.	Q	V	.	.	.
11.750	0.5263	0.87	.	Q	V	.	.	.
11.767	0.5275	0.87	.	Q	V	.	.	.
11.783	0.5287	0.87	.	Q	V	.	.	.
11.800	0.5299	0.87	.	Q	.V	.	.	.
11.817	0.5311	0.87	.	Q	.V	.	.	.
11.833	0.5323	0.88	.	Q	.V	.	.	.
11.850	0.5336	0.88	.	Q	.V	.	.	.
11.867	0.5348	0.88	.	Q	.V	.	.	.
11.883	0.5360	0.88	.	Q	.V	.	.	.
11.900	0.5372	0.88	.	Q	.V	.	.	.
11.917	0.5384	0.88	.	Q	.V	.	.	.
11.933	0.5396	0.89	.	Q	.V	.	.	.
11.950	0.5409	0.89	.	Q	.V	.	.	.
11.967	0.5421	0.89	.	Q	.V	.	.	.
11.983	0.5433	0.89	.	Q	.V	.	.	.
12.000	0.5445	0.89	.	Q	.V	.	.	.
12.017	0.5458	0.89	.	Q	.V	.	.	.
12.033	0.5470	0.89	.	Q	.V	.	.	.
12.050	0.5482	0.90	.	Q	.V	.	.	.
12.067	0.5495	0.90	.	Q	.V	.	.	.
12.083	0.5507	0.90	.	Q	.V	.	.	.
12.100	0.5519	0.90	.	Q	.V	.	.	.

12.117	0.5532	0.90	.	Q	.V	.	.	.
12.133	0.5544	0.90	.	Q	.V	.	.	.
12.150	0.5557	0.91	.	Q	.V	.	.	.
12.167	0.5569	0.91	.	Q	.V	.	.	.
12.183	0.5582	0.91	.	Q	.V	.	.	.
12.200	0.5594	0.91	.	Q	.V	.	.	.
12.217	0.5607	0.91	.	Q	.V	.	.	.
12.233	0.5619	0.91	.	Q	.V	.	.	.
12.250	0.5632	0.91	.	Q	.V	.	.	.
12.267	0.5644	0.91	.	Q	.V	.	.	.
12.283	0.5657	0.91	.	Q	.V	.	.	.
12.300	0.5669	0.91	.	Q	.V	.	.	.
12.317	0.5682	0.91	.	Q	.V	.	.	.
12.333	0.5694	0.91	.	Q	.V	.	.	.
12.350	0.5707	0.91	.	Q	.V	.	.	.
12.367	0.5720	0.91	.	Q	.V	.	.	.
12.383	0.5732	0.91	.	Q	.V	.	.	.
12.400	0.5745	0.91	.	Q	.V	.	.	.
12.417	0.5757	0.91	.	Q	.V	.	.	.
12.433	0.5770	0.92	.	Q	.V	.	.	.
12.450	0.5783	0.92	.	Q	. V	.	.	.
12.467	0.5795	0.92	.	Q	. V	.	.	.
12.483	0.5808	0.92	.	Q	. V	.	.	.
12.500	0.5821	0.92	.	Q	. V	.	.	.
12.517	0.5833	0.92	.	Q	. V	.	.	.
12.533	0.5846	0.93	.	Q	. V	.	.	.
12.550	0.5859	0.93	.	Q	. V	.	.	.
12.567	0.5872	0.93	.	Q	. V	.	.	.
12.583	0.5884	0.93	.	Q	. V	.	.	.
12.600	0.5897	0.93	.	Q	. V	.	.	.
12.617	0.5910	0.93	.	Q	. V	.	.	.
12.633	0.5923	0.93	.	Q	. V	.	.	.
12.650	0.5936	0.94	.	Q	. V	.	.	.
12.667	0.5949	0.94	.	Q	. V	.	.	.
12.683	0.5962	0.94	.	Q	. V	.	.	.
12.700	0.5975	0.94	.	Q	. V	.	.	.
12.717	0.5988	0.94	.	Q	. V	.	.	.
12.733	0.6001	0.95	.	Q	. V	.	.	.
12.750	0.6014	0.95	.	Q	. V	.	.	.
12.767	0.6027	0.95	.	Q	. V	.	.	.
12.783	0.6040	0.95	.	Q	. V	.	.	.
12.800	0.6053	0.95	.	Q	. V	.	.	.
12.817	0.6066	0.96	.	Q	. V	.	.	.
12.833	0.6080	0.96	.	Q	. V	.	.	.
12.850	0.6093	0.96	.	Q	. V	.	.	.
12.867	0.6106	0.96	.	Q	. V	.	.	.
12.883	0.6119	0.97	.	Q	. V	.	.	.
12.900	0.6133	0.97	.	Q	. V	.	.	.
12.917	0.6146	0.97	.	Q	. V	.	.	.
12.933	0.6160	0.97	.	Q	. V	.	.	.
12.950	0.6173	0.98	.	Q	. V	.	.	.
12.967	0.6186	0.98	.	Q	. V	.	.	.
12.983	0.6200	0.98	.	Q	. V	.	.	.
13.000	0.6214	0.98	.	Q	. V	.	.	.
13.017	0.6227	0.99	.	Q	. V	.	.	.
13.033	0.6241	0.99	.	Q	. V	.	.	.
13.050	0.6254	0.99	.	Q	. V	.	.	.
13.067	0.6268	0.99	.	Q	. V	.	.	.
13.083	0.6282	0.99	.	Q	. V	.	.	.
13.100	0.6295	1.00	.	Q	. V	.	.	.
13.117	0.6309	1.00	.	Q	. V	.	.	.
13.133	0.6323	1.00	.	Q	. V	.	.	.
13.150	0.6337	1.01	.	Q	. V	.	.	.
13.167	0.6351	1.01	.	Q	. V	.	.	.
13.183	0.6365	1.01	.	Q	. V	.	.	.
13.200	0.6379	1.01	.	Q	. V	.	.	.
13.217	0.6393	1.02	.	Q	. V	.	.	.
13.233	0.6407	1.02	.	Q	. V	.	.	.
13.250	0.6421	1.02	.	Q	. V	.	.	.
13.267	0.6435	1.03	.	Q	. V	.	.	.
13.283	0.6449	1.03	.	Q	. V	.	.	.
13.300	0.6463	1.03	.	Q	. V	.	.	.
13.317	0.6478	1.04	.	Q	. V	.	.	.
13.333	0.6492	1.04	.	Q	. V	.	.	.
13.350	0.6506	1.04	.	Q	. V	.	.	.
13.367	0.6521	1.04	.	Q	. V	.	.	.
13.383	0.6535	1.05	.	Q	. V	.	.	.
13.400	0.6549	1.05	.	Q	. V	.	.	.
13.417	0.6564	1.05	.	Q	. V	.	.	.
13.433	0.6578	1.05	.	Q	. V	.	.	.
13.450	0.6593	1.06	.	Q	. V	.	.	.
13.467	0.6608	1.06	.	Q	. V	.	.	.
13.483	0.6622	1.06	.	Q	. V	.	.	.
13.500	0.6637	1.07	.	Q	. V	.	.	.
13.517	0.6652	1.07	.	Q	. V	.	.	.
13.533	0.6667	1.07	.	Q	. V	.	.	.
13.550	0.6681	1.08	.	Q	. V	.	.	.
13.567	0.6696	1.08	.	Q	. V	.	.	.
13.583	0.6711	1.09	.	Q	. V	.	.	.
13.600	0.6726	1.09	.	Q	. V	.	.	.
13.617	0.6741	1.09	.	Q	. V	.	.	.
13.633	0.6756	1.10	.	Q	. V	.	.	.
13.650	0.6772	1.10	.	Q	. V	.	.	.
13.667	0.6787	1.10	.	Q	. V	.	.	.
13.683	0.6802	1.11	.	Q	. V	.	.	.
13.700	0.6817	1.11	.	Q	. V	.	.	.
13.717	0.6833	1.11	.	Q	. V	.	.	.
13.733	0.6848	1.12	.	Q	. V	.	.	.
13.750	0.6863	1.12	.	Q	. V	.	.	.
13.767	0.6879	1.12	.	Q	. V	.	.	.
13.783	0.6894	1.13	.	Q	. V	.	.	.
13.800	0.6910	1.13	.	Q	. V	.	.	.
13.817	0.6926	1.13	.	Q	. V	.	.	.
13.833	0.6941	1.14	.	Q	. V	.	.	.
13.850	0.6957	1.14	.	Q	. V	.	.	.
13.867	0.6973	1.15	.	Q	. V	.	.	.
13.883	0.6989	1.15	.	Q	. V	.	.	.
13.900	0.7005	1.15	.	Q	. V	.	.	.
13.917	0.7021	1.16	.	Q	. V	.	.	.
13.933	0.7037	1.16	.	Q	. V	.	.	.
13.950	0.7053	1.17	.	Q	. V	.	.	.
13.967	0.7069	1.17	.	Q	. V	.	.	.
13.983	0.7085	1.18	.	Q	. V	.	.	.
14.000	0.7101	1.18	.	Q	. V	.	.	.
14.017	0.7118	1.19	.	Q	. V	.	.	.
14.033	0.7134	1.19	.	Q	. V	.	.	.
14.050	0.7151	1.20	.	Q	. V	.	.	.
14.067	0.7167	1.20	.	Q	. V	.	.	.

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14.083      0.7184      1.20  .   Q     .   V     .         .         .
14.100      0.7200      1.21  .   Q     .   V     .         .         .
14.117      0.7217      1.21  .   Q     .   V     .         .         .
14.133      0.7234      1.22  .   Q     .    V    .         .         .
14.150      0.7251      1.22  .   Q     .    V    .         .         .
14.167      0.7267      1.22  .   Q     .    V    .         .         .
14.183      0.7284      1.23  .   Q     .    V    .         .         .
14.200      0.7301      1.23  .   Q     .    V    .         .         .
14.217      0.7318      1.23  .   Q     .    V    .         .         .
14.233      0.7335      1.23  .   Q     .    V    .         .         .
14.250      0.7352      1.24  .   Q     .    V    .         .         .
14.267      0.7369      1.24  .   Q     .    V    .         .         .
14.283      0.7386      1.24  .   Q     .    V    .         .         .
14.300      0.7404      1.24  .   Q     .    V    .         .         .
14.317      0.7421      1.25  .   Q     .    V    .         .         .
14.333      0.7438      1.25  .   Q     .    V    .         .         .
14.350      0.7455      1.25  .    Q    .    V    .         .         .
14.367      0.7472      1.25  .    Q    .    V    .         .         .
14.383      0.7490      1.26  .    Q    .    V    .         .         .
14.400      0.7507      1.26  .    Q    .    V    .         .         .
14.417      0.7524      1.26  .    Q    .    V    .         .         .
14.433      0.7542      1.26  .    Q    .    V    .         .         .
14.450      0.7559      1.27  .    Q    .    V    .         .         .
14.467      0.7577      1.27  .    Q    .    V    .         .         .
14.483      0.7594      1.27  .    Q    .    V    .         .         .
14.500      0.7612      1.28  .    Q    .    V    .         .         .
14.517      0.7630      1.28  .    Q    .    V    .         .         .
14.533      0.7647      1.29  .    Q    .    V    .         .         .
14.550      0.7665      1.29  .    Q    .    V    .         .         .
14.567      0.7683      1.29  .    Q    .    V    .         .         .
14.583      0.7701      1.30  .    Q    .     V   .         .         .
14.600      0.7719      1.30  .    Q    .     V   .         .         .
14.617      0.7737      1.31  .    Q    .     V   .         .         .
14.633      0.7755      1.32  .    Q    .     V   .         .         .
14.650      0.7773      1.32  .    Q    .     V   .         .         .
14.667      0.7792      1.33  .    Q    .     V   .         .         .
14.683      0.7810      1.34  .    Q    .     V   .         .         .
14.700      0.7829      1.35  .    Q    .     V   .         .         .
14.717      0.7847      1.35  .    Q    .     V   .         .         .
14.733      0.7866      1.36  .    Q    .     V   .         .         .
14.750      0.7885      1.37  .    Q    .     V   .         .         .
14.767      0.7904      1.38  .    Q    .     V   .         .         .
14.783      0.7923      1.38  .    Q    .     V   .         .         .
14.800      0.7942      1.39  .    Q    .     V   .         .         .
14.817      0.7961      1.40  .    Q    .     V   .         .         .
14.833      0.7981      1.41  .    Q    .     V   .         .         .
14.850      0.8000      1.41  .    Q    .     V   .         .         .
14.867      0.8020      1.42  .    Q    .     V   .         .         .
14.883      0.8039      1.43  .    Q    .     V   .         .         .
14.900      0.8059      1.43  .    Q    .     V   .         .         .
14.917      0.8079      1.44  .    Q    .     V   .         .         .
14.933      0.8099      1.45  .    Q    .     V   .         .         .
14.950      0.8119      1.46  .    Q    .     V   .         .         .
14.967      0.8139      1.47  .    Q    .     V   .         .         .
14.983      0.8160      1.48  .    Q    .     V   .         .         .
15.000      0.8180      1.49  .    Q    .     V   .         .         .
15.017      0.8201      1.50  .     Q   .      V  .         .         .
15.033      0.8222      1.51  .     Q   .      V  .         .         .
15.050      0.8243      1.53  .     Q   .      V  .         .         .
15.067      0.8264      1.54  .     Q   .      V  .         .         .
15.083      0.8285      1.55  .     Q   .      V  .         .         .
15.100      0.8307      1.56  .     Q   .      V  .         .         .
15.117      0.8328      1.58  .     Q   .      V  .         .         .
15.133      0.8350      1.59  .     Q   .      V  .         .         .
15.150      0.8372      1.60  .     Q   .      V  .         .         .
15.167      0.8395      1.61  .     Q   .      V  .         .         .
15.183      0.8417      1.62  .     Q   .      V  .         .         .
15.200      0.8439      1.64  .     Q   .      V  .         .         .
15.217      0.8462      1.65  .     Q   .      V  .         .         .
15.233      0.8485      1.66  .     Q   .      V  .         .         .
15.250      0.8508      1.67  .     Q   .      V  .         .         .
15.267      0.8531      1.68  .     Q   .      V  .         .         .
15.283      0.8555      1.70  .     Q   .      V  .         .         .
15.300      0.8578      1.72  .     Q   .      V  .         .         .
15.317      0.8602      1.74  .     Q   .      V  .         .         .
15.333      0.8627      1.76  .      Q  .      V  .         .         .
15.350      0.8651      1.79  .      Q  .      V  .         .         .
15.367      0.8676      1.81  .      Q  .       V .         .         .
15.383      0.8702      1.85  .      Q  .       V .         .         .
15.400      0.8727      1.88  .      Q  .       V .         .         .
15.417      0.8754      1.91  .      Q  .       V .         .         .
15.433      0.8781      1.95  .      Q  .       V .         .         .
15.450      0.8808      1.99  .      Q  .       V .         .         .
15.467      0.8836      2.03  .       Q .       V .         .         .
15.483      0.8864      2.07  .       Q .       V .         .         .
15.500      0.8894      2.12  .       Q .       V .         .         .
15.517      0.8923      2.17  .       Q .       V .         .         .
15.533      0.8954      2.22  .       Q .       V .         .         .
15.550      0.8985      2.27  .        Q.       V .         .         .
15.567      0.9017      2.33  .        Q.       V .         .         .
15.583      0.9050      2.38  .        Q.       V .         .         .
15.600      0.9084      2.44  .        Q.       V .         .         .
15.617      0.9118      2.50  .         Q       V .         .         .
15.633      0.9154      2.57  .         Q        V.         .         .
15.650      0.9190      2.63  .         Q        V.         .         .
15.667      0.9227      2.69  .         Q        V.         .         .
15.683      0.9264      2.72  .         Q        V.         .         .
15.700      0.9302      2.74  .         Q        V.         .         .
15.717      0.9340      2.77  .         .Q       V.         .         .
15.733      0.9379      2.79  .         .Q       V.         .         .
15.750      0.9417      2.82  .         .Q       V.         .         .
15.767      0.9457      2.84  .         .Q       V.         .         .
15.783      0.9496      2.87  .         .Q       V.         .         .
15.800      0.9536      2.90  .         .Q       V.         .         .
15.817      0.9577      2.93  .         .Q       V.         .         .
15.833      0.9617      2.96  .         .Q       V.         .         .
15.850      0.9659      3.00  .         .Q        V         .         .
15.867      0.9700      3.03  .         . Q       V         .         .
15.883      0.9743      3.07  .         . Q       V         .         .
15.900      0.9785      3.10  .         . Q       V         .         .
15.917      0.9829      3.14  .         . Q       V         .         .
15.933      0.9872      3.18  .         . Q       V         .         .
15.950      0.9917      3.23  .         . Q       V         .         .
15.967      0.9962      3.27  .         .  Q      V         .         .
15.983      1.0008      3.32  .         .  Q      V         .         .
16.000      1.0054      3.36  .         .  Q      V         .         .
16.017      1.0101      3.41  .         .  Q      V         .         .
16.033      1.0149      3.48  .         .  Q      .V        .         .
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18.017	1.5453	1.08	.	Q	.	.	.	V	.
18.033	1.5467	1.07	.	Q	.	.	.	V	.
18.050	1.5482	1.06	.	Q	.	.	.	V	.
18.067	1.5497	1.05	.	Q	.	.	.	V	.
18.083	1.5511	1.04	.	Q	.	.	.	V	.
18.100	1.5525	1.04	.	Q	.	.	.	V	.
18.117	1.5539	1.03	.	Q	.	.	.	V	.
18.133	1.5553	1.02	.	Q	.	.	.	V	.
18.150	1.5567	1.01	.	Q	.	.	.	V	.
18.167	1.5581	1.01	.	Q	.	.	.	V	.
18.183	1.5595	1.00	.	Q	.	.	.	V	.
18.200	1.5609	1.00	.	Q	.	.	.	V	.
18.217	1.5622	0.99	.	Q	.	.	.	V	.
18.233	1.5636	0.99	.	Q	.	.	.	V	.
18.250	1.5650	0.98	.	Q	.	.	.	V	.
18.267	1.5663	0.98	.	Q	.	.	.	V	.
18.283	1.5676	0.97	.	Q	.	.	.	V	.
18.300	1.5690	0.97	.	Q	.	.	.	V	.
18.317	1.5703	0.96	.	Q	.	.	.	V	.
18.333	1.5716	0.96	.	Q	.	.	.	V	.
18.350	1.5729	0.95	.	Q	.	.	.	V	.
18.367	1.5742	0.95	.	Q	.	.	.	V	.
18.383	1.5755	0.95	.	Q	.	.	.	V	.
18.400	1.5768	0.94	.	Q	.	.	.	V	.
18.417	1.5781	0.94	.	Q	.	.	.	V	.
18.433	1.5794	0.93	.	Q	.	.	.	V	.
18.450	1.5807	0.93	.	Q	.	.	.	V	.
18.467	1.5820	0.93	.	Q	.	.	.	V	.
18.483	1.5832	0.92	.	Q	.	.	.	V	.
18.500	1.5845	0.92	.	Q	.	.	.	V	.
18.517	1.5858	0.91	.	Q	.	.	.	V	.
18.533	1.5870	0.91	.	Q	.	.	.	V	.
18.550	1.5883	0.91	.	Q	.	.	.	V	.
18.567	1.5895	0.90	.	Q	.	.	.	V	.
18.583	1.5908	0.90	.	Q	.	.	.	V	.
18.600	1.5920	0.90	.	Q	.	.	.	V	.
18.617	1.5932	0.89	.	Q	.	.	.	V	.
18.633	1.5944	0.89	.	Q	.	.	.	V	.
18.650	1.5957	0.89	.	Q	.	.	.	V	.
18.667	1.5969	0.88	.	Q	.	.	.	V	.
18.683	1.5981	0.88	.	Q	.	.	.	V	.
18.700	1.5993	0.88	.	Q	.	.	.	V	.
18.717	1.6005	0.87	.	Q	.	.	.	V	.
18.733	1.6017	0.87	.	Q	.	.	.	V	.
18.750	1.6029	0.87	.	Q	.	.	.	V	.
18.767	1.6041	0.86	.	Q	.	.	.	V	.
18.783	1.6053	0.86	.	Q	.	.	.	V	.
18.800	1.6064	0.86	.	Q	.	.	.	V	.
18.817	1.6076	0.85	.	Q	.	.	.	V	.
18.833	1.6088	0.85	.	Q	.	.	.	V	.
18.850	1.6100	0.85	.	Q	.	.	.	V	.
18.867	1.6111	0.84	.	Q	.	.	.	V	.
18.883	1.6123	0.84	.	Q	.	.	.	V	.
18.900	1.6134	0.84	.	Q	.	.	.	V	.
18.917	1.6146	0.84	.	Q	.	.	.	V	.
18.933	1.6157	0.83	.	Q	.	.	.	V	.
18.950	1.6169	0.83	.	Q	.	.	.	V	.
18.967	1.6180	0.83	.	Q	.	.	.	V	.
18.983	1.6192	0.82	.	Q	.	.	.	V	.
19.000	1.6203	0.82	.	Q	.	.	.	V	.
19.017	1.6214	0.82	.	Q	.	.	.	V	.
19.033	1.6225	0.82	.	Q	.	.	.	V	.
19.050	1.6237	0.81	.	Q	.	.	.	V	.
19.067	1.6248	0.81	.	Q	.	.	.	V	.
19.083	1.6259	0.81	.	Q	.	.	.	V	.
19.100	1.6270	0.81	.	Q	.	.	.	V	.
19.117	1.6281	0.80	.	Q	.	.	.	V	.
19.133	1.6292	0.80	.	Q	.	.	.	V	.
19.150	1.6303	0.80	.	Q	.	.	.	V	.
19.167	1.6314	0.80	.	Q	.	.	.	V	.
19.183	1.6325	0.79	.	Q	.	.	.	V	.
19.200	1.6336	0.79	.	Q	.	.	.	V	.
19.217	1.6347	0.79	.	Q	.	.	.	V	.
19.233	1.6358	0.79	.	Q	.	.	.	V	.
19.250	1.6368	0.78	.	Q	.	.	.	V	.
19.267	1.6379	0.78	.	Q	.	.	.	V	.
19.283	1.6390	0.78	.	Q	.	.	.	V	.
19.300	1.6401	0.78	.	Q	.	.	.	V	.
19.317	1.6411	0.78	.	Q	.	.	.	V	.
19.333	1.6422	0.77	.	Q	.	.	.	V	.
19.350	1.6433	0.77	.	Q	.	.	.	V	.
19.367	1.6443	0.77	.	Q	.	.	.	V	.
19.383	1.6454	0.77	.	Q	.	.	.	V	.
19.400	1.6464	0.76	.	Q	.	.	.	V	.
19.417	1.6475	0.76	.	Q	.	.	.	V	.
19.433	1.6485	0.76	.	Q	.	.	.	V	.
19.450	1.6496	0.76	.	Q	.	.	.	V	.
19.467	1.6506	0.76	.	Q	.	.	.	V	.
19.483	1.6516	0.75	.	Q	.	.	.	V	.
19.500	1.6527	0.75	.	Q	.	.	.	V	.
19.517	1.6537	0.75	.	Q	.	.	.	V	.
19.533	1.6547	0.75	.	Q	.	.	.	V	.
19.550	1.6558	0.75	.	Q	.	.	.	V	.
19.567	1.6568	0.74	.	Q	.	.	.	V	.
19.583	1.6578	0.74	.	Q	.	.	.	V	.
19.600	1.6588	0.74	.	Q	.	.	.	V	.
19.617	1.6598	0.74	.	Q	.	.	.	V	.
19.633	1.6609	0.74	.	Q	.	.	.	V	.
19.650	1.6619	0.73	.	Q	.	.	.	V	.
19.667	1.6629	0.73	.	Q	.	.	.	V	.
19.683	1.6639	0.73	.	Q	.	.	.	V	.
19.700	1.6649	0.73	.	Q	.	.	.	V	.
19.717	1.6659	0.73	.	Q	.	.	.	V	.
19.733	1.6669	0.72	.	Q	.	.	.	V	.
19.750	1.6679	0.72	.	Q	.	.	.	V	.
19.767	1.6689	0.72	.	Q	.	.	.	V	.
19.783	1.6699	0.72	.	Q	.	.	.	V	.
19.800	1.6708	0.72	.	Q	.	.	.	V	.
19.817	1.6718	0.71	.	Q	.	.	.	V	.
19.833	1.6728	0.71	.	Q	.	.	.	V	.
19.850	1.6738	0.71	.	Q	.	.	.	V	.
19.867	1.6748	0.71	.	Q	.	.	.	V	.
19.883	1.6757	0.71	.	Q	.	.	.	V	.
19.900	1.6767	0.71	.	Q	.	.	.	V	.
19.917	1.6777	0.70	.	Q	.	.	.	V	.
19.933	1.6786	0.70	.	Q	.	.	.	V	.
19.950	1.6796	0.70	.	Q	.	.	.	V	.
19.967	1.6806	0.70	.	Q	.	.	.	V	.

19.983	1.6815	0.70	.	Q	.	.	.	V	.
20.000	1.6825	0.70	.	Q	.	.	.	V	.
20.017	1.6835	0.69	.	Q	.	.	.	V	.
20.033	1.6844	0.69	.	Q	.	.	.	V	.
20.050	1.6854	0.69	.	Q	.	.	.	V	.
20.067	1.6863	0.69	.	Q	.	.	.	V	.
20.083	1.6873	0.69	.	Q	.	.	.	V	.
20.100	1.6882	0.69	.	Q	.	.	.	V	.
20.117	1.6891	0.68	.	Q	.	.	.	V	.
20.133	1.6901	0.68	.	Q	.	.	.	V	.
20.150	1.6910	0.68	.	Q	.	.	.	V	.
20.167	1.6920	0.68	.	Q	.	.	.	V	.
20.183	1.6929	0.68	.	Q	.	.	.	V	.
20.200	1.6938	0.68	.	Q	.	.	.	V	.
20.217	1.6948	0.68	.	Q	.	.	.	V	.
20.233	1.6957	0.67	.	Q	.	.	.	V	.
20.250	1.6966	0.67	.	Q	.	.	.	V	.
20.267	1.6975	0.67	.	Q	.	.	.	V	.
20.283	1.6985	0.67	.	Q	.	.	.	V	.
20.300	1.6994	0.67	.	Q	.	.	.	V	.
20.317	1.7003	0.67	.	Q	.	.	.	V	.
20.333	1.7012	0.67	.	Q	.	.	.	V	.
20.350	1.7021	0.66	.	Q	.	.	.	V	.
20.367	1.7030	0.66	.	Q	.	.	.	V	.
20.383	1.7040	0.66	.	Q	.	.	.	V	.
20.400	1.7049	0.66	.	Q	.	.	.	V	.
20.417	1.7058	0.66	.	Q	.	.	.	V	.
20.433	1.7067	0.66	.	Q	.	.	.	V	.
20.450	1.7076	0.66	.	Q	.	.	.	V	.
20.467	1.7085	0.65	.	Q	.	.	.	V	.
20.483	1.7094	0.65	.	Q	.	.	.	V	.
20.500	1.7103	0.65	.	Q	.	.	.	V	.
20.517	1.7112	0.65	.	Q	.	.	.	V	.
20.533	1.7121	0.65	.	Q	.	.	.	V	.
20.550	1.7130	0.65	.	Q	.	.	.	V	.
20.567	1.7138	0.65	.	Q	.	.	.	V	.
20.583	1.7147	0.64	.	Q	.	.	.	V	.
20.600	1.7156	0.64	.	Q	.	.	.	V	.
20.617	1.7165	0.64	.	Q	.	.	.	V	.
20.633	1.7174	0.64	.	Q	.	.	.	V	.
20.650	1.7183	0.64	.	Q	.	.	.	V	.
20.667	1.7191	0.64	.	Q	.	.	.	V	.
20.683	1.7200	0.64	.	Q	.	.	.	V	.
20.700	1.7209	0.64	.	Q	.	.	.	V	.
20.717	1.7218	0.63	.	Q	.	.	.	V	.
20.733	1.7226	0.63	.	Q	.	.	.	V	.
20.750	1.7235	0.63	.	Q	.	.	.	V	.
20.767	1.7244	0.63	.	Q	.	.	.	V	.
20.783	1.7252	0.63	.	Q	.	.	.	V	.
20.800	1.7261	0.63	.	Q	.	.	.	V	.
20.817	1.7270	0.63	.	Q	.	.	.	V	.
20.833	1.7278	0.63	.	Q	.	.	.	V	.
20.850	1.7287	0.62	.	Q	.	.	.	V	.
20.867	1.7296	0.62	.	Q	.	.	.	V	.
20.883	1.7304	0.62	.	Q	.	.	.	V	.
20.900	1.7313	0.62	.	Q	.	.	.	V	.
20.917	1.7321	0.62	.	Q	.	.	.	V	.
20.933	1.7330	0.62	.	Q	.	.	.	V	.
20.950	1.7338	0.62	.	Q	.	.	.	V	.
20.967	1.7347	0.62	.	Q	.	.	.	V	.
20.983	1.7355	0.62	.	Q	.	.	.	V	.
21.000	1.7364	0.61	.	Q	.	.	.	V	.
21.017	1.7372	0.61	.	Q	.	.	.	V	.
21.033	1.7381	0.61	.	Q	.	.	.	V	.
21.050	1.7389	0.61	.	Q	.	.	.	V	.
21.067	1.7397	0.61	.	Q	.	.	.	V	.
21.083	1.7406	0.61	.	Q	.	.	.	V	.
21.100	1.7414	0.61	.	Q	.	.	.	V	.
21.117	1.7423	0.61	.	Q	.	.	.	V	.
21.133	1.7431	0.61	.	Q	.	.	.	V	.
21.150	1.7439	0.60	.	Q	.	.	.	V	.
21.167	1.7448	0.60	.	Q	.	.	.	V	.
21.183	1.7456	0.60	.	Q	.	.	.	V	.
21.200	1.7464	0.60	.	Q	.	.	.	V	.
21.217	1.7472	0.60	.	Q	.	.	.	V	.
21.233	1.7481	0.60	.	Q	.	.	.	V	.
21.250	1.7489	0.60	.	Q	.	.	.	V	.
21.267	1.7497	0.60	.	Q	.	.	.	V	.
21.283	1.7505	0.60	.	Q	.	.	.	V	.
21.300	1.7513	0.59	.	Q	.	.	.	V	.
21.317	1.7522	0.59	.	Q	.	.	.	V	.
21.333	1.7530	0.59	.	Q	.	.	.	V	.
21.350	1.7538	0.59	.	Q	.	.	.	V	.
21.367	1.7546	0.59	.	Q	.	.	.	V	.
21.383	1.7554	0.59	.	Q	.	.	.	V	.
21.400	1.7562	0.59	.	Q	.	.	.	V	.
21.417	1.7570	0.59	.	Q	.	.	.	V	.
21.433	1.7579	0.59	.	Q	.	.	.	V	.
21.450	1.7587	0.59	.	Q	.	.	.	V	.
21.467	1.7595	0.58	.	Q	.	.	.	V	.
21.483	1.7603	0.58	.	Q	.	.	.	V	.
21.500	1.7611	0.58	.	Q	.	.	.	V	.
21.517	1.7619	0.58	.	Q	.	.	.	V	.
21.533	1.7627	0.58	.	Q	.	.	.	V	.
21.550	1.7635	0.58	.	Q	.	.	.	V	.
21.567	1.7643	0.58	.	Q	.	.	.	V	.
21.583	1.7651	0.58	.	Q	.	.	.	V	.
21.600	1.7659	0.58	.	Q	.	.	.	V	.
21.617	1.7667	0.58	.	Q	.	.	.	V	.
21.633	1.7674	0.58	.	Q	.	.	.	V	.
21.650	1.7682	0.57	.	Q	.	.	.	V	.
21.667	1.7690	0.57	.	Q	.	.	.	V	.
21.683	1.7698	0.57	.	Q	.	.	.	V	.
21.700	1.7706	0.57	.	Q	.	.	.	V	.
21.717	1.7714	0.57	.	Q	.	.	.	V	.
21.733	1.7722	0.57	.	Q	.	.	.	V	.
21.750	1.7730	0.57	.	Q	.	.	.	V	.
21.767	1.7737	0.57	.	Q	.	.	.	V	.
21.783	1.7745	0.57	.	Q	.	.	.	V	.
21.800	1.7753	0.57	.	Q	.	.	.	V	.
21.817	1.7761	0.57	.	Q	.	.	.	V	.
21.833	1.7769	0.56	.	Q	.	.	.	V	.
21.850	1.7776	0.56	.	Q	.	.	.	V	.
21.867	1.7784	0.56	.	Q	.	.	.	V	.
21.883	1.7792	0.56	.	Q	.	.	.	V	.
21.900	1.7800	0.56	.	Q	.	.	.	V	.
21.917	1.7807	0.56	.	Q	.	.	.	V	.
21.933	1.7815	0.56	.	Q	.	.	.	V	.

21.950	1.7823	0.56	.	Q	.	.	V	.
21.967	1.7830	0.56	.	Q	.	.	V	.
21.983	1.7838	0.56	.	Q	.	.	V	.
22.000	1.7846	0.56	.	Q	.	.	V	.
22.017	1.7853	0.56	.	Q	.	.	V	.
22.033	1.7861	0.55	.	Q	.	.	V	.
22.050	1.7869	0.55	.	Q	.	.	V	.
22.067	1.7876	0.55	.	Q	.	.	V	.
22.083	1.7884	0.55	.	Q	.	.	V	.
22.100	1.7891	0.55	.	Q	.	.	V	.
22.117	1.7899	0.55	.	Q	.	.	V	.
22.133	1.7907	0.55	.	Q	.	.	V	.
22.150	1.7914	0.55	.	Q	.	.	V	.
22.167	1.7922	0.55	.	Q	.	.	V	.
22.183	1.7929	0.55	.	Q	.	.	V	.
22.200	1.7937	0.55	.	Q	.	.	V	.
22.217	1.7944	0.55	.	Q	.	.	V	.
22.233	1.7952	0.54	.	Q	.	.	V	.
22.250	1.7959	0.54	.	Q	.	.	V	.
22.267	1.7967	0.54	.	Q	.	.	V	.
22.283	1.7974	0.54	.	Q	.	.	V	.
22.300	1.7982	0.54	.	Q	.	.	V	.
22.317	1.7989	0.54	.	Q	.	.	V	.
22.333	1.7996	0.54	.	Q	.	.	V	.
22.350	1.8004	0.54	.	Q	.	.	V	.
22.367	1.8011	0.54	.	Q	.	.	V	.
22.383	1.8019	0.54	.	Q	.	.	V	.
22.400	1.8026	0.54	.	Q	.	.	V	.
22.417	1.8033	0.54	.	Q	.	.	V	.
22.433	1.8041	0.54	.	Q	.	.	V	.
22.450	1.8048	0.53	.	Q	.	.	V	.
22.467	1.8056	0.53	.	Q	.	.	V	.
22.483	1.8063	0.53	.	Q	.	.	V	.
22.500	1.8070	0.53	.	Q	.	.	V	.
22.517	1.8078	0.53	.	Q	.	.	V	.
22.533	1.8085	0.53	.	Q	.	.	V	.
22.550	1.8092	0.53	.	Q	.	.	V	.
22.567	1.8099	0.53	.	Q	.	.	V	.
22.583	1.8107	0.53	.	Q	.	.	V	.
22.600	1.8114	0.53	.	Q	.	.	V	.
22.617	1.8121	0.53	.	Q	.	.	V	.
22.633	1.8129	0.53	.	Q	.	.	V	.
22.650	1.8136	0.53	.	Q	.	.	V	.
22.667	1.8143	0.53	.	Q	.	.	V	.
22.683	1.8150	0.52	.	Q	.	.	V	.
22.700	1.8157	0.52	.	Q	.	.	V	.
22.717	1.8165	0.52	.	Q	.	.	V	.
22.733	1.8172	0.52	.	Q	.	.	V	.
22.750	1.8179	0.52	.	Q	.	.	V	.
22.767	1.8186	0.52	.	Q	.	.	V	.
22.783	1.8193	0.52	.	Q	.	.	V	.
22.800	1.8200	0.52	.	Q	.	.	V	.
22.817	1.8208	0.52	.	Q	.	.	V	.
22.833	1.8215	0.52	.	Q	.	.	V	.
22.850	1.8222	0.52	.	Q	.	.	V	.
22.867	1.8229	0.52	.	Q	.	.	V	.
22.883	1.8236	0.52	.	Q	.	.	V	.
22.900	1.8243	0.52	.	Q	.	.	V	.
22.917	1.8250	0.51	.	Q	.	.	V	.
22.933	1.8257	0.51	.	Q	.	.	V	.
22.950	1.8264	0.51	.	Q	.	.	V	.
22.967	1.8272	0.51	.	Q	.	.	V	.
22.983	1.8279	0.51	.	Q	.	.	V	.
23.000	1.8286	0.51	.	Q	.	.	V	.
23.017	1.8293	0.51	.	Q	.	.	V	.
23.033	1.8300	0.51	.	Q	.	.	V	.
23.050	1.8307	0.51	.	Q	.	.	V	.
23.067	1.8314	0.51	.	Q	.	.	V	.
23.083	1.8321	0.51	.	Q	.	.	V	.
23.100	1.8328	0.51	.	Q	.	.	V	.
23.117	1.8335	0.51	.	Q	.	.	V	.
23.133	1.8342	0.51	.	Q	.	.	V	.
23.150	1.8349	0.51	.	Q	.	.	V	.
23.167	1.8356	0.50	.	Q	.	.	V	.
23.183	1.8363	0.50	.	Q	.	.	V	.
23.200	1.8369	0.50	.	Q	.	.	V	.
23.217	1.8376	0.50	.	Q	.	.	V	.
23.233	1.8383	0.50	.	Q	.	.	V	.
23.250	1.8390	0.50	.	Q	.	.	V	.
23.267	1.8397	0.50	.	Q	.	.	V	.
23.283	1.8404	0.50	.	Q	.	.	V	.
23.300	1.8411	0.50	.	Q	.	.	V	.
23.317	1.8418	0.50	.	Q	.	.	V	.
23.333	1.8425	0.50	.	Q	.	.	V	.
23.350	1.8432	0.50	.	Q	.	.	V	.
23.367	1.8438	0.50	.	Q	.	.	V	.
23.383	1.8445	0.50	.	Q	.	.	V	.
23.400	1.8452	0.50	.	Q	.	.	V	.
23.417	1.8459	0.50	.	Q	.	.	V	.
23.433	1.8466	0.50	.	Q	.	.	V	.
23.450	1.8473	0.49	.	Q	.	.	V	.
23.467	1.8479	0.49	.	Q	.	.	V	.
23.483	1.8486	0.49	.	Q	.	.	V	.
23.500	1.8493	0.49	.	Q	.	.	V	.
23.517	1.8500	0.49	.	Q	.	.	V	.
23.533	1.8506	0.49	.	Q	.	.	V	.
23.550	1.8513	0.49	.	Q	.	.	V	.
23.567	1.8520	0.49	.	Q	.	.	V	.
23.583	1.8527	0.49	.	Q	.	.	V	.
23.600	1.8533	0.49	.	Q	.	.	V	.
23.617	1.8540	0.49	.	Q	.	.	V	.
23.633	1.8547	0.49	.	Q	.	.	V	.
23.650	1.8554	0.49	.	Q	.	.	V	.
23.667	1.8560	0.49	.	Q	.	.	V	.
23.683	1.8567	0.49	.	Q	.	.	V	.
23.700	1.8574	0.49	.	Q	.	.	V	.
23.717	1.8580	0.49	.	Q	.	.	V	.
23.733	1.8587	0.48	.	Q	.	.	V	.
23.750	1.8594	0.48	.	Q	.	.	V	.
23.767	1.8600	0.48	.	Q	.	.	V	.
23.783	1.8607	0.48	.	Q	.	.	V	.
23.800	1.8614	0.48	.	Q	.	.	V	.
23.817	1.8620	0.48	.	Q	.	.	V	.
23.833	1.8627	0.48	.	Q	.	.	V	.
23.850	1.8634	0.48	.	Q	.	.	V	.
23.867	1.8640	0.48	.	Q	.	.	V	.
23.883	1.8647	0.48	.	Q	.	.	V	.
23.900	1.8653	0.48	.	Q	.	.	V	.

```
   23.917      1.8660      0.48  .Q        .         .         .      V .
   23.933      1.8667      0.48  .Q        .         .         .      V .
   23.950      1.8673      0.48  .Q        .         .         .      V .
   23.967      1.8680      0.48  .Q        .         .         .      V .
   23.983      1.8686      0.48  .Q        .         .         .      V .
   24.000      1.8693      0.48  .Q        .         .         .      V .
--------------------------------------------------------------------------------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    ======================                 =========
               0%                           1441.0
              10%                           1441.0
              20%                           1425.0
              30%                            755.0
              40%                            580.0
              50%                            505.0
              60%                            365.0
              70%                            270.0
              80%                            195.0
              90%                            140.0
 ================================================================================

   END OF FLOODSCx ROUTING ANALYSIS
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Appendix 9

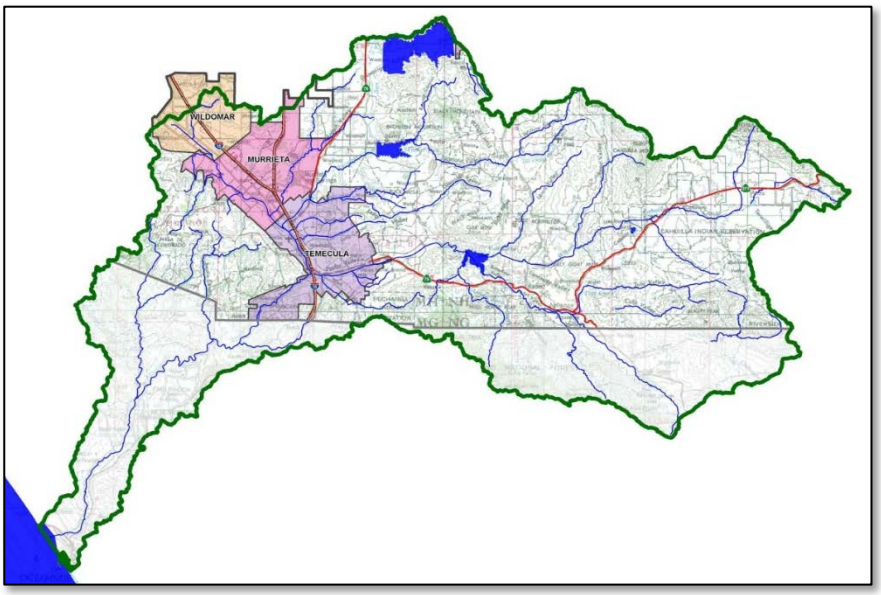
Project-Specific Water Quality Management Plan

Project Specific Water Quality Management Plan (WQMP)

A Template for preparing Project Specific Water Quality Management Plans (WQMPs) for Priority Development Projects located in the City of Wildomar.

Attention: This submittal package only applies to "Priority Development Projects" and does not apply to "Other Development Projects". Proceed only if the Applicabilty Checklist completed for your project categorizes project activities as a "Priority Development Project."

Project Title:	Cherry Outpost	**Prepared for:**	J & T Investments, 139 Radio Road, Corona, CA 92879
Development No:	N/A	**Prepared by:**	Tait & Associates, 701 N. Parkcenter Drive, Santa Ana, CA 92705
City Project No:	PA No. 23-0118	**WQMP Type:**	☒ **Preliminary (entitlement submittal)** ☐ **Final**



Original Date Prepared: 1/15/2024

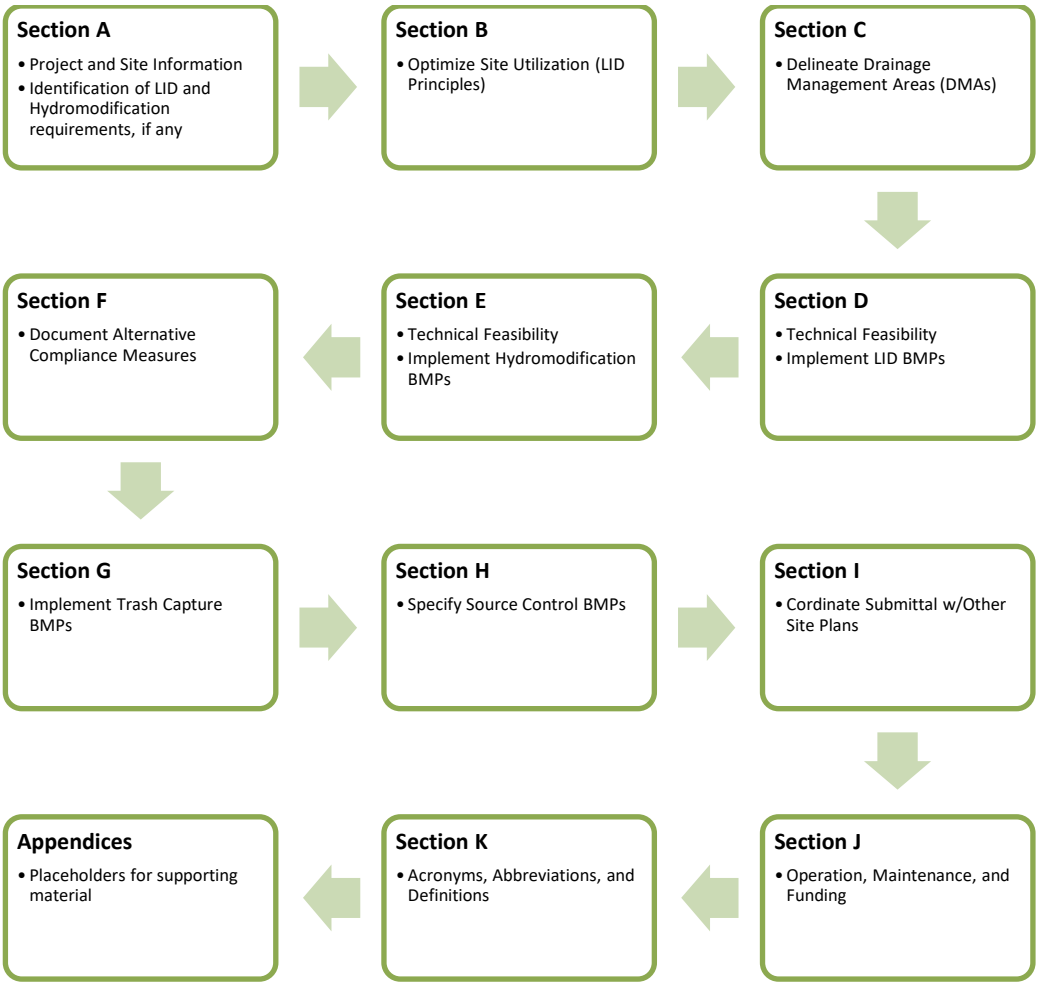
Revision Summary (post WQMP acceptance):

MARK	**BY**	**DATE**	**REVISIONS**	**APPRV.**	**DATE**
ENGINEER				**CITY**	

Prepared for Compliance with Regional Board Order No. **R9-2013-0001** *as amended by Order No.* **R9-2015-0001** *and Order No.* **R9-2015-0100**

A Brief Introduction

The Regional Municipal Separate Stormwater Sewer System (MS4) Permit[1] requires that a Project-Specific WQMP be prepared for all development projects within the Santa Margarita Region (SMR) that meet the 'Priority Development Project' categories and thresholds listed in the SMR Water Quality Management Plan (WQPM). This Project-Specific WQMP Template for Development Projects in the **Santa Margarita Region** has been prepared to help document compliance and prepare a WQMP submittal. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



[1] Order No. R9-2013-0001 as amended by Order Nos. R9-2015-0001 and R9-2015-0100, NPDES No. CAS0109266, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the MS4s Draining the Watersheds within the San Diego Region, California Regional Water Quality Control Board, May 8, 2013.

OWNER'S CERTIFICATION

This Project-Specific WQMP has been prepared for J & T Investments by Tait & Associates for the Cherry Outpost project.

This WQMP is intended to comply with the requirements of the City of Wildomar for Wildomar Municipal Code Ch. 13.12 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of storm water Best Management Practices until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under the City of Wildomar Water Quality Ordinance (Wildomar Municipal Code Ch. 13.12).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Karine Kofdarali	
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control Best Management Practices (BMPs) in this plan meet the requirements of Regional Water Quality Control Board Order No. **R9-2013-0001** as amended by Order Nos. **R9-2015-0001 and R9-2015-0100**."

Preparer's Signature	Date
Kaveh Haghighi	R.C.E.
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

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Section A: Project and Site Information

Use the table below to compile and summarize basic site information that will be important for completing subsequent steps. Subsections A.1 through A.4 provide additional detail on documentation of additional project and site information.

PROJECT INFORMATION		
Type of PDP:	New Development	
Type of Project:	Commercial	
Planning Area:	N/A	
Community Name:	Cherry Outpost	
Development Name:	Cherry Outpost	
PROJECT LOCATION		
Latitude & Longitude (DMS):	33°37'39.7"N 117°16'17.8"W	
Project Watershed and Sub-Watershed:	Santa Ana River	
24-Hour 85th Percentile Storm Depth (inches):	0.685	
Is project subject to Hydromodification requirements?	☐ Y ☒ N (Select based on Section A.3)	
APN(s):	366290008	
Map Book and Page No.:	M.B.10/58-75	
PROJECT CHARACTERISTICS		
Proposed or Potential Land Use(s)		Commercial
Proposed or Potential SIC Code(s)		N/A
Existing Impervious Area of Project Footprint (SF)		10,119
Total area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement		193,468
Total Project Area (ac)		5.95
Does the project consist of offsite road improvements?		☐ Y ☒ N
Does the project propose to construct unpaved roads?		☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?		☐ Y ☒ N
Is the project exempt from Hydromodification Performance Standards?		☐ Y ☒ N
Does the project propose the use of Alternative Compliance to satisfy BMP requirements? (note, alternative compliance is not allowed for coarse sediment performance standards)		☐ Y ☒ N
Has preparation of Project-Specific WQMP included coordination with other site plans?		☐ Y ☒ N
EXISTING SITE CHARACTERISTICS		
Is the project located within any Multi-Species Habitat Conservation Plan area (MSHCP Criteria Cell?)		☐ Y ☒ N If "Y" insert Cell Number
Are there any natural hydrologic features on the project site?		☐ Y ☒ N
Is a Geotechnical Report attached?		☐ Y ☒ N
If no Geotech. Report, list the Natural Resources Conservation Service (NRCS) soils type(s) present on the site (A, B, C and/or D)		A/C

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the Project vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Vicinity and location maps
- Parcel Boundary and Project Footprint
- Existing and Proposed Topography
- Drainage Management Areas (DMAs)
- Proposed Structural Best Management Practices (BMPs)
- Drainage Paths
- Drainage infrastructure, inlets, overflows
- Source Control BMPs
- Site Design BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Pervious Surfaces (i.e. Landscaping)
- Standard Labeling

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Copermittee plan reviewer must be able to easily analyze your Project utilizing this template and its associated site plans and maps. Complete the checklists in Appendix 1 to verify that all exhibits and components are included.

A.2 Identify Receiving Waters

Using Table A-1 below, list in order of upstream to downstream, the Receiving Waters that the Project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated Beneficial Uses, and proximity, if any, to a RARE Beneficial Use. Include a map of the Receiving Waters in Appendix 1. This map should identify the path of the storm water discharged from the site all the way to the Pacific Ocean. Use the most recent 303(d) list available from the State Water Resources Control Board Website. *(http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/)*

Table A-1 Identification of Receiving Waters

Receiving Waters	USEPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Elsinore, Lake	DDT (Pesticide), Nutrients, Organic Enrichment(Nutrients), PCB's(Toxic Organics), Toxicity	COMM, RARE, REC1, REC2, WARM, WILD	Classified as RARE water body
Temescal Creek Reach 5	Not Listed	AGR, GWR, RARE, REC1, REC2, WARM, WILD	Classified as RARE water body
Temescal Creek Reach 4	Not Listed	AGR, GWR, RARE, REC1, REC2, WARM, WILD	Classified as RARE water body
Lee Lake	Not Listed	AGR, COMM, GWR, IND, REC1, REC2, WARM, WILD	Not Classified as RARE water body
Temescal Creek Reach 2	Not Listed	AGR, GWR, IND, RARE, REC1, REC2, WARM, WILD	Classified as RARE water body
Temescal Creek Reach 1B	Nost Listed	REC1, REC2, WARM, WILD	Not Classified as RARE water body
Temescal Creek Reach 1A	Not Listed	REC1, REC2, WARM, WILD	Not Classified as RARE water body
Prado Basin Management Zone	PH	RARE, REC1, REC2, WARM, WILD	Classified as RARE water body

Santa Ana River Reach 2	Not Listed	AGR, GWR, RARE, REC1, REC2, SPWN, WARM, WILD	Classified as RARE water body
Santa Ana River Reach 1	Not Listed	REC1, REC2, WARM, WILD	Not Classified as RARE water body
Tidal Prism of Santa Ana River	Not Listed	COMM, EST, MAR, RARE, REC1, REC2, WILD	Classified as RARE water body
San Gabriel River to Poppy Street (Nearshore Zone)	Not Listed	COMM, IND, MAR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	Classified as RARE water body

A.3 Drainage System Susceptibility to Hydromodification

Using Table A-2 below, list in order of the point of discharge at the project site down to Lake Elsinore, each drainage system or receiving water that the project site is tributary to. Continue to fill each row with the material of the drainage system, and any exemption (if applicable). Based on the results, summarize the applicable hydromodification performance standards that will be documented in Section E. Exempted categories of receiving waters include:

- Existing storm drains that discharge directly to water storage reservoirs, lakes, or enclosed embayments, or
- Conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- Other water bodies identified in an approved Watershed Management Area Analysis (WMAA) (See Exhibit G to the WQMP)

Include a map exhibiting each drainage system and the associated susceptibility in Appendix 1.

Table A-2 Identification of Susceptibility to Hydromodification

Drainage System	Drainage System Material	Hydromodification Exemption	Hydromodification Exempt
Caltrans Culvert for 0.1 miles	60" Corrugated Metal Pipe	NONE	☐ Y ☒ N
RCFCD Facility for 0.35 miles	60-72" Reinforced Concrete Pipe	NONE	☐ Y ☒ N
City of Wildomar Facility for 0.38 miles	72" Reinforced Concrete Pipe	NONE	☐ Y ☒ N
RCFCD for 0.13 miles	Variable Size Reinforced Concrete Pipe	NONE	☐ Y ☒ N
Open Channel for 2.86 miles	Earthen Channel	NONE	☐ Y ☒ N
Summary of Performance Standards			

Drainage System	Drainage System Material	Hydromodification Exemption	Hydromodification Exempt

☐ **Hydromodification Exempt** – Select if "Y" is selected in the Hydromodification Exempt column above, project is exempt from hydromodification requirements.

☒ **Not Exempt**-Select if "N" is selected in any row of the Hydromodification Exempt column above. Project is subject to hydrologic control requirements and may be subject to sediment supply requirements.

A.4 Additional Permits/Approvals required for the Project:

Table A-3 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act Section 401 Water Quality Certification	☐ Y	☒ N
US Army Corps of Engineers, Clean Water Act Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) Consistency Approval (e.g., Joint Project Review (JPR), Determination of Biological Equivalent or Superior Preservation (DBESP))	☐ Y	☒ N
Other *(please list in the space below as required)* City of Wildomar Grading Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Copermittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for LID Bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your Low Impact Development (LID) design and explain your design decisions to others.

Apply the following LID Principles to the layout of the Priority Development Project (PDP) to the extent they are applicable and feasible. Putting thought upfront about how best to organize the various elements of a site can help to significantly reduce the PDP's potential impact on the environment and reduce the number and size of Structural LID BMPs that must be implemented. Integrate opportunities to accommodate the following LID Principles within the preliminary PDP site layout to maximize implementation of LID Principles.

Site Optimization

Complete checklist below to determine applicable Site Design BMPs for your site.

Project- Specific WQMP Site Design BMP Checklist

The following questions below are based upon Section 3.2 of the SMR WQMP will help you determine how to best optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

SITE DESIGN REQUIREMENTS

Answer the following questions below by indicating "Yes," "No," or "N/A" (Not Applicable). Justify all "No" and "N/A" answers by inserting a narrative at the end of the section. The narrative should include identification and justification of any constraints that would prevent the use of those categories of LID BMPs. Upon identifying Site Design BMP opportunities, include these on your WQMP Site plan in Appendix 1.

☒ Yes ☐ No ☐ N/A

Did you identify and preserve existing drainage patterns?

Integrating existing drainage patterns into the site plan helps to maintain the time of concentration and infiltration rates of runoff, decreasing peak flows, and may also help preserve the contribution of Critical Coarse Sediment (i.e., Bed Sediment Supply) from the PDP to the Receiving Water. Preserve existing drainage patterns by:

- Minimizing unnecessary site grading that would eliminate small depressions, where appropriate add additional "micro" storage throughout the site landscaping.
- Where possible conform the PDP site layout along natural landforms, avoid excessive grading and disturbance of vegetation and soils, preserve or replicate the sites natural drainage features and patterns.
- Set back PDP improvements from creeks, wetlands, riparian habitats and any other natural water bodies.
- Use existing and proposed site drainage patterns as a natural design element, rather than using expensive impervious conveyance systems. Use depressed landscaped areas, vegetated buffers, and bioretention areas as amenities and focal points within the site and landscape design.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.
Existing Site outlet maintained in proposed condition.

☐ Yes ☐ No ☒ N/A

Did you identify and protect existing vegetation?

Identify any areas containing dense native vegetation or well-established trees, and try to avoid disturbing these areas. Soils with thick, undisturbed vegetation have a much higher capacity to store and infiltrate runoff than do disturbed soils. Reestablishment of a mature vegetative community may take decades. Sensitive areas, such as streams and floodplains should also be avoided.

- Define the development envelope and protected areas, identifying areas that are most suitable for development and areas that should be left undisturbed.
- Establish setbacks and buffer zones surrounding sensitive areas.
- Preserve significant trees and other natural vegetation where possible.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. *Existing site contains no significant vegetation to be preserved in proposed condition.*

Project- Specific WQMP Site Design BMP Checklist	
☒ Yes ☐ No ☐ N/A	**Did you identify and preserve natural infiltration capacity?** A key component of LID is taking advantage of a site's natural infiltration and storage capacity. A site survey and geotechnical investigation can help define areas with high potential for infiltration and surface storage. • Identify opportunities to locate LID Principles and Structural BMPs in highly pervious areas. Doing so will maximize infiltration and limit the amount of runoff generated. • Concentrate development on portions of the site with less permeable soils, and preserve areas that can promote infiltration.
Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.	
☒ Yes ☐ No ☐ N/A	**Did you minimize impervious area?** Look for opportunities to limit impervious cover through identification of the smallest possible land area that can be practically impacted or disturbed during site development. • Limit overall coverage of paving and roofs. This can be accomplished by designing compact, taller structures, narrower and shorter streets and sidewalks, clustering buildings and sharing driveways, smaller parking lots (fewer stalls, smaller stalls, and more efficient lanes), and indoor or underground parking. • Inventory planned impervious areas on your preliminary site plan. Identify where permeable pavements, or other permeable materials, such as crushed aggregate, turf block, permeable modular blocks, pervious concrete or pervious asphalt could be substituted for impervious concrete or asphalt paving. This will help reduce the amount of Runoff that may need to be addressed through Structural BMPs. • Examine site layout and circulation patterns and identify areas where landscaping can be substituted for pavement, such as for overflow parking. • Consider green roofs. Green roofs are roofing systems that provide a layer of soil/vegetative cover over a waterproofing membrane. A green roof mimics pre-development conditions by filtering, absorbing, and evapotranspiring precipitation to help manage the effects of an otherwise impervious rooftop.
Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. *Landscape cover provided at all feasible locations within the commercial development.*	

Project- Specific WQMP Site Design BMP Checklist	
☒ Yes ☐ No ☐ N/A	**Did you identify and disperse runoff to adjacent pervious areas or small collection areas?** Look for opportunities to direct runoff from impervious areas to adjacent landscaping, other pervious areas, or small collection areas where such runoff may be retained. This is sometimes referred to as reducing Directly Connected Impervious Areas. • Direct roof runoff into landscaped areas such as medians, parking islands, planter boxes, etc., and/or areas of pervious paving. Instead of having landscaped areas raised above the surrounding impervious areas, design them as depressed areas that can receive Runoff from adjacent impervious pavement. For example, a lawn or garden depressed 3"-4" below surrounding walkways or driveways provides a simple but quite functional landscape design element. • Detain and retain runoff throughout the site. On flatter sites, smaller Structural BMPs may be interspersed in landscaped areas among the buildings and paving. • On hillside sites, drainage from upper areas may be collected in conventional catch basins and piped to landscaped areas and LID BMPs and/or Hydrologic Control BMPs in lower areas. Low retaining walls may also be used to create terraces that can accommodate LID BMPs. Wherever possible, direct drainage from landscaped slopes offsite and not to impervious surfaces like parking lots. • Reduce curb maintenance and provide for allowances for curb cuts. • Design landscaped areas or other pervious areas to receive and infiltrate runoff from nearby impervious areas. • Use Tree Wells to intercept, infiltrate, and evapotranspire precipitation and runoff before it reaches structural BMPs. Tree wells can be used to limit the size of Drainage Management Areas that must be treated by structural BMPs. Guidelines for Tree Wells are included in the Tree Well Fact Sheet in the LID BMP Design Handbook.
Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. *Drainage design include curb cuts to convey runoff to drainage ditch that carries flows towards biofiltration basin.*	
☒ Yes ☐ No ☐ N/A	**Did you utilize native or drought tolerant species in site landscaping?** Wherever possible, use native or drought tolerant species within site landscaping instead of alternatives. These plants are uniquely suited to local soils and climate and can reduce the overall demands for potable water use associated with irrigation.
Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.	

Project- Specific WQMP Site Design BMP Checklist

☐ Yes ☒ No ☐ N/A

Did implement harvest and use of runoff?

Under the Regional MS4 Permit, Harvest and Use BMPs must be employed to reduce runoff on any site where they are applicable and feasible. However, Harvest and Use BMPs are effective for retention of stormwater runoff only when there is adequate demand for non-potable water during the wet season. If demand for non-potable water is not sufficiently large, the actual retention of stormwater runoff will be diminished during larger storms or during back-to-back storms.

For the purposes of planning level Harvest and Use BMP feasibility screening, Harvest and Use is only considered to be a feasible if the total average wet season demand for non-potable water is sufficiently large to use the entire DCV within 72 hours. If the average wet season demand for non-potable water is not sufficiently large to use the entire DCV within 72 hours, then Harvest and Use is not considered to be feasible and need not be considered further.

The general feasibility and applicability of Harvest and Use BMPs should consider:

- Any downstream impacts related to water rights that could arise from capturing storm water (not common).
- Conflicts with recycled water used – where the project is conditioned to use recycled water for irrigation, this should be given priority over storm water capture as it is a year-round supply of water.
- Code Compliance - If a particular use of captured storm water, and/or available methods for storage of captured storm water would be contrary to building codes in effect at the time of approval of the preliminary Project-Specific WQMP, then an evaluation of harvesting and use for that use would not be required.
- Wet season demand – the applicant shall demonstrate, to the acceptance of the [Insert Jurisdiction], that there is adequate demand for harvested water during the wet season to drain the system in a reasonable amount of time.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. *See Appendix 5 for harvest and reuse feasibility calculations.*

☐ Yes ☒ No ☐ N/A

Did you keep the runoff from sediment producing pervious area hydrologically separate from developed areas that require treatment?

Pervious area that qualify as self-treating areas or off-site open space should be kept separate from drainage to structural BMPs whenever possible. This helps limit the required size of structural BMPs, helps avoid impacts to sediment supply, and helps reduce clogging risk to BMPs.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. *Proposed landscape areas are not graded to be classified as self-retaining areas.*

Section C: Delineate Drainage Management Areas (DMAs)

This section provides streamlined guidance and documentation of the DMA delineation and categorization process, for additional information refer to the procedure in Section 3.3 of the SMR WQMP which discusses the methods of delineating and mapping your project site into individual DMAs. Complete Steps 1 to 4 to successfully delineate and categorize DMAs.

Step 1: Identify Surface Types and Drainage Pathways

Carefully delineate pervious areas and impervious areas (including roofs) throughout site and identify overland flow paths and above ground and below ground conveyances. Also identify common points (such as BMPs) that these areas drain to.

Step 2: DMA Delineation

Use the information in Step 1 to divide the entire PDP site into individual, discrete DMAs. Typically, lines delineating DMAs follow grade breaks and roof ridge lines. Where possible, establish separate DMAs for each surface type (e.g., landscaping, pervious paving, or roofs). Assign each DMA a unique code and determine its size in square feet. The total area of your site should total the sum of all of your DMAs (unless water from outside the project limits comingles with water from inside the project limits, i.e. run-on). Complete Table C-1

Table C-1 DMA Identification

DMA Name or Identification	Surface Type(s)[1]	Pervious Area (Sq. Ft.)	Impervious Area (Sq. Ft.)	Total Area (Sq. Ft.)	DMA Type
DMA A-1	Mixed	17,157	86,619	103,776	D
DMA A-1.1	Mixed	20,061	45,733	65,794	D
DMA A-2	Mixed	2,423	934	3,357	D
DMA A-2.1	Mixed	1,406	36,181	37,588	D
DMA A-2.2	Mixed	-	8,109	8,109	D
DMA A-2.3	Mixed	1,983	23,092	25,076	D

Step 3: DMA Classification

Determine how drainage from each DMA will be handled by using information from Steps 1 and 2 and by completing Steps 3.A to 3.C. Each DMA will be classified as one of the following four types:

- Type 'A': Self-Treating Areas:
- Type 'B': Self-Retaining Areas
- Type 'C': Areas Draining to Self-Retaining Areas
- Type 'D': Areas Draining to BMPs

Step 3.A – Identify Type 'A' Self-Treating Area

Indicate if the DMAs meet the following criteria by answering "Yes" or "No".

☐ Yes ☐ No — Area is undisturbed from their natural condition OR restored with Native and/or California Friendly vegetative covers.

☐ Yes ☐ No — Area is irrigated, if at all, with appropriate low water use irrigation systems to prevent irrigation runoff.

☐ Yes ☐ No Runoff from the area will not comingle with runoff from the developed portion of the site, or across other landscaped areas that do not meet the above criteria.

If all answers indicate "Yes," complete Table C-2 to document the DMAs that are classified as Self-Treating Areas.

Table C-2 Type 'A', Self-Treating Areas

DMA Name or Identification	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
N/A			
N/A			
N/A			
N/A			

Step 3.B – Identify Type 'B' Self-Retaining Area and Type 'C' Areas Draining to Self-Retaining Areas

Type 'B' Self-Retaining Area: A Self-Retaining Area is shallowly depressed 'micro infiltration' areas designed to retain the Design Storm rainfall that reaches the area, without producing any Runoff.

Indicate if the DMAs meet the following criteria by answering "Yes," "No," or "N/A".

☐ Yes ☐ No ☐ N/A Slopes will be graded toward the center of the pervious area.

☐ Yes ☐ No ☐ N/A Soils will be freely draining to not create vector or nuisance conditions.

☐ Yes ☐ No ☐ N/A Inlet elevations of area/overflow drains, if any, should be clearly specified to be three inches or more above the low point to promote ponding.

☐ Yes ☐ No ☐ N/A Pervious pavements (e.g., crushed stone, porous asphalt, pervious concrete, or permeable pavers) can be self-retaining when constructed with a gravel base course four or more inches deep below any underdrain discharge elevation.

If all answers indicate "Yes," DMAs may be categorized as Type 'B', proceed to identify Type 'C' Areas Draining to Self-Retaining Areas.

Type 'C' Areas Draining to Self-Retaining Areas: Runoff from impervious or partially pervious areas can be managed by routing it to Self-Retaining Areas consistent with the LID Principle discussed in SMR WQMP Section 3.2.5 for 'Dispersing Runoff to Adjacent Pervious Areas'.
Indicate if the DMAs meet the following criteria by answering "Yes" or "No".

☐ Yes ☐ No The drainage from the tributary area must be directed to and dispersed within the Self-Retaining Area.

☐ Yes ☐ No Area must be designed to retain the entire Design Storm runoff without flowing offsite.

If all answers indicate "Yes," DMAs may be categorized as Type 'C'.

Complete Table C-3 and Table C-4 to identify Type 'B' Self-Retaining Areas and Type 'C' Areas Draining to Self-Retaining Areas.

Table C-3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C-4= [C]	Required Retention Depth (inches) [D] = $[B] + \frac{[B]\cdot[C]}{[A]}$
N/A						
N/A						
N/A						

Table C-4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Runoff factor [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [C]/[D]
N/A							
N/A							
N/A							
N/A							

Note: (See Section 3.3 of SMR WQMP) Ensure that partially pervious areas draining to a Self-Retaining area do not exceed the following ratio:

$$\left(\frac{2}{Impervious\ Fraction}\right) : 1$$

(Tributary Area**:** Self-Retaining Area)

Step 3.C – Identify Type 'D' Areas Draining to BMPs

Areas draining to BMPs are those that could not be fully managed through LID Principles (DMA Types A through C) and will instead drain to an LID BMP and/or a Conventional Treatment BMP designed to manage water quality impacts from that area, and Hydromodification where necessary.

Complete Table C-5 to document which DMAs are classified as Areas Draining to BMPs

Table C-5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID Receiving Runoff from DMA
DMA A-1	BMP-A
DMA A-1.1	
DMA A-2	
DMA A-2.1	
DMA A-2.2	
DMA A-2.3	

Section D: Implement LID BMPs

The Regional MS4 Permit requires the use of LID BMPs to provide retention or treatment of the DCV and includes a BMP hierarchy which requires Full Retention BMPs (Priority 1) to be considered before Biofiltration BMPs (Priority 2) and Flow-Through Treatment BMPs and Alternative Compliance BMPs (Priority 3). LID BMP selection must be based on technical feasibility and should be considered early in the site planning and design process. Use this section to document the selection of LID BMPs for each DMA. Note that feasibility is based on the DMA scale and may vary between DMAs based on site conditions.

D.1 Full Infiltration Applicability

An assessment of the feasibility of utilizing full infiltration BMPs is required for all projects, *except where it can be shown that site design LID principals fully retain the DCV (i.e., all DMAs are Type A, B, or C), or where Harvest and Use BMPs fully retain the DCV. Check the following box if applicable:*

☐ Site design LID principals fully retain the DCV (i.e., all DMAs are Type A, B, or C), (Proceed to Section E).

If the above box remains unchecked, perform a site-specific evaluation of the feasibility of Infiltration BMPs using each of the applicable criteria identified in Chapter 2.3.3 of the SMR WQMP and complete the remainder of Section D.1.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Copermittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the SMR WQMP. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Infiltration Feasibility

Table D-1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the SMR WQMP in Chapter 2.3.3. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D-1 Infiltration Feasibility

Downstream Impacts (SMR WQMP Section 2.3.3.a)		
Does the project site…	**YES**	**NO**
…have any DMAs where infiltration would negatively impact downstream water rights or other Beneficial Uses[2]?		X
If Yes, list affected DMAs:		
Groundwater Protection (SMR WQMP Section 2.3.3.b)		
Does the project site…	**YES**	**NO**
…have any DMAs with industrial, and other land uses that pose a high threat to water quality, which cannot be treated by Bioretention BMPs? Or have DMAs with active industrial process areas?		X
If Yes, list affected DMAs:		
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		N/A
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet horizontally of a water supply well?		X
If Yes, list affected DMAs:		
…have any DMAs that would restrict BMP locations to within a 2:1 (horizontal: vertical) influence line extending from any septic leach line?		X
If Yes, list affected DMAs:		
…have any DMAs been evaluated by a licensed Geotechnical Engineer, Hydrogeologist, or Environmental Engineer, who has concluded that the soils do not have adequate physical and chemical characteristics for the protection of groundwater, and has treatment provided by amended media layers in Bioretention BMPs been considered in evaluating this factor?		N/A
If Yes, list affected DMAs:		
Public Safety and Offsite Improvements (SMR WQMP Section 2.3.3.c)		
Does the project site…	**YES**	**NO**
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		N/A
If Yes, list affected DMAs:		
Infiltration Characteristics For LID BMPs (SMR WQMP Section 2.3.3.d)		
Does the project site…	**YES**	**NO**
…have factored infiltration rates of less than 0.8 inches / hour? (Note: on a case-by-case basis, the City may allow a factor of safety as low as 1.0 to support selection of full infiltration BMPs. Therefore, measured infiltration rates could be as low as 0.8 in/hr to support full infiltration. A higher factor of safety would be required for design in accordance with the LID BMP Deign Handbook).	X	
If Yes, list affected DMAs:		
Cut/Fill Conditions (SMR WQMP Section 2.3.3.e)		
Does the project site…	**YES**	**NO**
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
Other Site-Specific Factors (SMR WQMP Section 2.3.3.f)		
Does the project site…	**YES**	**NO**
…have DMAs where the geotechnical investigation discovered other site-specific factors that would preclude effective and/or safe infiltration?		N/A
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs that rely solely on infiltration should not be used for those DMAs and you should proceed to the assessment for Biofiltration BMPs below. Biofiltration BMPs that provide partial infiltration may still be feasible and should be

[2] Such a condition must be substantiated by sufficient modeling to demonstrate an impact and would be subject to [Insert Jurisdiction] discretion. There is not a standardized method for assessing this criterion. Water rights evaluations should be site-specific.

assessed in Section D.2. Summarize concerns identified in the Geotechnical Report, if any, that resulted in a "YES" response above in the table below.

Table D-2 Geotechnical Concerns for Onsite Infiltration

Type of Geotechnical Concern	DMAs Feasible (By Name or ID)	DMAs Infeasible (By Name or ID)
Collapsible Soil		
Expansive Soil		
Slopes		
Liquefaction		
Other		DMA-A

D.2 Biofiltration Applicability

This section should document the applicability of biofiltration BMPs for Type D DMAs that are not feasible for full infiltration BMPs. The key decisions to be documented in this section include:

1. Are biofiltration BMPs with partial infiltration feasible?
    a. Biofiltration BMPs must be designed to maximize incidental infiltration via a partial infiltration design unless it is demonstrated that this design is not feasible.
    b. These designs can be used at sites with low infiltration rates where other feasibility factors do not preclude incidental infiltration.

    Document summary in Table D-3.
2. If not, what are the factors that require the use of biofiltration with no infiltration? This may include:
    a. Geotechnical hazards
    b. Water rights issues
    c. Water balance issues
    d. Soil contamination or groundwater quality issues
    e. Very low infiltration rates (factored rates < 0.1 in/hr)
    f. Other factors, demonstrated to the acceptance of the City

    If this applies to any DMAs, then rationale must be documented in Table D-3.
3. Are biofiltration BMPs infeasible?
    a. If yes, then provide a site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee with jurisdiction over the Project site to discuss this option. Proceed to Section F to document your alternative compliance measures.

Table D-3 Evaluation of Biofiltration BMP Feasibility

DMA ID	Is Partial/ Incidental Infiltration Allowable? (Y/N)	Basis for Infeasibility of Partial Infiltration (provide summary and include supporting basis if partial infiltration not feasible)
DMA A-1	N	
DMA A-1.1	N	
DMA A-2	N	
DMA A-2.1	N	
DMA A-2.2	N	
DMA A-2.3	N	

Proprietary Biofiltration BMP Approval Criteria

If the project will use proprietary BMPs as biofiltration BMPs, then this section is completed to document that the proprietary BMPs are selected in accordance with Section 2.3.7 of the SMR WQMP. Proprietary Biofiltration BMPs must meet both of the following approval criteria:

1. Approval Criteria for All Proprietary BMPs, and
2. Acceptance Criteria for Proprietary Biofiltration BMPs.

When the use of proprietary biofiltration BMPs is proposed to meet the Pollutant Control performance standards, use Table D-4 to document that appropriate approval criteria have been met for the proposed BMPs. Add additional rows to document approval criteria are met for each type of BMP proposed.

Table D-4 Proprietary BMP Approval Requirement Summary

Proposed Proprietary Biofiltration BMP	Approval Criteria	Notes/Comments
N/A	☐ Proposed BMP has an active TAPE GULD Certification for the project pollutants of concern[3] or equivalent 3rd party demonstrated performance.	Insert text here
	☐ The BMP is used in a manner consistent with manufacturer guidelines and conditions of its third-party certification.	Insert text here
	☐ The BMP includes biological features including vegetation supported by engineered or other growing media.	Describe features here.
	☐ The BMP is designed to maximize infiltration, or supplemental infiltration is provided to achieve retention equivalent to Biofiltration with Partial Infiltration BMPs if factored infiltration rate is between 0.1 and 0.8 inches/hour.	Describe supplemental retention practices if applicable.

[3] Use Table F-1 and F-2 to identify and document the pollutants of concern and include these tables in Appendix 5.

	☐ The BMP is sized using one of two Biofiltration LID sizing options in Section 2.3.2 of the SRM WQMP.	List sizing method used, resulting size (i.e. volume or flow), and provided size (for proposed unit)

D.3 Feasibility Assessment Summaries

From the Infiltration, Biofiltration with Partial Infiltration and Biofiltration with No Infiltration Sections above, complete Table D-5 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D-5 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy			No LID (Alternative Compliance)
	1. Infiltration	2. Biofiltration with Partial Infiltration	3. Biofiltration with No Infiltration	
DMA A-1	☐	☐	☒	☐
DMA A-1.1	☐	☐	☒	☐
DMA A-2	☐	☐	☒	☐
DMA A-2.1	☐	☐	☒	☐
DMA A-2.2	☐	☐	☒	☐
DMA A-2.3	☐	☐	☒	☐

For those DMAs where LID BMPs are not feasible, provide a narrative in Table D-6 below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section F below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

This is based on the clarification letter titled "San Diego Water Board's Expectations of Documentation to Support a Determination of Priority Development Project Infiltration Infeasibility" (April 28, 2017, Via email from San Diego Regional Water Quality Control Board to San Diego County Municipal Storm Water Copermittees[4]).

Table D-6 Summary of Infeasibility Documentation

Question	Narrative Summary (include reference to applicable appendix/attachment/report, as applicable)
a) When in the entitlement process did a geotechnical engineer analyze the site for infiltration feasibility?	Confirmed – Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration.
b) When in the entitlement process were other investigations conducted (e.g., groundwater quality, water rights) to	Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration.

[4] http://www.projectcleanwater.org/download/pdp-infiltration-infeasibility/

evaluate infiltration feasibility?	
c) What was the scope and results of testing, if conducted, or rationale for why testing was not needed to reach findings?	Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration.
d) What public health and safety requirements affected infiltration locations?	Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration.
e) What were the conclusions and recommendations of the geotechnical engineer and/or other professional responsible for other investigations?	Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration.
f) What was the history of design discussions between the permittee and applicant for the proposed project, resulting in the final design determination related locations feasible for infiltration?	Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration.
g) What site design alternatives were considered to achieve infiltration or partial infiltration on site?	Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration. Bioretention will be utilized for treatment purposes.
h) What physical impairments (i.e., fire road egress, public safety considerations, utilities) and public safety concerns influenced site layout and infiltration feasibility?	Per Preliminary Geotechnical Investigation Report provided in Appendix 3, the tested infiltration rates are not feasible for infiltration.
i) What LID Principles (site design BMPs) were included in the project site design?	The project site will utilize bioretention planters.

D.4 LID BMP Sizing

Each LID BMP must be designed to ensure that the DCV will be captured by the selected BMPs with no discharge to the storm drain or surface waters during the DCV size storm. Infiltration BMPs must at minimum be sized to capture the DCV to achieve pollutant control requirements.

Biofiltration BMPs must at a minimum be sized to:

- Treat 1.5 times the DCV not reliably retained on site using a volume-base or flow-based sizing method, or
- Include static storage volume, including pore spaces and pre-filter detention volume, at least 0.75 times the portion of the DCV not reliably retained on site.

First**,** calculate the DCV for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required V_{BMP} using the methods included in Section 3 of the LID BMP Design Handbook. Utilize the worksheets found in the LID BMP Design Handbook or consult with the Copermittee to assist you in correctly sizing your LID BMPs. Use Table D-7 below to document the DCV for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D-7 DCV Calculations for LID BMPs

DMA Type/ID	DMA (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*BMP-A*		
	[A]		[B]	[C]	[A] x [C]			
A	*158,656*	*Concrete/Asphalt*	*1*	*0.89*	*141,521*	*Design Storm Depth (in) [E]*	*DCV, V_{BMP} (cubic feet)* $[F] = \frac{[D]x[E]}{12}$	*Proposed Volume on Plans (cubic feet)*
A	*38,500*	*Natural (A Soils)*	*0.03*	*0.06*	*2,408*			
A	*27,121*	*Natural (C Soils)*	*0.3*	*0.23*	*6,107*			
A	*34,812*	*Roofs*	*1*	*0.89*	*31,052*			
	A_T = 259,089				Σ= [D] 182093	0.68	$[F] = \frac{[182093]x[0.68]}{12}$	***10,262***

[B], [C] is obtained as described in Section 2.6.1.b of the SMR WQMP

[E] is obtained from Exhibit A in the SMR WQMP

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6.

Complete Table D-8 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. You can add rows to the table as needed. Alternatively, the Santa Margarita Hydrology Model (SMRHM) can be used to size LID BMPs to address the DCV and, if applicable, to size Hydrologic Control BMPs to meet the Hydrologic Performance Standard described in the SMR WQMP, as identified in Section E.

Table D-8 LID BMP Sizing

BMP Name / ID	DMA No.	BMP Type / Description	Design Capture Volume (ft^3)	Proposed Volume (ft^3)
BMP-A	A	Biofiltration	10,262	10,342

If bioretention will include a capped underdrain, then include sizing calculations demonstrating that the BMP will meet infiltration sizing requirements with the underdrain capped and also meet biofiltration sizing requirements if the underdrain is uncapped.

Section E: Implement Hydrologic Control BMPs and Sediment Supply BMPs

If a completed Table 1.2 demonstrates that the project is exempt from Hydromodification Performance Standards, specify N/A and proceed to Section G.

☐ N/A Project is Exempt from Hydromodification Performance Standards.

If a PDP is not exempt from hydromodification requirements than the PDP must satisfy the requirements of the performance standards for hydrologic control BMPs and Sediment Supply BMPs. The PDP may choose to satisfy hydrologic control requirements using onsite or offsite BMPs (i.e. Alternative Compliance). Sediment supply requirements cannot be met via alternative compliance. If N/A is not selected above, select one of the two options below and complete the applicable sections.

☒ Project is Not Hydromodification Exempt and chooses to implement Hydrologic Control and Sediment Supply BMPs Onsite (complete Section E).

☐ Project is Not Hydromodification Exempt and chooses to implement Hydrologic Control Requirements using Alternative Compliance (complete Section F). Selection of this option must be approved by the Copermittee.

E.1 Hydrologic Control BMP Selection

Capture of the DCV and achievement of the Hydrologic Performance Standard may be met by combined and/or separate structural BMPs. The user should consider the full suite of Hydrologic Control BMPs to manage runoff from the post-development condition and meet the Hydrologic Performance Standard identified in this section.

The Hydrologic Performance Standard consists of matching or reducing the flow duration curve of post-development conditions to that of pre-existing, naturally occurring conditions, for the range of geomorphically significant flows (10% of the 2-year runoff event up to the 10-year runoff event). Select each of the hydrologic control BMP types that are applied to meet the above performance standard on the site.

☒ LID principles as defined in Section 3.2 of the SMR WQMP.

☒ Structural LID BMPs that may be modified or enlarged, if necessary, beyond the DCV.

☐ Structural Hydrologic Control BMPs that are distinct from the LID BMPs above. The LID BMP Design Handbook provides information not only on Hydrologic Control BMP design, but also on BMP design to meet the combined LID requirement and Hydrologic Performance Standard. The Handbook specifies the type of BMPs that can be used to meet the Hydrologic Performance Standard.

E.2 Hydrologic Control BMP Sizing

Hydrologic Control BMPs must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA for the range of geomorphically significant flows. Using SMRHM, (or another acceptable continuous simulation model if approved by the Copermittee) the applicant shall demonstrate that the performance of the Hydrologic Control BMPs complies with the Hydrologic Performance Standard. Complete Table E-1 below and identify, for each DMA, the type of Hydrologic Control BMP, if the SMRHM model confirmed the management (Identified as "passed" in SMRHM), the total volume capacity of the Hydrologic Control BMP, the Hydrologic Control BMP footprint at top floor elevation, and the drawdown time of the Hydrologic Control BMP. SMRHM summary reports should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

Table E-1 Hydrologic Control BMP Sizing

BMP Name / ID	DMA No.	BMP Type / Description	SMRHM Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
BMP-A	A	Biofiltration w/ Underdrain	☐	0.24	0.15	N/A
			☐			
			☐			
			☐			

If a bioretention BMP with capped underdrain is used and hydromodification requirements apply, then sizing calculations must demonstrate that the BMP meets flow duration control criteria with the underdrain capped and uncapped. Both calculations must be included.

E.3 Implement Sediment Supply BMPs

The sediment supply performance standard applies to PDPs for which hydromodification applied that have the potential to impact Potential Critical Coarse Sediment Yield Areas. Refer to Exhibit G of the WQMP to determine if there are onsite Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas. Select one of the two options below and include the Potential Critical Coarse Sediment Yield Area Exhibit showing your project location in Appendix 7.

☒ There are no mapped Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas on the site. The Sediment Supply Performance Standard is met with no further action.

☐ There are mapped Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas on the site, the Sediment Supply Performance Standard will be met through Option 1 or Option 2 below.

The applicant may refer to Section 3.6.4 of the SMR WQMP for a description of the methodology to meet the Sediment Supply Performance Standard. Select the applicable compliance pathway and complete the appropriate sections to demonstrate compliance with the Sediment Supply Performance Standard if the second box is selected above:

☐ Avoid impacts related to any PDP activities to Potential Critical Coarse Sediment Yield Areas. Proceed to Section E.3.1.

☐ Complete a Site-Specific Critical Coarse Sediment Analysis. Proceed to Section E.3.2.

E.3.1 Option 1: Avoid Potential Critical Coarse Sediment Yield Areas and Potential Sediment Source Areas

The simplest approach for complying with the Sediment Supply Performance Standard is to avoid impacts to areas identified as Potential Critical Coarse Sediment Yield Areas or Potential Sediment Supply Areas. If a portion of PDP is identified as a Potential Critical Coarse Sediment Yield Area or a Potential Sediment Source Area, that PDP may still achieve compliance with the Sediment Supply Performance Standards if Potential Critical Coarse Sediment Yield Areas and Potential Sediment Supply Areas are avoided, i.e. areas are not developed and thereby delivery of Critical Coarse Sediment to the receiving waters is not impeded by site developments.

Provide a narrative describing how the PDP has avoided impacts to Potential Critical Coarse Sediment Yield Areas and/or Potential Sediment Source Areas below.

Insert narrative description here

If it is not feasible to avoid these areas, proceed to Option 2 to complete a Site-Specific Critical Coarse Sediment Analysis.

E.3.2 Option 2: Site-Specific Critical Coarse Sediment Analysis

Perform a stepwise assessment to ensure the maintenance of the pre-project source(s) of Critical Coarse Sediment (i.e., Bed Sediment Supply):

1. Determine whether the site or a portion of the site is a Significant Source of Bed Sediment Supply to the Receiving Channel (i.e., an actual verified Critical Coarse Sediment Yield Area);
2. Avoid areas identified as actual verified Critical Coarse Sediment Yield Areas in the PDP design and maintain pathways for discharge of Bed Sediment Supply from these areas to receiving waters.

Step 1: Identify if the site is an actual verified Critical Coarse Sediment Yield Area supplying Bed Sediment Supply to the receiving channel

☐ **Step 1.A** – Is the Bed Sediment of onsite streams similar to that of receiving streams?

Rate the similarity: ☐ High
☐ Medium
☐ Low

Results from the geotechnical and sieve analysis to be performed both onsite and in the receiving channel should be documented in Appendix 7. Of particular interest, the results of the sieve analysis, the soil erodibility factor, a description of the topographic relief of the project area, and the lithology of onsite soils should be reported in Appendix 7.

☐ **Step 1.B** – Are onsite streams capable of delivering Bed Sediment Supply from the site, if any, to the receiving channel?

Rate the potential:
- ☐ High
- ☐ Medium
- ☐ Low

Results from the analyses of the sediment delivery potential to the receiving channel should be documented in Appendix 7 and identify, at a minimum, the Sediment Source, the distance to the receiving channel, the onsite channel density, the project watershed area, the slope, length, land use, and rainfall intensity.

☐ **Step 1.C** – Will the receiving channel adversely respond to a change in Bed Sediment Load?

Rate the need for bed sediment supply:
- ☐ High
- ☐ Medium
- ☐ Low

Results from the in-stream analysis to be performed both onsite should be documented in Appendix 7. The analysis should, at a minimum, quantify the bank stability and the degree of incision, provide a gradation of the Bed Sediment within the receiving channel, and identify if the channel is sediment supply-limited.

☐ **Step 1.D** – Summary of Step 1

Summarize in Table E.3 the findings of Step 1 and associate a score (in parenthesis) to each step. The sum of the three individual scores determines if a stream is a significant contributor to the receiving stream.

- Sum is equal to or greater than eight - Site is a significant source of sediment bed material – all on-site streams must be preserved or by-passed within the site plan. The applicant shall proceed to Step 2 for all onsite streams.
- Sum is greater than five but lower than eight. Site is a source of sediment bed material – some of the on-site streams must be preserved (with identified streams noted). The applicant shall proceed to Step 2 for the identified streams only.
- Sum is equal to or lower than five. Site is not a significant source of sediment bed material. The applicant may advance to Section F.

Table E-2 Triad Assessment Summary

Step	Rating			Total Score
1.A	☐ High (3)	☐ Medium (2)	☐ Low (1)	
1.B	☐ High (3)	☐ Medium (2)	☐ Low (1)	
1.C	☐ High (3)	☐ Medium (2)	☐ Low (1)	
Significant Source Rating of Bed Sediment to the receiving channel(s)				

Step 2: Avoid Development of Critical Coarse Sediment Yield Areas, Potential Sediment Sources Areas, and Preserve Pathways for Transport of Bed Sediment Supply to Receiving Waters

Onsite streams identified as a actual verified Critical Coarse Sediment Yield Areas should be avoided in the site design and transport pathways for Critical Coarse Sediment should be preserved

Check those that apply:

☐ The site design does avoid all onsite channels identified as actual verified Critical Coarse Sediment Yield Areas

AND

☐ The drainage design bypasses flow and sediment from onsite upstream drainages identified as actual verified Critical Coarse Sediment Yield Areas to maintain Critical Coarse Sediment supply to receiving waters

(If both are yes, the applicant may disregard subsequent steps of Section E.3 and directly advance directly to Section G).

- *Or* -

☐ The site design **does NOT avoid** all onsite channels identified as actual verified Critical Coarse Sediment Yield Areas

OR

☐ The project impacts transport pathways of Critical Coarse Sediment from onsite upstream drainages.

(If either of these are the case, the applicant may proceed with the subsequent steps of Section E.3).

Provide in Appendix 7 a site map that identifies all onsite channels and highlights those onsite channels that were identified as a Significant Source of Bed Sediment. The site map shall demonstrate, if feasible, that the site design avoids those onsite channels identified as a Significant Source of Bed Sediment. In addition, the applicant shall describe the characteristics of each onsite channel identified as a Significant Source of Bed Sediment. If the design plan cannot avoid the onsite channels, please provide a rationale for each channel individually.

The site map shall demonstrate that the drainage design bypasses those onsite channels that supply Critical Coarse Sediment to the receiving channel(s). In addition, the applicant shall describe the characteristics of each onsite channel identified as an actual verified Critical Coarse Sediment Yield Area.

Identified Channel #1 - Insert narrative description here

Identified Channel #2 - Insert narrative description here

Identified Channel #3 - Insert narrative description here

E.3.3 Sediment Supply BMPs to Result in No Net Impact to Downstream Receiving Waters

If impacts to Critical Coarse Sediment Yield Areas cannot be avoided, sediment supply BMPs must be implemented such there is no net impact to receiving waters. Sediment supply BMPs may consist of approaches that permit flux of bed sediment supply from Critical Coarse Sediment Yield Areas within the project boundary. This approach is subject to acceptance by the [Insert Jurisdiction]. It may require extensive documentation and analysis by qualified professionals to support this demonstration.

Appendix H of the San Diego Model BMP Design Manual provides additional information on site-specific investigation of Critical Coarse Sediment Supply areas.

http://www.projectcleanwater.org/download/2018-model-bmp-design-manual/

If applicable, insert narrative description here

Documentation of sediment supply BMPs should be detailed in Appendix 7.

Section F: Alternative Compliance

Alternative Compliance may be used to achieve compliance with pollutant control and/or hydromodification requirements for a given PDP. Alternative Compliance may be used under two scenarios, check the applicable box if the PDP is proposing to use Alternative Compliance to satisfy all or a portion of the Pollutant Control and/or Hydrologic Control requirements (but not sediment supply requirements)

☐ If it is not feasible to fully implement Infiltration or Biofiltration BMPs at a PDP site, Flow-Through Treatment Control BMPs may be used to treat pollutants contained in the portion of DCV not reliably retained on site and Alternative Compliance measures must also be implemented to mitigate for those pollutants in the DCV that are not retained or removed on site prior to discharging to a receiving water.

☐ Alternative Compliance is selected to comply with either pollutant control or hydromodification flow control requirements even if complying with these requirements is potentially feasible on-site. If such voluntary Alternative Compliance is implemented, Flow-Through Treatment Control BMPs must still be used to treat those pollutants in the portion of the DCV not reliably retained on site prior to discharging to a receiving water.

Refer to Section 2.7 of the SMR WQMP and consult the City for currently available Alternative Compliance pathways. Coordinate with the Copermittee if electing to participate in Alternative Compliance and complete the sections below to document implementation of the Flow-Through BMP component of the program.

F.1 Identify Pollutants of Concern

The purpose of this section is to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs and to document compliance and.

Utilize Table A-1 from Section A, which noted your project's Receiving Waters, to identify impairments for Receiving Waters (including downstream receiving waters) by completing Table F-1. Table F-1 includes the watersheds identified as impaired in the Approved 2010 303(d) list; check box corresponding with the PDP's receiving water. The most recent 303(d) lists are available from the State Water Resources Control Board website:
https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml).https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

Table F-1 Summary of Approved 2010 303(d) listed waterbodies and associated pollutants of concern for the Riverside County SMR Region and downstream waterbodies.

	Water Body	Nutrients[1]	Metals[2]	Toxicity	Bacteria and Pathogens	Pesticides and Herbicides	Sulfate	Total Dissolved Solids
☐	De Luz Creek	X	X				X	
☐	Long Canyon Creek		X		X	X		
☐	Murrieta Creek	X	X	X		X		
☐	Redhawk Channel	X	X		X	X		X
☐	Santa Gertudis Creek	X	X		X	X		
☐	Santa Margarita Estuary	X						
☐	Santa Margarita River (Lower)	X			X			
☐	Santa Margarita River (Upper)	X		X				
☐	Temecula Creek	X	X	X		X		X
☐	Warm Springs Creek	X	X		X	X		
☒	Lake Elsinore	X		X		X		

[1] Nutrients include nitrogen, phosphorus and eutrophic conditions caused by excess nutrients.

[2] Metals includes copper, iron, and manganese.

Use Table F-2 to identify the pollutants identified with the project site. Indicate the applicable PDP Categories and/or Project Features by checking the boxes that apply. If the identified General Pollutant Categories are the same as those listed for your Receiving Waters, then these will be your Pollutants of Concern; check the appropriate box or boxes in the last row.

Per the California 2020-2022 Integrated Report in Appendix 1 and Table A-1, the project site runoff is discharging to Lake Elsinore. Lake Elsinore has TMDLs for the following pollutants: DDT, nutrients, organic enrichment/low dissolved oxygen, PCBs, and toxicity. The plan indicates a bioretention basin will be used as the BMP. Bioretention practices reduce peak flows in downstream water bodies and allow pollutant removal through filtration and plant uptake.

Table F-2 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)		General Pollutant Categories									
		Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease	Total Dissolved Solids	Sulfate
☐	Detached Residential Development	P	N	P	P	N	P	P	P	N	N
☐	Attached Residential Development	P	N	P	P	N	P	P	P[(2)]	N	N
☒	Commercial/Industrial Development	P[(3)]	P[(7)]	P[(1)]	P[(1)]	P	P[(1)]	P	P	N	N
☐	Automotive Repair Shops	N	P	N	N	P[(4, 5)]	N	P	P	N	N
☐	Restaurants (>5,000 ft^2)	P	N	N	P[(1)]	N	N	P	P	N	N
☐	Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P	N	N
☒	Parking Lots (>5,000 ft^2)	P[(6)]	P[(7)]	P[(1)]	P[(1)]	P[(4)]	P	P	P	N	N
☐	Streets, Highways, and Freeways	P[(6)]	P[(7)]	P[(1)]	P[(1)]	P[(4)]	P	P	P	N	N
☐	Retail Gasoline Outlets	N	P[(7)]	N	N	P[(4)]	N	P	P	N	N
Project Priority Pollutant(s) of Concern		☐	☐	☒	☒	☒	☐	☐	☐	☐	☐

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste products; otherwise not expected

(4) Including petroleum hydrocarbons

(5) Including solvents

(6) Bacterial indicators are routinely detected in pavement runoff

(7) A potential source of metals, primarily copper and zinc. Iron, magnesium, and aluminum are commonly found in the environment and are commonly associated with soils, but are not primarily of anthropogenic stormwater origin in the municipal environment.

F.2 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential Pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must be selected to address the Project Priority Pollutants of Concern (identified above) and meet the acceptance criteria described in Section 2.3.7 of the SMR WQMP. Documentation of acceptance criteria must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table F-3 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
BMP-A	Nutrients, Pesticides, Toxicity	

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Copermittee Approved Study and provided in Appendix 6.

F.3 Sizing Criteria

Utilize Table F-4 below to appropriately size flow-through BMPs to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.1 of the SMR WQMP for further information.

Table F-4 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Enter BMP Name / Identifier Here*	
	[A]		[B]	[C]	[A] x [C]		
N/A						*Design Storm (in)*	*Design Flow Rate (cfs)*
	$A_T = \Sigma[A]$				$\Sigma = [D]$	[E]	$[F] = \frac{[D]x[E]}{[G]}$

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP
[E] either 0.2 inches or 2 times the 85th percentile hourly rainfall intensity
[G] = 43,560,.

F.4 Hydrologic Performance Standard – Alternative Compliance Approach

Alternative compliance options are only available if the governing Copermittee has acknowledged the infeasibility of onsite Hydrologic Control BMPs and approved an alternative compliance approach. See Section 3.5 and 3.6 of the SMR WQMP.

Select the pursued alternative and describe the specifics of the alternative:

☐ Offsite Hydrologic Control Management within the same channel system

Insert narrative description here

☐ In-Stream Restoration Project

Insert narrative description here

For Offsite Hydrologic Control BMP Option

Each Hydrologic Control BMP must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA by more than ten percent over a one-year period. Using SMRHM, the applicant shall demonstrate that the performance of each designed Hydrologic Control BMP is equivalent with the Hydrologic Performance Standard for onsite conditions. Complete Table F-5 below and identify, for each Hydrologic Control BMP, the equivalent DMA the Hydrologic Control BMP mitigates, that the SMRHM model passed, the total volume capacity of the BMP, the BMP footprint at top floor elevation, and the drawdown time of the BMP. SMRHM summary reports for the alternative approach should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

Table F-5 Offsite Hydrologic Control BMP Sizing

BMP Name / Type	Equivalent DMA (ac)	SMRHM Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
N/A		☐			
		☐			
		☐			
		☐			

For Instream Restoration Option

Attach to Appendix 7 the technical report detailing the condition of the receiving channel subject to the proposed hydrologic and sediment regimes. Provide the full design plans for the in-stream restoration project that have been approved by the Copermittee. Utilize the San Diego Regional Water Quality Equivalency Guidance Document.

Section G: Implement Trash Capture BMPs

The City may require full trash capture BMPs to be installed as part of the project. Consult with the City to determine applicability.

Trash Capture BMPs may be applicable to Type 'D' DMAs, as defined in Section 2.3.4 of the SMR WQMP. Trash Capture BMPs are designed to treat Q_{TRASH}, the runoff flow rate generated during the 1-year 1-hour precipitation depth. Utilize Table G-1 to size Trash Capture BMP. Refer to Table G-2 to determine the Trash Capture Design Storm Intensity (E).

Table G-1 Sizing Trash Capture BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*BMP-A*	
	[A]		[B]	[C]	[A] x [C]		
A	*161,393*	*Concrete/Asphalt*	*1*	*0.89*	*141,521*		
A	*37,768*	*Natural (A Soils)*	*0.03*	*0.03*	*2,408*		
A	*33,555*	*Natural (C Soils)*	*0.3*	*0.3*	*6,107*		
A	*31,629*	*Roofs*	*1*	*1*	*31,052*		
						Trash Capture Design Storm Intensity (in)	*Trash Capture Design Flow Rate (cubic feet or cfs)*
	$A_T = \Sigma[A]$				$\Sigma=$ 181,088	0.37	$[F] = \frac{[D]x[E]}{[G]} = 1.51$

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP
[G] = 43,560

Table G-2 Approximate precipitation depth/intensity values for calculation of the Trash Capture Design Storm

City	1-year 1-hour Precipitation Depth/Intensity (inches/hr)
Murrieta	0.47
Temecula	0.50
Wildomar	0.37

Use Table G-3 to summarize and document the selection and sizing of Trash Capture BMPs.

Table G-3 Trash Capture BMPs

BMP Name / ID	DMA No(s)	BMP Type / Description	Required Trash Capture Flowrate (cfs)	Provided Trash Capture Flowrate (cfs)
BMP-A	A	Biofiltration Basin w/ Underdrain	1.51	1.51

*Biofiltration Basin Qualifies as Multi-Benefit Treatment System per City of Wildomar WQMP Sec. 2.5.2

Section H: Source Control BMPs

Source Control BMPs include permanent, structural features that may be required in your Project plans, such as roofs over and berms around trash and recycling areas, and Operational BMPs, such as regular sweeping and "housekeeping," that must be implemented by the site's occupant or user. The Maximum Extent Practicable (MEP) standard typically requires both types of BMPs. In general, Operational Source Control BMPs cannot be substituted for a feasible and effective Structural Source Control BMP. Complete checklist below to determine applicable Source Control BMPs for your site.

Project-Specific WQMP Source Control BMP Checklist

All development projects must implement Source Control BMPs. Source Control BMPs are used to minimize pollutants that may discharge to the MS4. Refer to Chapter 3 (Section 3.8) of the SMR WQMP for additional information. Complete Steps 1 and 2 below to identify Source Control BMPs for the project site.

STEP 1: IDENTIFY POLLUTANT SOURCES

Review project site plans and identify the applicable pollutant sources. "Yes" indicates that the pollutant source is applicable to project site. "No" indicates that the pollutant source is not applicable to project site.

☒ Yes	☐ No	Storm Drain Inlets	☐ Yes	☒ No	Outdoor storage areas
☐ Yes	☒ No	Floor Drains	☐ Yes	☒ No	Material storage areas
☐ Yes	☒ No	Sump Pumps	☒ Yes	☐ No	Fueling areas
☐ Yes	☒ No	Pets Control/Herbicide Application	☐ Yes	☒ No	Loading Docks
☒ Yes	☐ No	Food Service Areas	☐ Yes	☒ No	Fire Sprinkler Test/Maintenance water
☒ Yes	☐ No	Trash Storage Areas	☒ Yes	☐ No	Plazas, Sidewalks and Parking Lots
☐ Yes	☒ No	Industrial Processes	☐ Yes	☒ No	Pools, Spas, Fountains and other water features
☒ Yes	☐ No	Vehicle and Equipment Cleaning and Maintenance/Repair Areas			

STEP 2: REQUIRED SOURCE CONTROL BMPS

List each Pollutant source identified above in column 1 and fill in the corresponding Structural Source Control BMPs and Operational Control BMPs by referring to the Stormwater Pollutant Sources/Source Control Checklist included in Appendix 8. The resulting list of structural and operational source control BMPs must be implemented as long as the associated sources are present on the project site. Add additional rows as needed.

Pollutant Source	Structural Source Control BMP	Operational Source Control BMP
Storm Drain Inlets		Regular Housekeeping
Food Service Areas	Bioretention BMP	
Trash Storage Areas		Regular Street Sweeping
Vehicle and Equipment Cleaning	Bioretention BMP	
Fueling Areas	Bioretention BMP	
Plazas, Sidewalks, etc..		Regular Street Sweeping

Section I: Coordinate Submittal with Other Site Plans

Populate Table I-1 below to assist the plan checker in an expeditious review of your project. During construction and at completion, City inspectors will verify the installation of BMPs against the approved plans. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table I-1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)
Insert text here	Insert text here	Insert text here
Insert text here	Insert text here	Insert text here
Insert text here	Insert text here	Insert text here
Insert text here	Insert text here	Insert text here
	Insert text here	Insert text here

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. The Copermittee with jurisdiction over the Project site can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Use Table I-2 to identify other applicable permits that may impact design of the site. If yes is answered to any of the items below, the Copermittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Table I-2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act Section 401 Water Quality Certification	☒ Y	☐ N
US Army Corps of Engineers, Clean Water Act Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* City of Wildomar Grading Permit	☒ Y	☐ N

Section J: Operation, Maintenance and Funding

The Copermittee with jurisdiction over the Project site will periodically verify that BMPs on your Project are maintained and continue to operate as designed. To make this possible, the Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement maintenance of BMPs in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized Operations and Maintenance or inspections but will require typical landscape maintenance as noted in Chapter 5, in the SMR WQMP. Include a brief description of typical landscape maintenance for these areas.

The Copermittee with jurisdiction over the Project site will also require that you prepare and submit a detailed BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a BMP Operation and Maintenance Plan are in Chapter 5 of the SMR WQMP.

Maintenance Mechanism: Insert text here.

Will the proposed BMPs be maintained by a Homeowners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Section K: Acronyms, Abbreviations and Definitions

Regional MS4 Permit	Order No. R9-2013-0001 as amended by Order No. R9-2015-0001 and Order No. R9-2015-0100 an NPDES Permit issued by the San Diego Regional Water Quality Control Board.
Applicant	Public or private entity seeking the discretionary approval of new or replaced improvements from the Copermittee with jurisdiction over the project site. The Applicant has overall responsibility for the implementation and the approval of a Priority Development Project. The WQMP uses consistently the term "user" to refer to the applicant such as developer or project proponent. The WQMP employs also the designation "user" to identify the Registered Professional Civil Engineer responsible for submitting the Project-Specific WQMP, and designing the required BMPs.
Best Management Practice (BMP)	Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.
BMP Fact Sheets	BMP Fact Sheets are available in the LID BMP Design Handbook. Individual BMP Fact Sheets include sitting considerations, and design and sizing guidelines for seven types of structural BMPs (infiltration basin, infiltration trench, permeable pavement, harvest-and-use, bioretention, extended detention basin, and sand filter).
California Stormwater Quality Association (CASQA)	Publisher of the California Stormwater Best Management Practices Handbooks, available at www.cabmphandbooks.com.
Conventional Treatment Control BMP	A type of BMP that provides treatment of storm water runoff. Conventional treatment control BMPs, while designed to treat particular Pollutants, typically do not provide the same level of volume reduction as LID BMPs, and commonly require more specialized maintenance than LID BMPs. As such, the Regional MS4 Permit and this WQMP require the use of LID BMPs wherever feasible, before Conventional Treatment BMPs can be considered or implemented.
Copermittees	The Regional MS4 Permit identifies the Cities of Murrieta, Temecula, and Wildomar, the County, and the District, as Copermittees for the SMR.
County	The abbreviation refers to the County of Riverside in this document.

CEQA	California Environmental Quality Act - a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.
CIMIS	California Irrigation Management Information System - an integrated network of 118 automated active weather stations all over California managed by the California Department of Water Resources.
CWA	Clean Water Act - is the primary federal law governing water pollution. Passed in 1972, the CWA established the goals of eliminating releases of high amounts of toxic substances into water, eliminating additional water pollution by 1985, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1983. CWA Section 402(p) is the federal statute requiring NPDES permits for discharges from MS4s.
CWA Section 303(d) Waterbody	Impaired water in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.
Design Storm	The Regional MS4 Permit has established the 85th percentile, 24-hour storm event as the "Design Storm". The applicant may refer to Exhibit A to identify the applicable Design Storm Depth (D85) to the project.
DCV	Design Capture Volume (DCV) is the volume of runoff produced from the Design Storm to be mitigated through LID Retention BMPs, Other LID BMPs and Volume Based Conventional Treatment BMPs, as appropriate.
Design Flow Rate	The design flow rate represents the minimum flow rate capacity that flow-based conventional treatment control BMPs should treat to the MEP, when considered.
DCIA	Directly Connected Impervious Areas - those impervious areas that are hydraulically connected to the MS4 (i.e. street curbs, catch basins, storm drains, etc.) and thence to the structural BMP without flowing over pervious areas.
Discretionary Approval	A decision in which a Copermittee uses its judgment in deciding whether and how to carry out or approve a project.
District	Riverside County Flood Control and Water Conservation District.
DMA	A Drainage Management Area - a delineated portion of a project site that is hydraulically connected to a common structural BMP or conveyance point. The Applicant may refer to Section 3.3 for further guidelines on how to delineate DMAs.

Drawdown Time	Refers to the amount of time the design volume takes to pass through the BMP. The specified or incorporated drawdown times are to ensure that adequate contact or detention time has occurred for treatment, while not creating vector or other nuisance issues. It is important to abide by the drawdown time requirements stated in the fact sheet for each specific BMP.
Effective Area	Area which 1) is suitable for a BMP (for example, if infiltration is potentially feasible for the site based on infeasibility criteria, infiltration must be allowed over this area) and 2) receives runoff from impervious areas.
ESA	An Environmental Sensitive Area (ESA) designates an area "in which plants or animals life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments". (Reference: California Public Resources Code § 30107.5).
ET	Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is also an indicator of how much water crops, lawn, garden, and trees need for healthy growth and productivity
FAR	The Floor Area Ratio (FAR) is the total square feet of a building divided by the total square feet of the lot the building is located on.
Flow-Based BMP	Flow-based BMPs are conventional treatment control BMPs that are sized to treat the design flow rate.
FPPP	Facility Pollution Prevention Plan
HCOC	Hydrologic Condition of Concern - Exists when the alteration of a site's hydrologic regime caused by development would cause significant impacts on downstream channels and aquatic habitats, alone or in conjunction with impacts of other projects.
HMP	Hydromodification Management Plan – Plan defining Performance Standards for PDPs to manage increases in runoff discharge rates and durations.
Hydrologic Control BMP	BMP to mitigate the increases in runoff discharge rates and durations and meet the Performance Standards set forth in the HMP.
HSG	Hydrologic Soil Groups – soil classification to indicate the minimum rate of infiltration obtained for bare soil after prolonged wetting. The HSGs are A (very low runoff potential/high infiltration rate), B, C, and D (high runoff potential/very low infiltration rate)

Hydromodification	The Regional MS4 Permit identifies that increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses.
JRMP	A separate Jurisdictional Runoff Management Plan (JRMP) has been developed by each Copermittee and identifies the local programs and activities that the Copermittee is implementing to meet the Regional MS4 Permit requirements.
LID	Low Impact Development (LID) is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of storm water runoff.
LID BMP	A type of storm water BMP that is based upon Low Impact Development concepts. LID BMPs not only provide highly effective treatment of storm water runoff, but also yield potentially significant reductions in runoff volume – helping to mimic the pre-project hydrologic regime, and also require less ongoing maintenance than Treatment Control BMPs. The applicant may refer to Chapter 2.
LID BMP Design Handbook	The LID BMP Design Handbook was developed by the Copermittees to provide guidance for the planning, design and maintenance of LID BMPs which may be used to mitigate the water quality impacts of PDPs within the County.
LID Bioretention BMP	LID Bioretention BMPs are bioretention areas are vegetated (i.e., landscaped) shallow depressions that provide storage, infiltration, and evapotranspiration, and provide for pollutant removal (e.g., filtration, adsorption, nutrient uptake) by filtering storm water through the vegetation and soils. In bioretention areas, pore spaces and organic material in the soils help to retain water in the form of soil moisture and to promote the adsorption of pollutants (e.g., dissolved metals and petroleum hydrocarbons) into the soil matrix. Plants use soil moisture and promote the drying of the soil through transpiration. The Regional MS4 Permit defines "retain" as to keep or hold in a particular place, condition, or position without discharge to surface waters.
LID Biofiltration BMP	BMPs that reduce stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration, and other biological and chemical processes. As storm water passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and plants, and collected through an underdrain.

LID Harvest and Reuse BMP	BMPs used to facilitate capturing storm water runoff for later use without negatively impacting downstream water rights or other Beneficial Uses.
LID Infiltration BMP	BMPs to reduce storm water runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Typical LID Infiltration BMPs include infiltration basins, infiltration trenches and pervious pavements.
LID Retention BMP	BMPs to ensure full onsite retention without runoff of the DCV such as infiltration basins, bioretention, chambers, trenches, permeable pavement and pavers, harvest and reuse.
LID Principles	Site design concepts that prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
MEP	Maximum Extent Practicable - standard established by the 1987 amendments to the Clean Water Act (CWA) for the reduction of Pollutant discharges from MS4s. Refer to Attachment C of the Regional MS4 Permit for a complete definition of MEP.
MF	Multi-family – zoning classification for parcels having 2 or more living residential units.
MS4	Municipal Separate Storm Sewer System (MS4) is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.
New Development Project	Defined by the Regional MS4 Permit as 'Priority Development Projects' if the project, or a component of the project meets the categories and thresholds described in Section 1.1.1.
NPDES	National Pollution Discharge Elimination System - Federal program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.
NRCS	Natural Resources Conservation Service

PDP	Priority Development Project - Includes New Development and Redevelopment project categories listed in Provision E.3.b of the Regional MS4 Permit.
Priority Pollutants of Concern	Pollutants expected to be present on the project site and for which a downstream water body is also listed as Impaired under the CWA Section 303(d) list or by a TMDL.
Project-Specific WQMP	A plan specifying and documenting permanent LID Principles and storm water BMPs to control post-construction Pollutants and storm water runoff for the life of the PDP, and the plans for operation and maintenance of those BMPs for the life of the project.
Receiving Waters	Waters of the United States.
Redevelopment Project	The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; resurfacing existing roadways; new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair. Project that meets the criteria described in Section 1.
Runoff Fund	Runoff Funds have not been established by the Copermittees and are not available to the Applicant. If established, a Runoff Fund will develop regional mitigation projects where PDPs will be able to buy mitigation credits if it is determined that implementing onsite controls is infeasible.
San Diego Regional Board	San Diego Regional Water Quality Control Board - The term "Regional Board", as defined in Water Code section 13050(b), is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200. State agency responsible for managing and regulating water quality in the SMR.
SCCWRP	Southern California Coastal Water Research Project
Site Design BMP	Site design BMPs prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
SF	Parcels with a zoning classification for a single residential unit.
SMC	Southern California Stormwater Monitoring Coalition
SMR	The Santa Margarita Region (SMR) represents the portion of the Santa Margarita Watershed that is included within the County of Riverside.

Source Control BMP	Source Control BMPs land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between Pollutants and runoff.
Structural BMP	Structures designed to remove pollutants from stormwater runoff and mitigate hydromodification impacts.
SWPPP	Storm Water Pollution Prevention Plan
Tentative Tract Map	Tentative Tract Maps are required for all subdivision creating five (5) or more parcels, five (5) or more condominiums as defined in Section 783 of the California Civil Code, a community apartment project containing five (5) or more parcels, or for the conversion of a dwelling to a stock cooperative containing five (5) or more dwelling units.
TMDL	Total Maximum Daily Load - the maximum amount of a Pollutant that can be discharged into a waterbody from all sources (point and non-point) and still maintain Water Quality Standards. Under CWA Section 303(d), TMDLs must be developed for all waterbodies that do not meet Water Quality Standards after application of technology-based controls.
USEPA	United States Environmental Protection Agency
Volume-Based BMP	Volume-Based BMPs applies to BMPs where the primary mode of pollutant removal depends upon the volumetric capacity such as detention, retention, and infiltration systems.
WQMP	Water Quality Management Plan
Wet Season	The Regional MS4 Permit defines the wet season from October 1 through April 30.

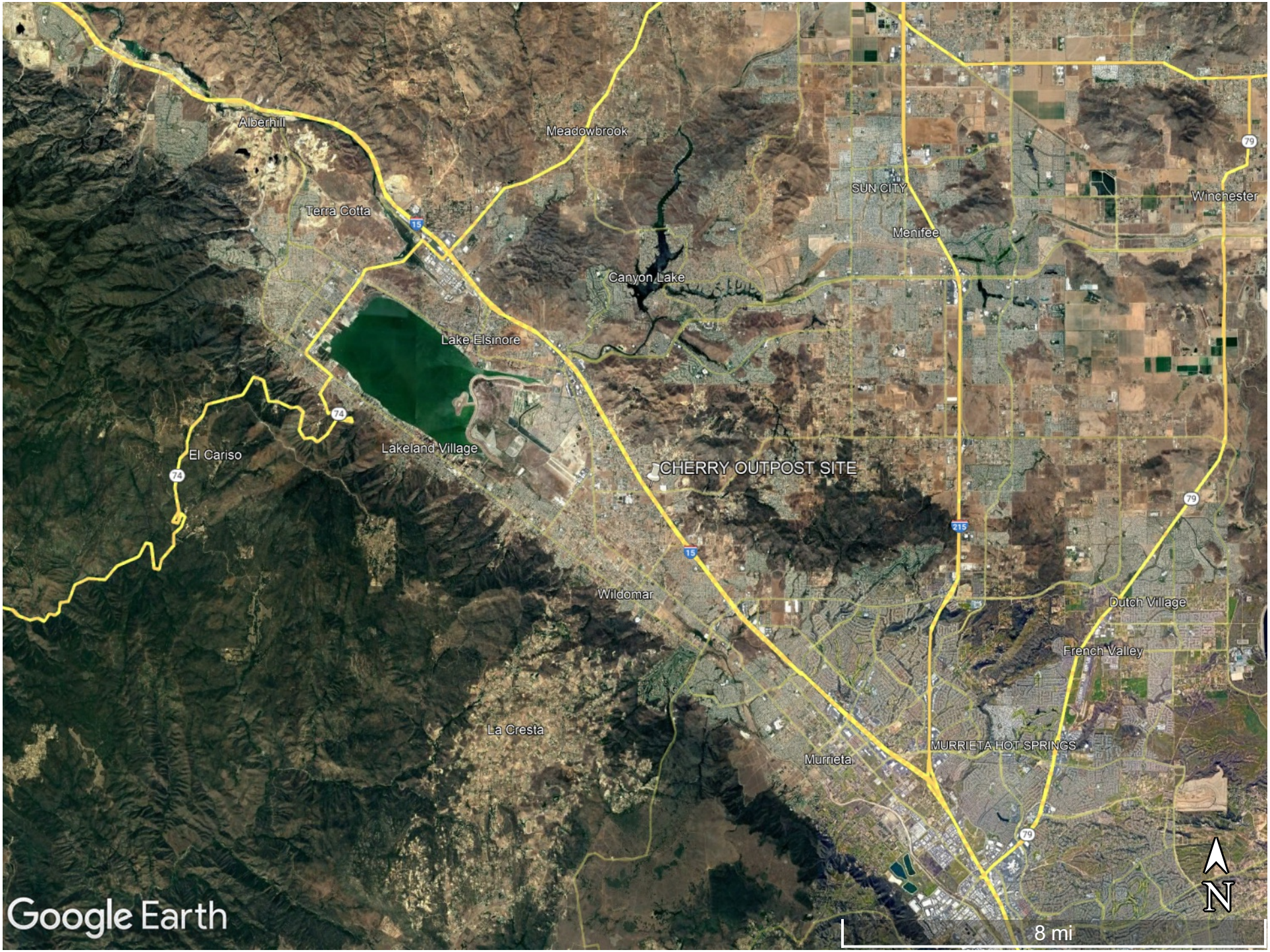
Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

Complete the checklist below to verify all exhibits and components are included in the Project-Specific WQMP. Refer Section 4 of the SMR WQMP and Section D of this Template.

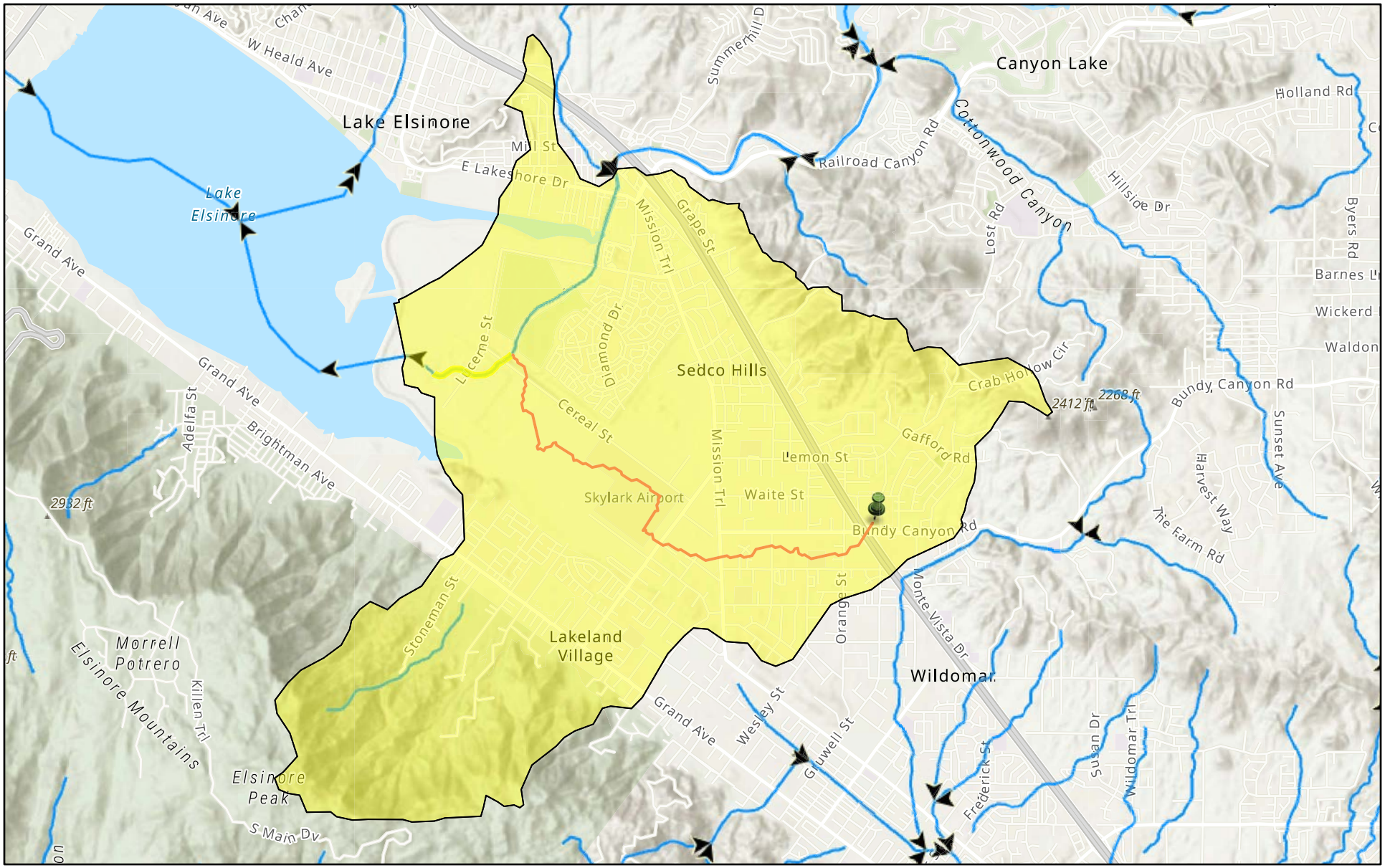
Map and Site Plan Checklist
Indicate all Maps and Site Plans are included in your Project-Specific WQMP by checking the boxes below.
☐ Vicinity and Location Map
☐ Existing Site Map (unless exiting conditions are included in WQMP Site Plan)
☐ WQMP Site Plan
☐ Parcel Boundary and Project Footprint
☐ Existing and Proposed Topography
☐ Drainage Management Areas (DMAs)
☐ Proposed Structural Best Management Practices (BMPs)
☐ Drainage Paths
☐ Drainage infrastructure, inlets, overflows
☐ Source Control BMPs
☐ Site Design BMPs
☐ Buildings, Roof Lines, Downspouts
☐ Impervious Surfaces
☐ Pervious Surfaces (i.e. Landscaping)
☐ Standard Labeling

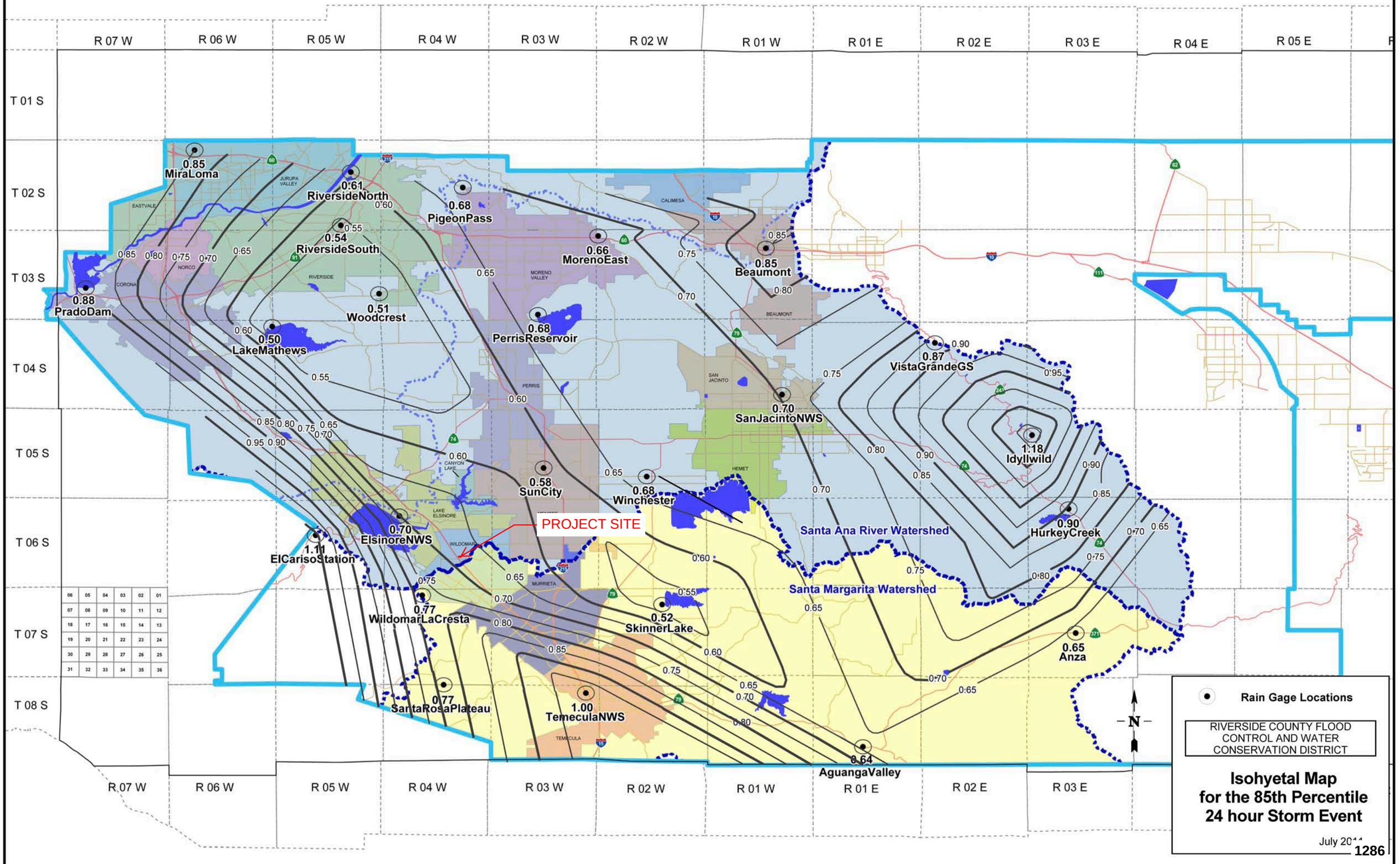

Hesperia
Angeles National Forest
Burbank
San Bernardino
Los Angeles
Santa Monica
San Bernardino National Forest
Riverside
Joshua Tree National Park
Palm Springs
Anaheim
Long Beach
Irvine
CHERRY OUTPOST SITE
Palm Desert
La Quinta
Temecula
Catalina Island Essential Fish Habitat...
Salton Sea
Cleveland National Forest
Oceanside
Escondido
Anza-Borrego Desert State Park
San Diego
Google Earth
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Data USGS
Data LDEO-Columbia, NSF, NOAA
70 mi
N

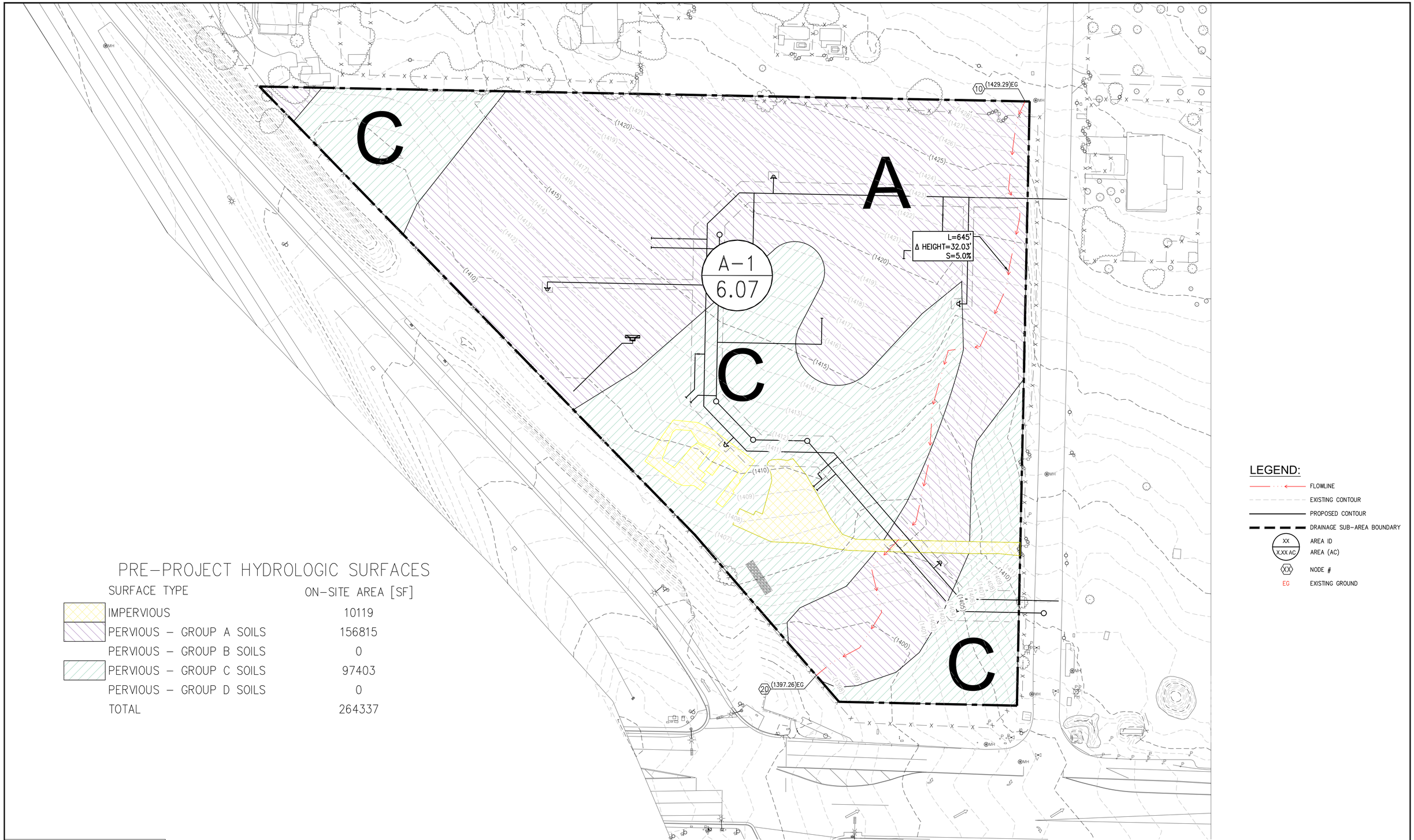

Alberhill
Meadowbrook
Terra Cotta
SUN CITY
Winchester
Menifee
Canyon Lake
Lake Elsinore
El Cariso
Lakeland Village
CHERRY OUTPOST SITE
Wildomar
Dutch Village
French Valley
La Cresta
MURRIETA HOT SPRINGS
Murrieta
Google Earth
8 mi
N


Waite St
2ND Chances Preserve
Cherry St
Spur Brook Dr
Orange St
15
CENTENO POOL PLUMBING
CHERRY OUTPOST SITE
Bundy Canyon Super
Jack in the Box
ARCO
Bundy Canyon Rd
Shell
Temecula Valley Fwy
Google Earth
N
1000 ft

WATERS GeoViewer Print Map




R 07 W
R 06 W
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E
T 01 S
T 02 S
T 03 S
T 04 S
T 05 S
T 06 S
T 07 S
T 08 S
0.85 MiraLoma
0.61 RiversideNorth
0.54 RiversideSouth
0.68 PigeonPass
0.66 MorenoEast
0.85 Beaumont
0.88 PradoDam
0.51 Woodcrest
0.50 LakeMathews
0.68 PerrisReservoir
0.87 VistaGrandeGS
0.70 SanJacintoNWS
1.18 Idyllwild
0.58 SunCity
0.68 Winchester
0.70 ElsinoreNWS
1.11 ElCarisoStation
0.90 HurkeyCreek
0.77 WildomarLaCresta
0.52 SkinnerLake
0.65 Anza
0.77 SantaRosaPlateau
1.00 TemeculaNWS
0.64 AguangaValley
PROJECT SITE
Santa Ana River Watershed
Santa Margarita Watershed
JURUPA VALLEY
EASTVALE
NORCO
CORONA
RIVERSIDE
MORENO VALLEY
CALIMESA
BEAUMONT
SAN JACINTO
PERRIS
CANYON LAKE
LAKE ELSINORE
WILDOMAR
MURRIETA
TEMECULA
HEMET
Rain Gage Locations
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
Isohyetal Map for the 85th Percentile 24 hour Storm Event
July 2011
N



LEGEND:

- FLOWLINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE SUB-AREA BOUNDARY
- XX / X.XX AC — AREA ID / AREA (AC)
- XX — NODE #
- EG — EXISTING GROUND

PRE-PROJECT HYDROLOGIC SURFACES

SURFACE TYPE	ON-SITE AREA [SF]
IMPERVIOUS	10119
PERVIOUS - GROUP A SOILS	156815
PERVIOUS - GROUP B SOILS	0
PERVIOUS - GROUP C SOILS	97403
PERVIOUS - GROUP D SOILS	0
TOTAL	264337

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MARK	BY	DATE	REVISIONS	APPR.	DATE

ENGINEER — CITY

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ACCEPTED BY:
Date:
Daniel A. York, Director of Public Works/ City Engineer, PE 43212
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BENCHMARK:
Elevation = _____
Datum = _____
BENCHMARK # _____

THIS SURVEY WAS PERFORMED ON (date) BY (surveyor)
L.S. (number), EXP. (date)

SCALE: H: As Noted V: As Noted

(PP, CUP, PM, TM, etc.) (city project number)

CITY OF WILDOMAR
EXISTING CONDITIONS HYDROLOGY MAP
CHERRY OUTPOST IN THE CITY OF WILDOMAR, RIVERSIDE COUNTY

SHEET No. 1
OF 1 SHTS

City of Wildomar

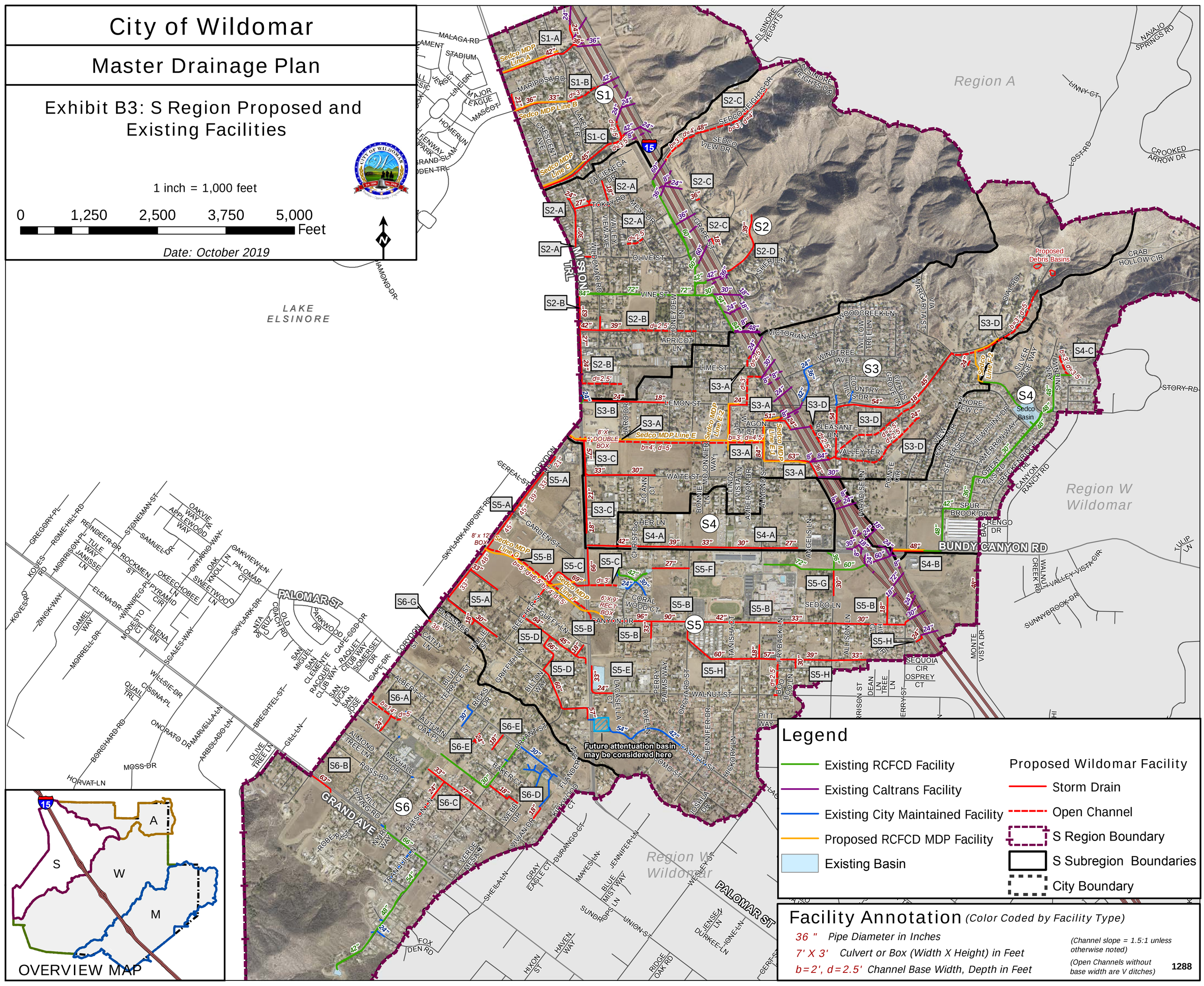
Master Drainage Plan

Exhibit B3: S Region Proposed and Existing Facilities

1 inch = 1,000 feet

0 1,250 2,500 3,750 5,000 Feet

Date: October 2019



Legend

- Existing RCFCD Facility
- Existing Caltrans Facility
- Existing City Maintained Facility
- Proposed RCFCD MDP Facility
- Existing Basin

Proposed Wildomar Facility

- Storm Drain
- Open Channel
- S Region Boundary
- S Subregion Boundaries
- City Boundary

Facility Annotation *(Color Coded by Facility Type)*

36 " Pipe Diameter in Inches

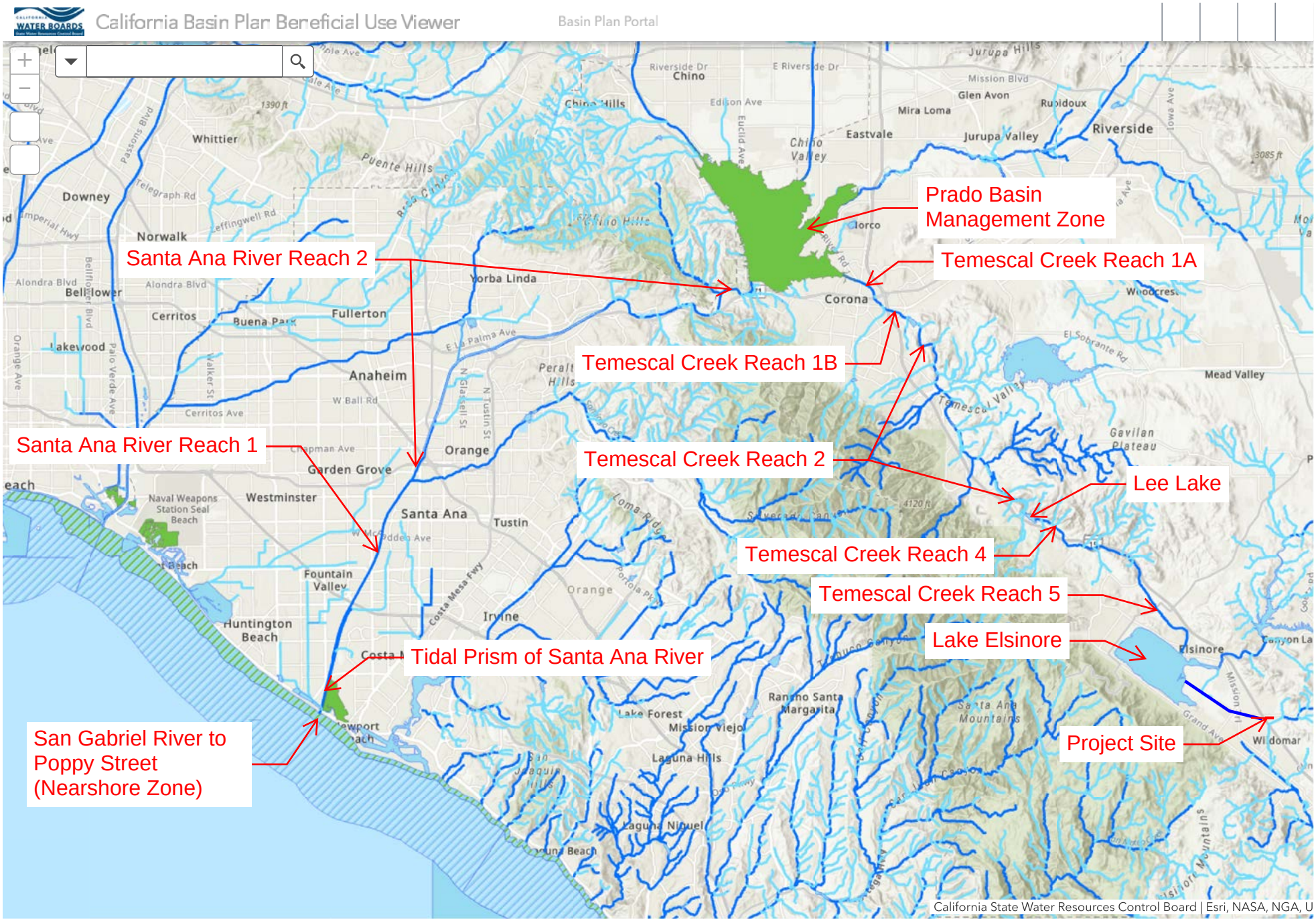
7' X 3' Culvert or Box (Width X Height) in Feet

b=2', d=2.5' Channel Base Width, Depth in Feet

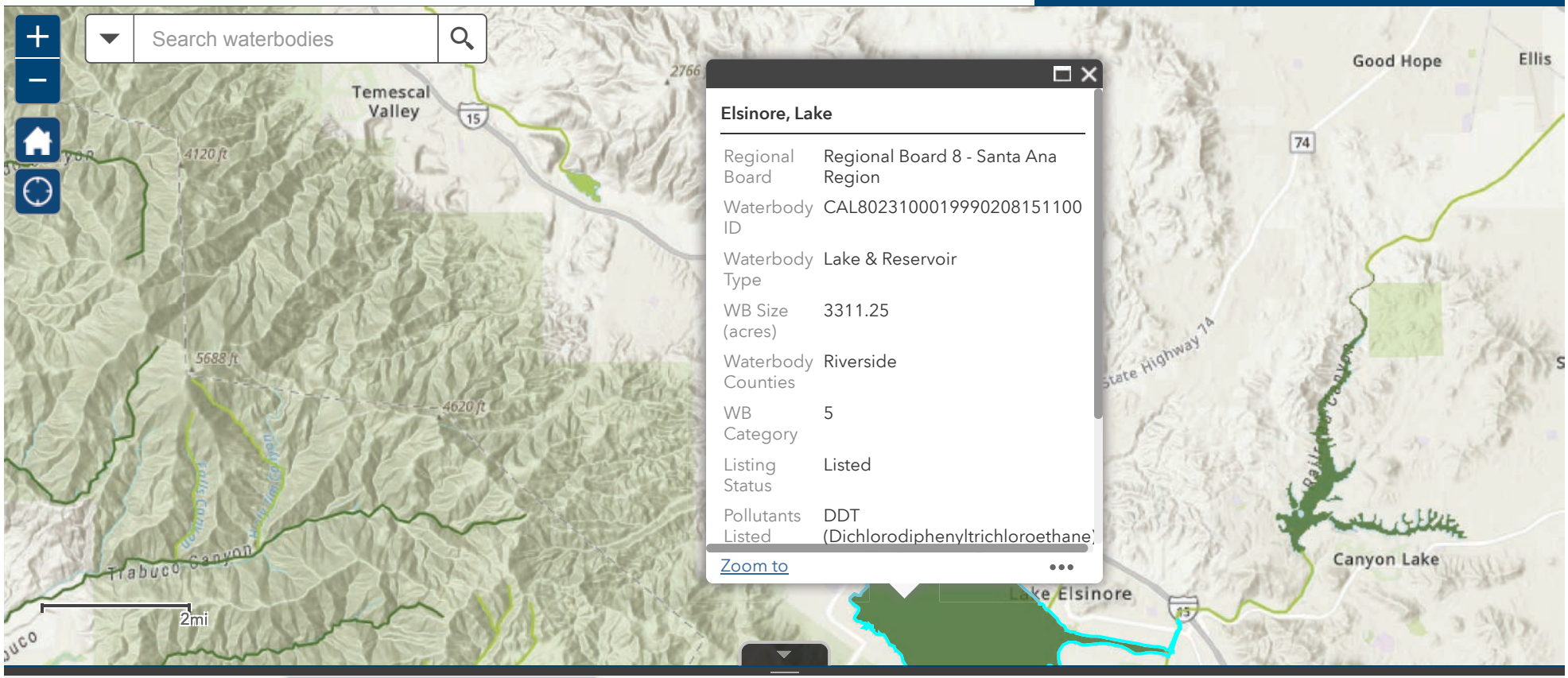
(Channel slope = 1.5:1 unless otherwise noted)

(Open Channels without base width are V ditches)

1288


California Basin Plan Beneficial Use Viewer
Basin Plan Portal
Prado Basin Management Zone
Santa Ana River Reach 2
Temescal Creek Reach 1A
Temescal Creek Reach 1B
Santa Ana River Reach 1
Temescal Creek Reach 2
Lee Lake
Temescal Creek Reach 4
Temescal Creek Reach 5
Lake Elsinore
Tidal Prism of Santa Ana River
San Gabriel River to Poppy Street (Nearshore Zone)
Project Site
Chino
Riverside
Corona
Norwalk
Anaheim
Orange
Santa Ana
Irvine
Huntington Beach
Fountain Valley
Garden Grove
Westminster
Lake Forest
Mission Viejo
Laguna Hills
Laguna Niguel
Rancho Santa Margarita
Temescal Valley
Mead Valley
Elsinore
Wildomar
California State Water Resources Control Board | Esri, NASA, NGA, U
4mi
-116.927 34.032 Degrees

California 2020-2022 Integrated Report

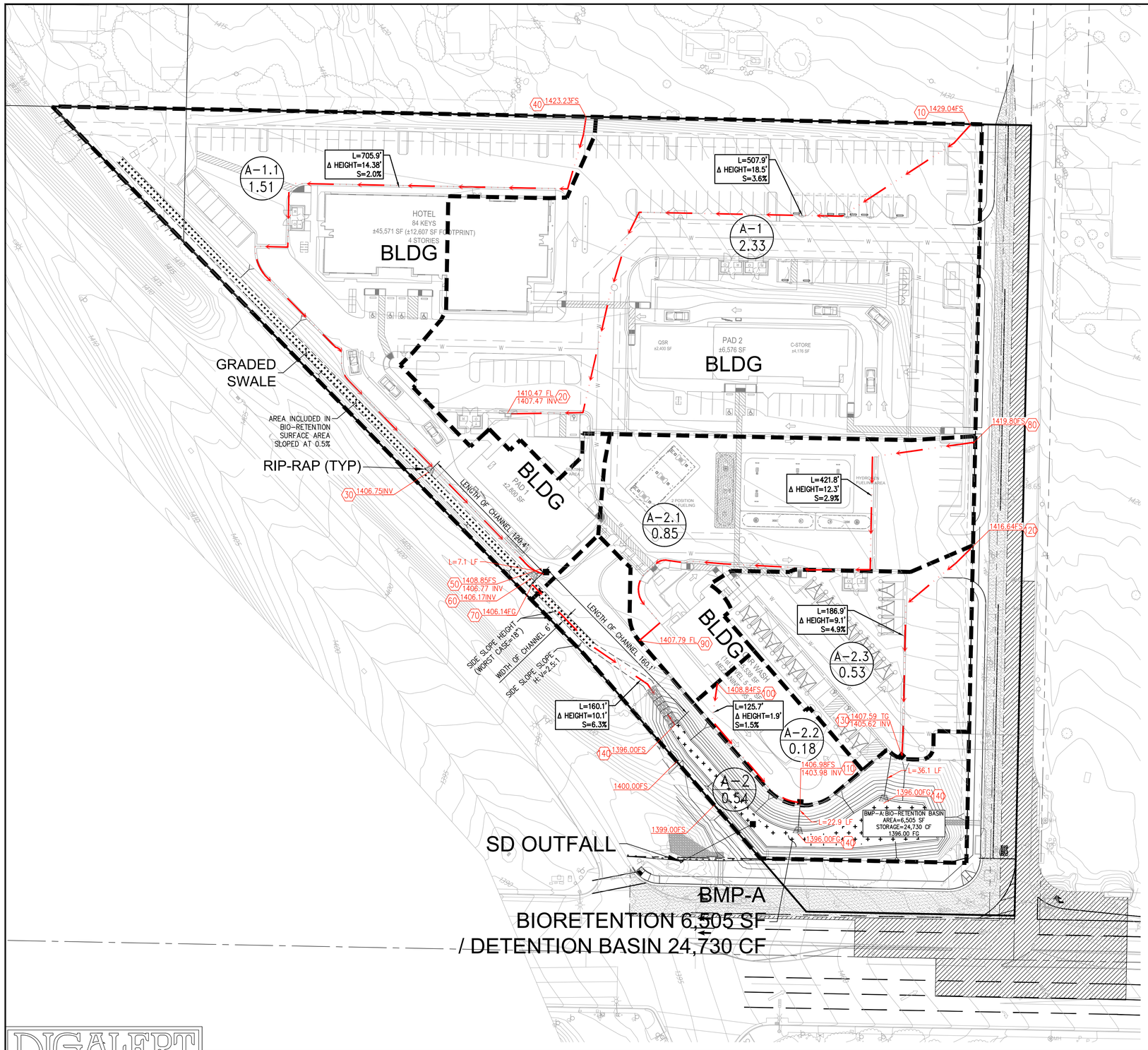


2020-22 Integrated Report Lines | 2020-22 Integrated Report Polygons

Options | Filter by map extent | Zoom to | Clear selection | Refresh

Regional Board	Waterbody ID	Pollutants Listed	Waterbody Type	WB Size (acres)	Waterbody Coun
Regional Board 8 - Santa Ana Region	CAL8023100019990208151100	DDT (Dichlorodiphenyltrichloroethane) (94768), Nutrients (69206), Organic Enrichment/Low Dissolved Oxygen (68808), PCBs (Polychlorinated biphenyls) (68444), Toxicity (76493)	Lake & Reservoir	3311.25	Riverside

1 features 0 selected



LEGEND:

- FLOWLINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE SUB-AREA BOUNDARY
- XX / X.XX AC — AREA ID / AREA (AC)
- XX — NODE #
- FS — FINISHED SURFACE
- INV — INVERT

DETENTION BASIN SUMMARY

BMP-#	EXISTING PEAK FLOW 100-YR STORM (CFS)	PROPOSED PEAK FLOW 100-YR STORM (CFS)	MITIGATED PEAK FLOW 100-YR STORM (CFS)	DESIGN STORAGE VOLUME (CF)
BMP-A	8.01	13.15	5.20	24,730

DRAINAGE MANAGEMENT AREAS

DMA-#	AREA [SF]	AREA [AC]
DMA A-1	101,569	2.33
DMA A-1.1	65,847	1.51
DMA A-2	23,449	0.54
DMA A-2.1	36,963	0.85
DMA A-2.2	8,023	0.18
DMA A-2.3	23,238	0.53
DMA-A (TOTAL)	259,089	5.95

STORM WATER QUALITY TREATMENT AREAS

BMP-#	TYPE	DESIGN MEDIA DEPTH [FT]	SURFACE AREA [SF]
BMP-A	BIORETENTION BASIN	3.0	6,505
TREATMENT TOTAL	-	–	5,746

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ENGINEER				CITY	

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Date:
Daniel A. York, Director of Public Works/ City Engineer, PE 43212
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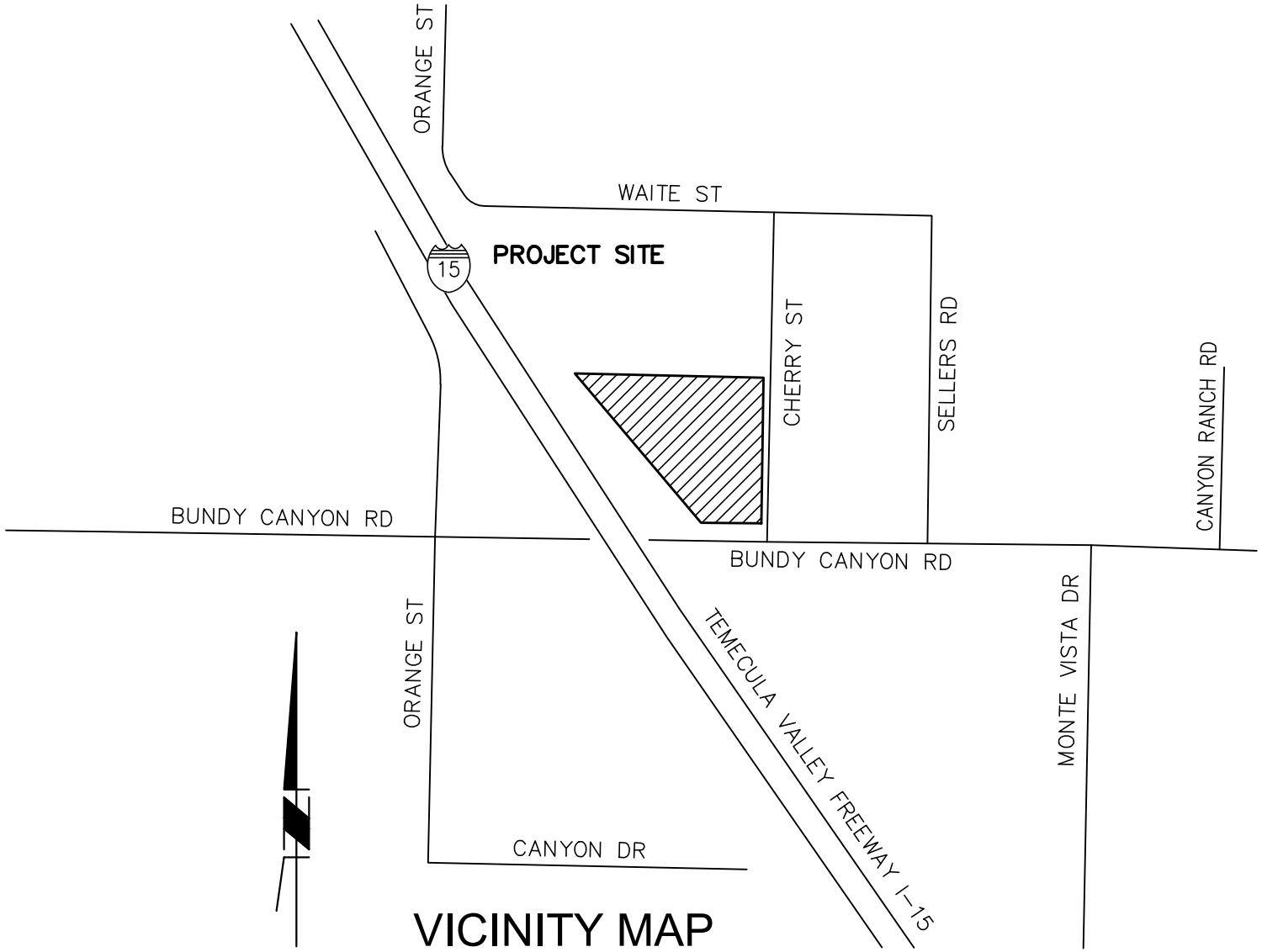
L.S. (number), EXP. (date)

SCALE:
H: As Noted V: As Noted

(PP, CUP, PM, TM, etc.) (city project number)

CITY OF WILDOMAR
PRELIMINARY STORMWATER PLAN
CHERRY OUTPOST IN THE CITY OF WILDOMAR, RIVERSIDE COUNTY

SHEET No. 1
OF 1 SHTS



VICINITY MAP

NOT TO SCALE

Appendix 2: Construction Plans

Grading and Drainage Plans

Examples of material to provide in Appendix 2 may include but are not limited to the following:

- Site grading plans from the Project's Civil Plan Set,
- Drainage plans showing the exiting condition and proposed drainage system from the project's drainage report,
- Other plan sheets containing elements that impact site grading and drainage.

Refer to Section 4 of the SMR WQMP and Section I of this Template.

SHEET INDEX

1 CONCEPTUAL GRADING PLAN
2 CONCEPTUAL UTILITY PLAN
3 EASEMENT PLAN
4 CHERRY STREET CENTERLINE PROFILE
5 STRIPING PLAN

LEGEND

(E)	EXISTING
FG	FINISH GRADE
FF	FINISH FLOOR
FS	FINISH SURFACE
NAP	NOT A PART
SF	SQUARE FOOTAGE
TF	TOP OF FOOTING
TW	TOP OF WALL
0000.00XX / 0000.00XX	PROPOSED ELEVATION
	PROPERTY LINES
	INTERIOR LOT LINES
(0000)	EXISTING CONTOUR LINE AND ELEVATION
0000	PROPOSED CONTOUR LINE AND ELEVATION
	PROPOSED RETAINING WALL
	4" AC OVER 5" AB
	COLD PLANE AC AND OVERLAY VARIABLE THICKNESS AC TO MATCH PROPOSED AND EXISTING GRADES

NOTES:

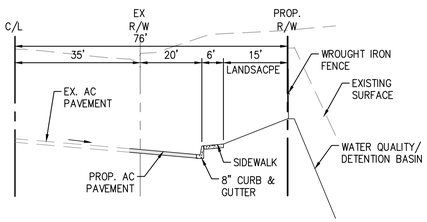
1. ALL FENCING AND WALLS SHALL BE BUILT PER THE LANDSCAPE PLANS
2. DRIVEWAYS SHALL BE COMMERCIAL DRIVEWAYS
3. ONSITE LIGHTING SHALL BE PRIVATE AND PER SEPARATE PLANS

EARTHWORK QUANTITIES:

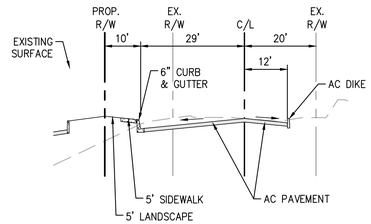
CUT = 14,060 CY
FILL = 9,900 CY
NET EXPORT = 4,160 CY

GRADING NOTE:

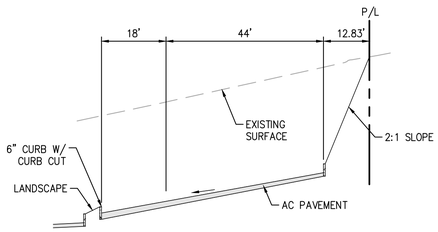
PRECISE GRADING OF EACH PARCEL WILL BE PER THEIR SPECIFIC SITE REQUIREMENTS.



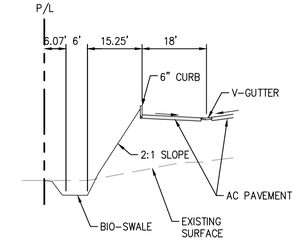
E SECTION E-E NTS



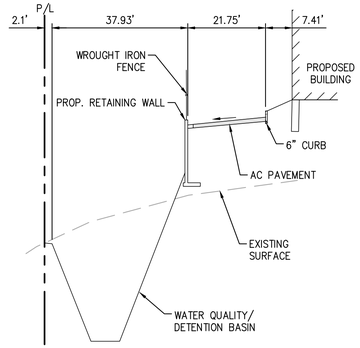
A SECTION A-A NTS



B SECTION B-B NTS



C SECTION C-C NTS



D SECTION D-D NTS

0 40' 80'
SCALE: 1" = 40'

PAR22–0145

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Elevation =
Datum = NGVD29
BENCHMARK #

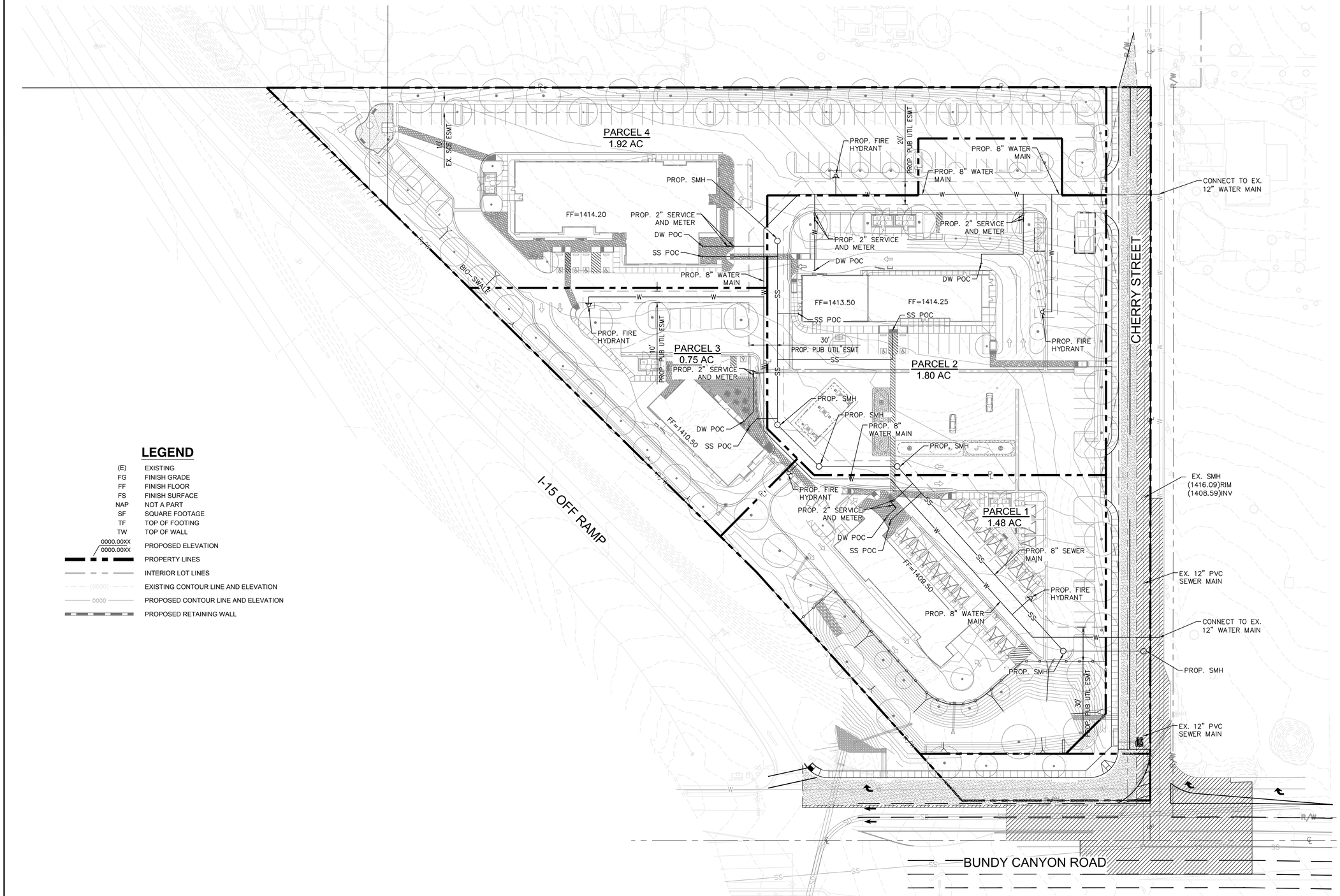
SCALE:
H: As Noted V: As Noted

PP xx-xxxx TM xxxxx PR. No. xx-xxxx

CITY OF WILDOMAR
CHERRY OUTPOST
CONCEPTUAL GRADING PLAN

SHEET No. 1 OF 5 SHTS

K:\DRAWINGS\PW\PW8997 - WILDOMAR-CHERRY OUTPOST\ENG\CONCEPTUAL PLANS\CG\PW8997-CG-EXH-GPFT.DWG CHRIS DIGEL 7/5/2024 2:33 PM



LEGEND

(E)	EXISTING
FG	FINISH GRADE
FF	FINISH FLOOR
FS	FINISH SURFACE
NAP	NOT A PART
SF	SQUARE FOOTAGE
TF	TOP OF FOOTING
TW	TOP OF WALL
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PAR22–0145

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BENCHMARK: SEE ABOVE
Elevation =
Datum = NGVD29
BENCHMARK #

SCALE:
H: As Noted V: As Noted

PP xx-xxxx TM xxxxx PR. No. xx-xxxx

CITY OF WILDOMAR
CHERRY OUTPOST
CONCEPTUAL UTILITY PLAN

SHEET No. 2
OF 5 SHTS

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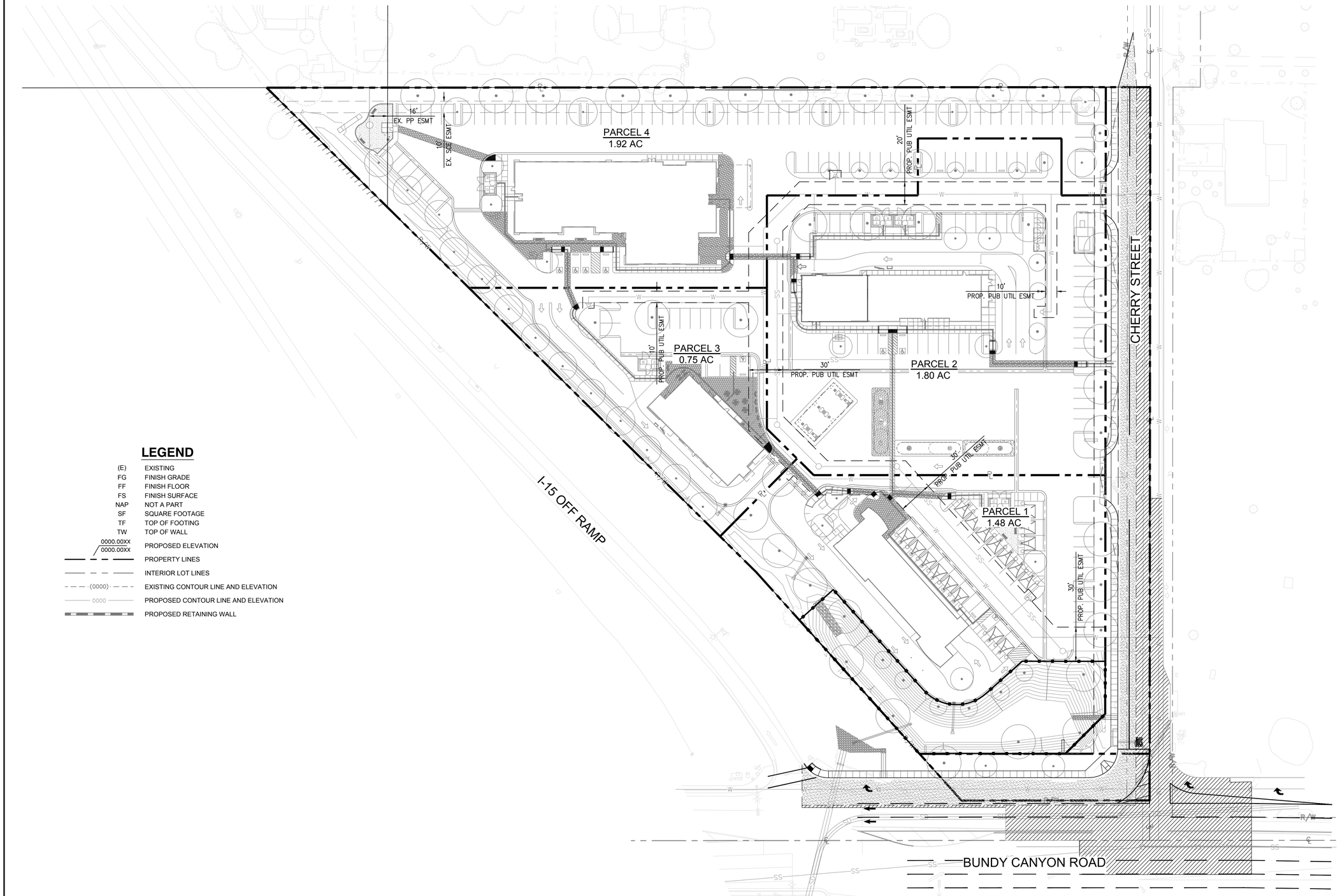

LEGEND

(E)	EXISTING
FG	FINISH GRADE
FF	FINISH FLOOR
FS	FINISH SURFACE
NAP	NOT A PART
SF	SQUARE FOOTAGE
TF	TOP OF FOOTING
TW	TOP OF WALL
0000.00XX / 0000.00XX	PROPOSED ELEVATION
	PROPERTY LINES
	INTERIOR LOT LINES
(0000)	EXISTING CONTOUR LINE AND ELEVATION
0000	PROPOSED CONTOUR LINE AND ELEVATION
	PROPOSED RETAINING WALL

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ENGINEER | CITY

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Date:
JASON B. FARAG, Director of Public Works/ City Engineer, PE 86560
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Datum = NGVD29
BENCHMARK #

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CITY OF WILDOMAR
CHERRY OUTPOST
EASEMENT PLAN

SHEET No. 3
OF 5 SHTS

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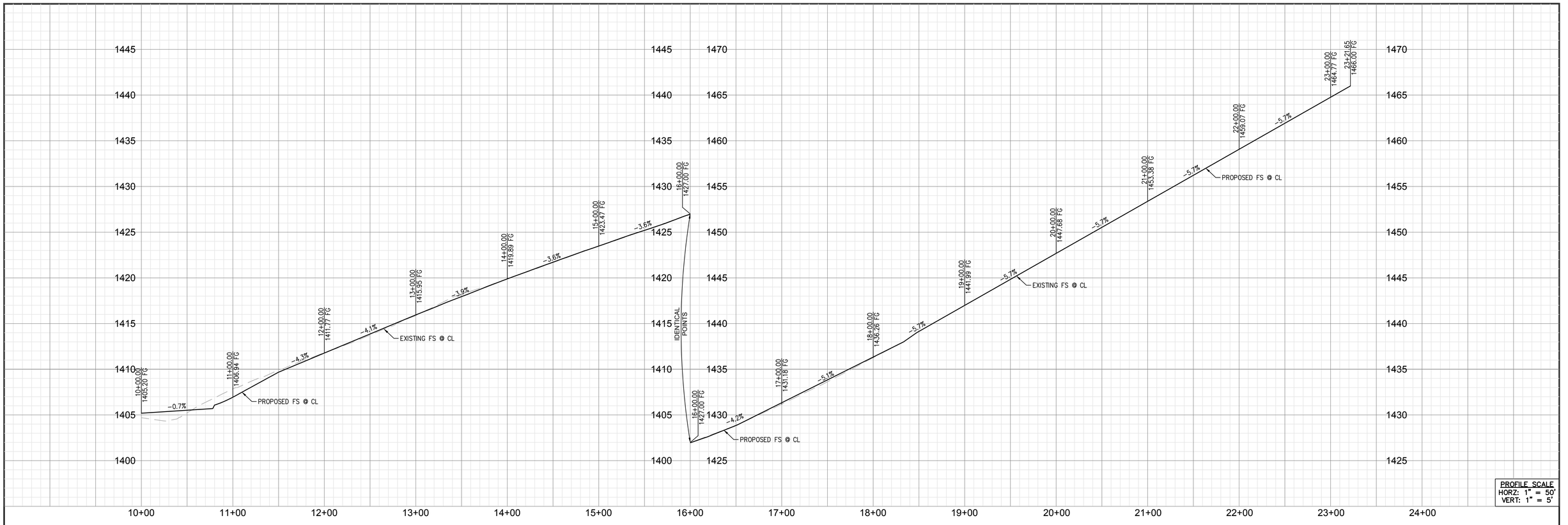
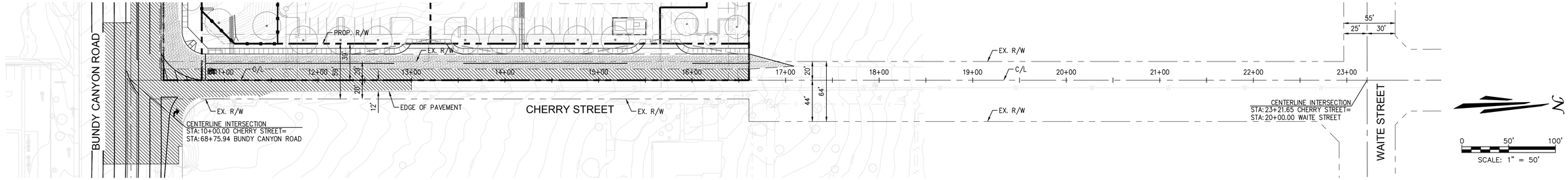
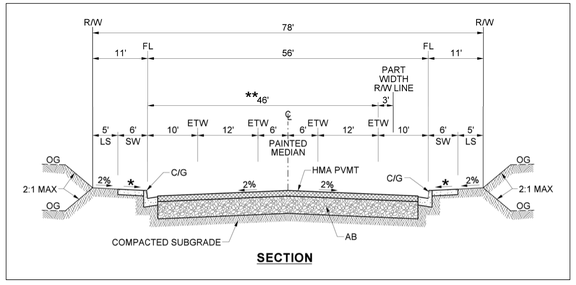




LEGEND

4" AC OVER 5" AB

COLD PLANE AC AND OVERLAY VARIABLE THICKNESS AC TO MATCH PROPOSED AND EXISTING GRADES



SECTION

INDUSTRIAL COLLECTOR STREET SECTION PER RIVERSIDE COUNTY STD. 111 - TYPCIAL STREET SECTION ON CHERRY STREET

PAR22–0145

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PP xx-xxxx TM xxxxx PR. No. xx-xxxx
CITY OF WILDOMAR
CHERRY OUTPOST
CHERRY STREET CENTERLINE PROFILE

SHEET No. 4
OF 5 SHTS

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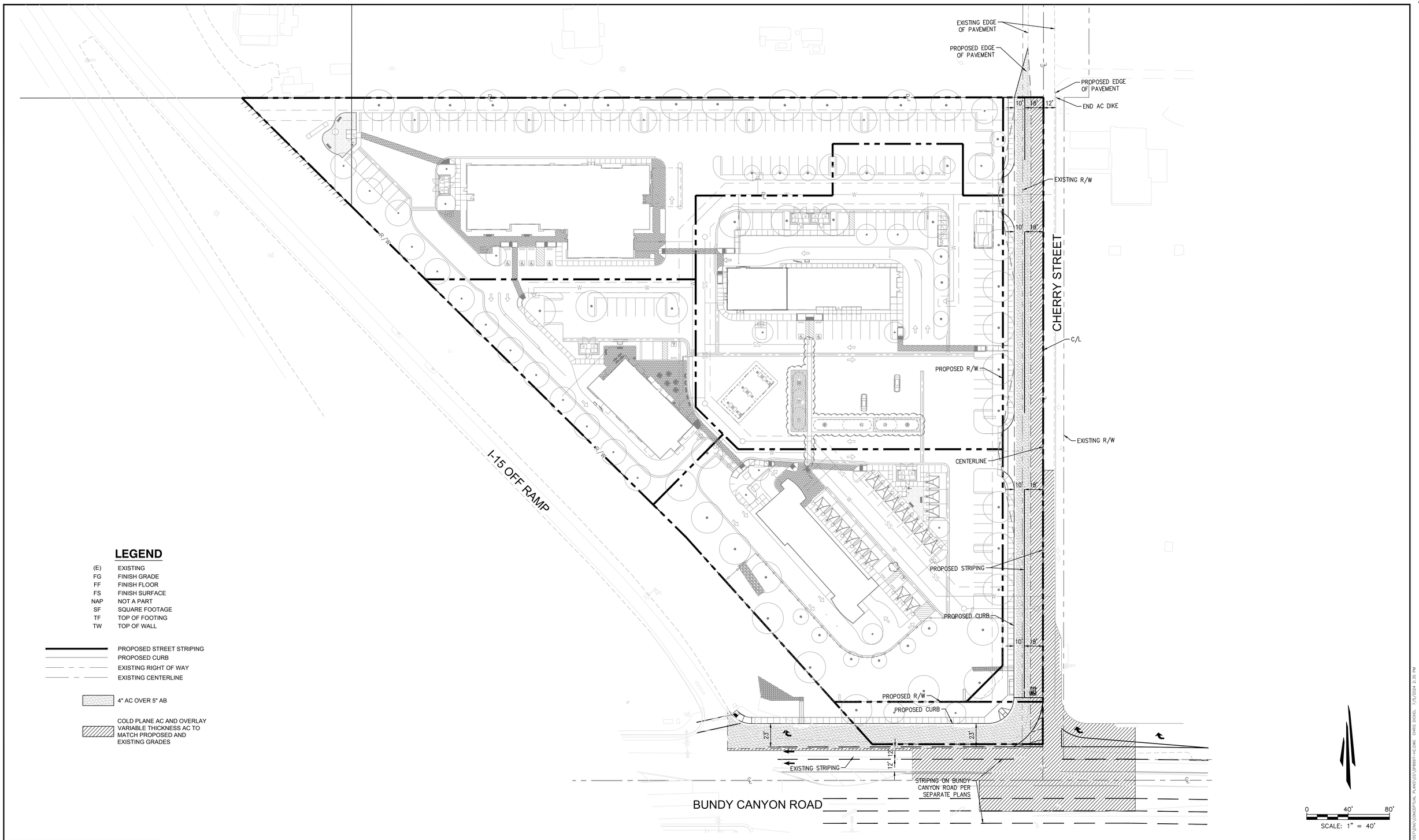

LEGEND

(E)	EXISTING
FG	FINISH GRADE
FF	FINISH FLOOR
FS	FINISH SURFACE
NAP	NOT A PART
SF	SQUARE FOOTAGE
TF	TOP OF FOOTING
TW	TOP OF WALL

PROPOSED STREET STRIPING
PROPOSED CURB
EXISTING RIGHT OF WAY
EXISTING CENTERLINE

4" AC OVER 5" AB

COLD PLANE AC AND OVERLAY VARIABLE THICKNESS AC TO MATCH PROPOSED AND EXISTING GRADES

0 40' 80'
SCALE: 1" = 40'

PAR22–0145

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MARK	BY	DATE	REVISIONS	APPR.	DATE

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Date:

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CITY OF WILDOMAR
CHERRY OUTPOST
STRIPING PLAN

SHEET No. 5
OF 5 SHTS

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Appendix 3: Soils Information

Geotechnical Study, Other Infiltration Testing Data, and/or Other Documentation

Examples of material to provide in Appendix 3 may include but are not limited to the following:

- Geotechnical Study/Report prepared for the project,
- Additional soils testing data (if not included in the Geotechnical Study),
- Exhibits/Maps/Other Documentation of the Hydrologic Soils Groups (HSG)s at the project site.

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 2.3 of the SMR WQMP and Sections A and D of this Template.

PRELIMINARY GEOTECHNICAL INVESTIGATION

PROPOSED CHERRY OUTPOST
ASSESSOR'S PARCELS
366-290-007 & -008
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

CHERRY OUTPOST, LP
CORONA, CALIFORNIA

JANUARY 6, 2023
PROJECT NO. T3010-22-01

Project No. T3010-22-01
January 6, 2023

Cherry Outpost, LP.
139 Radio Road
Corona, California 92879

Attention: Ms. Claudia Grajeda, Project Manager

Subject: PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED CHERRY OUTPOST
ASSESSOR'S PARCELS 366-290-007 & -008
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Dear Ms. Grajeda:

In accordance with your authorization of Geocon's Proposal IE-4018 dated November 8, 2022, Geocon West, Inc. (Geocon) herein submits the results of our preliminary geotechnical investigation for the proposed development. The accompanying report presents the results of our study, conclusions, and recommendations pertaining to the geotechnical aspects of the proposed development. The site is considered suitable for the proposed development provided the recommendations of this report are followed.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON WEST, INC.

Alireza Kazem
EIT 160387

Lisa A. Battiato
CEG 2316

Neal D. Berliner
GE 2576

ARK:LB:NDB:hd

Distribution: Addressee (email)

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PRELIMINARY GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of our preliminary geotechnical investigation for the planning and design of Cherry Outpost planned for 6.65 acres located northwest of the intersection of Bundy Canyon Road and Cherry Street in Wildomar, California (see *Vicinity Map*, Figure 1). The purpose of the investigation is to evaluate subsurface soil and geologic conditions at the site, and based on the conditions encountered, provide preliminary recommendations pertaining to the geotechnical aspects of the proposed construction.

The scope of our investigation included review of published geotechnical information, site reconnaissance, Underground Service Alert mark out and notification, private utility location, drilling and logging of geotechnical and percolation borings, collection of soil samples, percolation testing, laboratory testing, engineering analyses, and preparation of this report. A summary of the information and documentation reviewed for this study is presented in the *List of References*.

Our field investigation was performed on November 30 and December 1, 2022 by drilling of eight geotechnical borings (B-1 through B-8) and four percolation borings (P-1 through P-4) with a CME-75 truck mounted drill rig, in accessible areas, to depths ranging between approximately 21 and 26 feet (geotechnical borings) and 5 feet (percolation borings) below existing ground surface. The borings were drilled to observe the subsurface geotechnical conditions and collect soil samples for laboratory testing. The percolation testing was performed in the lowest elevation areas, within the southern area of the property and in accordance with Riverside County Flood Control and Water Conservation District's (RCFC) *Low Impact Development Best Management Practices Handbook*. The approximate locations of the exploratory and percolation borings are depicted on the *Geologic Map (*Figure 2).

A detailed discussion of the field investigation, logs of the geotechnical and percolation borings, and the percolation test results are presented in *Appendix A*. Laboratory tests were performed on select soil samples obtained to evaluate pertinent physical and chemical soil properties for use in engineering analysis. *Appendix B* presents a summary of the laboratory test results.

2. SITE AND PROJECT DESCRIPTION

The roughly triangular site is located immediately northwest of Bundy Canyon Road and Cherry Street and encompasses APNs 366-290-007 and -008. The site was previously occupied by a single-family residence and a palm tree nursery. The residence was demolished at the end of 2013; however, young palms are still located within the northern half of the site. The site is bounded by Cherry Street to the east, Bundy Canyon to the south, Interstate 15 to the west, and rural residences to the north. The latitude and longitude of the site are 33.6280 degrees and -117.2717 degrees, respectively.

The elevation of the site varies from 1,406 feet above mean sea level (MSL) in the south to the 1,437 feet MSL in the northeast corner. Drainage is directed to a south flowing valley along the east side of the site.

Based the *Conceptual Site Plan* prepared by KTGY, dated September 30, 2022, the site development will include a 4-story hotel, convenience store, gas station, drive through restaurant, and carwash. Approximately 70 feet of the site's southern area will be utilized to widen Bundy Canyon Road. We also expect Cherry Street will be improved on the east side of the site. Finished grade elevations are not known at the time of this report; however, based on the current site elevations and surrounding grades we expect maximum proposed cuts and fills to be 10 feet or less. Based on our understanding of the general plan for the site, we do not expect slopes to be constructed; however, retaining walls up to 5 feet high may be required.

We expect the structures will be lightly loaded two- to four-story buildings with spread foundations and slab-on-grade floors. Although structural plans and loading information is unavailable at this time, we expect column loads will not exceed 200 kips and wall loads will not exceed 4 kips per linear foot. Preliminary geotechnical recommendations for design of the structure are based on these assumptions and provided herein. If actual plans differ, supplementary geotechnical recommendations may be necessary.

The locations and descriptions provided herein are based on a site reconnaissance, our field exploration, and project information provided by the client. If project details differ significantly from those described, Geocon should be contacted for review and possible revision to this report.

3. GEOLOGIC SETTING

The site is located along the northeastern margin of the Elsinore Trough within the Peninsular Ranges Geomorphic Province. The Peninsular Ranges are bounded on the north by the Transverse Ranges and the Cucamonga/Sierra Madre faults, the east by the San Jacinto fault, the west by the Elsinore fault and the Santa Ana Mountains. The Peninsular Ranges extend southward into Mexico. They are characterized by granitic highlands of low to moderate relief surrounded by alluvial plains and valleys. Locally, the Elsinore Trough is the dominant geomorphic feature of the area and is a graben that formed as a result of a left step over from the Wildomar to the Glen Ivy North branches of the Elsinore fault. Locally, the Glen Ivy North fault is geologically mapped one quarter mile southwest of the site. No faulting is mapped within or projecting on to the site. Faulting is discussed in detail in the *Surface Fault Rupture* section, below.

4. GEOLOGIC MATERIALS

4.1 General

The primary geologic units at the site consist of young alluvial fan deposits and Pauba Sandstone. Localized areas of undocumented fill are present near the previous residence, the residential driveway, and within the occasional end dump piles. Topsoil was encountered up to a depth of approximately 2½ feet within B-3 and is expected throughout the palm tree area. The geologic nomenclature follows that of Morton, D.M. and Weber, F.H. (2003). The soil and geologic units encountered at the site are summarized below and described on the boring logs in *Appendix A*.

4.2 Undocumented Artificial Fill (afu)

Undocumented artificial fill is present at the vicinity of the previous residence and within the driveway to the residence. Potential utility conflicts prevented excavation of a borings in these areas and the condition and extent of the fill is not known at this time. However, we expect the fill was derived from local sources and is similar to the young alluvial fan deposits and Pauba sandstone described below.

4.3 Young Alluvial Fan Deposits (Qyf)

Young alluvial fan deposits were encountered within the percolation test borings and within geotechnical borings B-1, B-2, and B-4 to depths between approximately 2½ and 6 feet below existing ground surface. It consists of silty sand that can be characterized as loose to medium dense, dry to moist, and strong brown to dark brown.

4.4 Pauba Formation (Qps)

Pleistocene-age Pauba Sandstone was observed near the surface and below the younger alluvial fan deposits to the maximum depth explored of approximately 26 feet. It is described herein as a soil because, although it is considered bedrock, it behaves like a soil and its engineering properties are closer to a soil than a rock. The Pauba, as encountered, can be characterized as silty sand which is dense to very dense, dry to moist, and shades of brown, orange-brown, and grayish brown.

5. GROUNDWATER

Groundwater was not encountered in the borings excavated for this study to depths of 26 feet. Well data from the California Department of Water Resources was available for 2019. Well 336251N1172930W001 located west of the site reported groundwater depths of between 357 and 389 feet below existing ground surface. Well 336200N1172734W001 located south of the site reported a groundwater depth of 44 feet below existing ground surface. Groundwater and seepage are dependent on seasonal precipitation, irrigation, land use, among other factors, and varies as a result. It is not uncommon for seepage conditions to develop where none previously existed. Proper surface drainage will be important to future performance of the planned improvements.

6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in southern California include active, potentially active, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS), formerly known as California Division of Mines and Geology (CDMG), for the Alquist-Priolo Earthquake Fault Zone Program (Byrant and Hart, 2007). By definition, an active fault is one that has had surface displacement within Holocene time (about the last 11,700 years). A potentially active fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a currently established State of California Fault Zone or a Riverside County Fault Hazard Zone. The closest active fault to the site is the Glen Ivy North branch of the Elsinore fault zone located approximately 1/4 mile southwest. Faults within a 50-mile radius of the site are listed in Table 6.1. Historic earthquakes in southern California of magnitude 6.0 and greater, their magnitude, distance, and direction from the site are listed in Table 6.2.

TABLE 6.1
ACTIVE FAULTS WITHIN 50 MILES OF THE SITE

Fault Name	Maximum Magnitude (Mw)	Geometry (Slip Character)	Slip Rate (mm/yr)	Distance from Site (mi)	Direction from Site
Elsinore Fault (Glen Ivy)	6.8	RL-SS	5.0	1/4	SW
Elsinore (Wildomar)	6.8	RL-SS	5.0	2	S
San Jacinto (Casa Loma)	6.9	RL-SS	12.0	20	NE
San Jacinto (Claremont)	6.7	RL-SS	12.0	23	NE
Chino	6.7	RL-R-O	1.0	25	NW
Whittier	6.8	RL-R-O	2.5	30	NW
San Andreas (San Bernardino)	7.5	RL-SS	24.0	35	NE
San Gorgonio Pass	n/a	THRUST	n/a	35	NE
San Jacinto (Clark)	7.2	RL-SS	12.0	35	E
Cucamonga	6.9	R	5.0	40	NW
San Jacinto (Glen Helen)	6.7	RL-SS	12.0	40	N
Pinto Mountain	7.2	LL-SS	2.5	45	NE
San Jacinto (Coyote Creek)	6.8	RL-SS	4.0	45	SE
Morongo Valley	7.2	LL-SS	2.5	47	NE
S Branch San Andreas Fault	7.5	RL-SS	24.0	48	NE
N Branch San Andreas Fault	7.4	RL-SS	30.0	50	NE

6.2 Seismicity

As with all southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. A number of earthquakes of moderate to major magnitude have occurred in the southern California area within the last 100 years. A partial list of these earthquakes is included in the following table.

TABLE 6.2
LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Near Redlands	July 23, 1923	6.3	26	N
Long Beach	March 10, 1933	6.4	40	W
Tehachapi	July 21, 1952	7.5	137	NW
San Fernando	February 9, 1971	6.6	84	NW
Whittier Narrows	October 1, 1987	5.9	55	WNW
Sierra Madre	June 28, 1991	5.8	60	NW
Landers	June 28, 1992	7.3	62	NE
Big Bear	June 28, 1992	6.4	47	NE
Northridge	January 17, 1994	6.7	83	WNW
Hector Mine	October 16, 1999	7.1	88	NE
Ridgecrest China Lake Fault	July 5, 2019	7.1	149	N

6.3 Liquefaction

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Additionally, seismically induced "dry-sand" settlement may occur whether the potential for liquefaction exists or not.

The current standard of practice as outlined in the *Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California* (SCEC, 1999) requires a liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be enough to induce liquefaction.

According to the *Map My County* GIS system (RCIT, 2022), the site is located within an area mapped as having a moderate potential for liquefaction. However, due to the presence of Pauba Sandstone at or near the surface, liquefaction is not considered a design consideration for this site.

6.4 Expansive Soil

The on-site surficial soils generally consist of silty sands. Laboratory test results on a select sample indicate that the expansion potential of site soils is 19 which is considered "very low" per ASTM D4829.

6.5 Landslides

We did not observe evidence of previous or incipient slope instability within the site or adjacent hillsides during our site investigation. Further, no landslides have been geologically mapped on or adjacent to the site (Morton & Weber, 2003). Therefore, landslide hazard to the site is not a design consideration.

6.6 Tsunamis and Seiches

A tsunami is a series of long period waves generated in the ocean by a sudden displacement of large volumes of water. Causes of tsunamis include underwater earthquakes, volcanic eruptions, or offshore slope failures. The first order driving force for locally generated tsunamis offshore southern California is expected to be tectonic deformation from large earthquakes (Legg et al., 2002). The site is located more than 24 miles from the nearest coastline, with the Santa Ana Mountains lying between the site and the Pacific Ocean; therefore, the risk associated with tsunamis is not a design consideration.

A seiche is a run-up of water within a lake or embayment triggered by fault- or landslide-induced ground displacement. The site is located almost 3.5 miles from the shore of Lake Elsinore and is up slope from the lake, therefore, a seiche hazard from Lake Elsinore is not a design consideration.

6.7 Slope Stability

A grading plan was not available at the time of this report. In general, it is our opinion that permanent, graded fill slopes constructed of on-site soils and free of any surcharge with gradients of 2:1 (horizontal to vertical) or flatter and vertical heights of 15 feet or less will possess adequate factors of safety for global and surficial stability in static conditions. However, evaluation of the stability of proposed slopes, if any, may need to be performed once detailed grading plans depicting proposed slopes are available.

7. PERCOLATION TESTING

Percolation testing was conducted in accordance with the procedures in the *Riverside County Flood Control and Water Conservation District LID BMP, Appendix A* (Handbook), at the proposed location of the proposed site BMPs. The percolation test locations are depicted on the *Geologic Map* (see Figure 2).

Four percolation test holes were excavated to depths of 5 feet (P-1 through P-4) below the existing ground surface using an 8-inch diameter auger. The geologic conditions at the percolation test locations consist of Alluvium (Silty Sand) over Pauba Sandstone. The deep geotechnical boring (B-1) did not encounter groundwater or impenetrable bedrock within 10 feet of the bottom of the percolation test depths. Approximately two inches of gravel was placed at the bottom of each test hole and a perforated

pipe was placed at top the gravel to keep the test hole open. Gravel was placed around the bottom of the test hole to support the test pipe. The test locations were pre-saturated prior to testing. Infiltration test results are included as Figures A-13 through A-16. Results of the converted percolation test rates to infiltration test rates are presented in Table 7.0 below. The *Handbook* requires a factor of safety of 3 be applied to the values below based on the test method used.

TABLE 7.0
INFILTRATION TEST RATES

Parameter	P-1	P-2	P-3	P-4
Depth (inches)	60	60	60	60
Test Type	Normal	Normal	Normal	Normal
Change in head over time: ΔH (inches)	2.5	3	5.5	5
Average head: Havg (in)	39	40.3	37.5	38
Time Interval (minutes): Δt (minutes)	30	30	30	30
Radius of test hole: r (inches)	4	4	4	4
Tested Infiltration Rate: It (inches/hour)	0.2	0.3	0.6	0.5

The results of the infiltration testing indicate that infiltration at the locations tested ranges from 0.2 to 0.6 inches per hour. These rates are the calculated infiltration rates from the tested percolation rates. The *Handbook* requires a factor of safety of 3 be applied to the values above based on the test method used.

The *in-situ* field percolation tests performed provide short-term infiltration rates, which apply mainly to the initiation of the infiltration process due to the short time of the test (hours instead of days) and the amount of water used. Where appropriate, the short-term infiltration rates are converted to long-term infiltration rates using reduction factors depending upon the degree of infiltrate quality, maintenance access and frequency, site variability, subsurface stratigraphy variation, and other factors. The small-scale percolation testing cannot model the complexity of the effect of interbedded layers of different soil composition, and our test results should be considered only as index values of infiltration rates.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 General

8.1.1 Soil or geologic conditions were not encountered during the investigation that would preclude the construction of the proposed development, provided the recommendations presented herein are followed and implemented during design and construction.

8.1.2 Potential geologic hazards at the site include seismic shaking, and compressible near surface soils.

8.1.3 The existing undocumented artificial fill, topsoil, young alluvial fan deposits, and upper few feet of Pauba Sandstone are not suitable for the support of engineered fill or settlement-sensitive improvements. The earth materials are suitable for re-use as engineered fill provided the recommendations in this geotechnical investigation report are followed. Remedial grading of the uppermost earth materials will be required as discussed herein.

8.1.4 The *in-situ* moisture content of upper site soils is below optimum moisture content. Therefore, moisture conditioning site soils to be used as fill material throughout the grading and backfill processes will be required.

8.1.5 Proper surface drainage should be maintained to prevent ponding and saturation of the fill in pad areas. Recommendations for site drainage are provided herein.

8.1.6 An evaluation of seismically induced "dry-sand" settlement during earthquake indicates that the existing young alluvial fan deposits could be prone to minor settlement during a high-magnitude earthquake; however, the recommended site grading will minimize or eliminate this risk since these soils will be properly compacted.

8.1.7 Once the design and civil grading plans are made available, the recommendations within this report should be reviewed and revised, as necessary. Additionally, as the project design progresses toward a final design, changes in the design, location, or elevation of the proposed improvements should be reviewed by this office. Geocon should be contacted to evaluate the necessity for review and possible revision of this report.

8.2 Soil Characteristics

8.2.1 Based on the earth materials encountered in the field, the soils are expected to be "non-expansive" (Expansion Index [EI] 20 or less) as defined by 2019 California Building Code (CBC) Section 1803.5.3. The existing soil possesses a "very low" expansion potential (expansion index of 19) in accordance with ASTM D 4829. Table 8.2.1 presents soil classifications based on the expansion index.

TABLE 8.2.1
SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	ASTM Expansion Classification	2019 CBC Expansion Classification
0 – 20	**Very Low**	**Non-Expansive**
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

8.2.2 Additional testing for expansion potential should be performed during finish grading along with plasticity index testing on soils with expansion indices of more than 20.

8.2.3 Laboratory tests performed on samples of the site materials indicate that the on-site materials possess a "S0" sulfate exposure to concrete structures as defined by 2019 CBC Section 1904.3 and ACI 318. Table 8.2.3 presents a summary of concrete requirements set forth by 2019 CBC Section 1904.3 and ACI 318. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.

TABLE 8.2.3
REQUIREMENTS FOR CONCRETE
EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Exposure Class	Water-Soluble Sulfate Percent by Weight	Cement Type	Maximum Water to Cement Ratio by Weight	Minimum Compressive Strength (psi)
S0	**0.00-0.10**	**--**	**--**	**2,500**
S1	0.10-0.20	II	0.50	4,000
S2	0.20-2.00	V	0.45	4,500
S3	> 2.00	V+ Pozzolan or Slag	0.45	4,500

8.2.4 Laboratory testing has been performed on two representative bulk samples of soil obtained in the upper five feet in Borings B-3 and B-6. Boring locations are depicted in Figure 2 and results are presented in the following table.

TABLE 8.2.4
LABORATORY RESULTS

Sample	Depth (ft)	Resistivity (OHM CM)	Chloride (PPM)	Sulfate (PPM)	pH
B-3	0-5	1900	121	1	9.3
B-6	0-5	4400	75	0	8.8

8.2.5 Test results for B-3 and B-6 show Resistivity of 1,900 and 4,400 ohm-cm, pH of 9.3 and 8.8, chloride content of 121 and 75 ppm. The site soils are not classified as corrosive to metal improvements in accordance with Caltrans Corrosion Guidelines, provided in Table 8.2.5 below. (Caltrans, 2021).

TABLE 8.2.5
CALTRANS CORROSION GUIDELINES

Corrosion Exposure	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	pH
Corrosive	<1,500	500 or greater	1,500 or greater	5.5 or less

8.2.6 Geocon does not practice in the field of corrosion engineering. Therefore, further evaluation by a corrosion engineer may be performed if improvements that could be susceptible to corrosion are planned.

8.3 Consolidation and Settlement

8.3.1 Undocumented artificial fill, topsoil, alluvium, and the upper few feet of Pauba Sandstone at the site are subject to consolidation settlement (densification by the removal of water within the soil) under loads imposed by placement of fill or structure loads. Appendix B presents the laboratory consolidation test results.

8.4 Hydrocollapse

8.4.1 The Hydrocollapse is the tendency of unsaturated soil structure to collapse upon saturation resulting in the overall settlement of the effected soil and overlying foundations or improvements supported thereon. Recommended removals to Pauba Sandstone and proper compaction of the upper younger, compressible surficial earth materials will minimize the potential for settlement due to hydrocollapse.

8.5 Grading

8.5.1 Grading should be performed in accordance with the *Recommended Grading Specifications* of *Appendix C* and the grading ordinances of the City of Wildomar.

8.5.2 Prior to commencing grading, a preconstruction conference should be held at the site with the City Inspector, Owner or Developer, Grading Contractor, Civil Engineer, and Geotechnical Engineer in attendance. Special soil handling and/or the grading plans can be discussed at that time.

8.5.3 Site preparation should begin with the removal of existing improvements, deleterious material, debris and vegetation. The depth of removal should be such that material exposed in cut areas or soil to be used as fill is relatively free of organic matter. Material generated during stripping and/or site demolition should be exported from the site.

8.5.4 The undocumented artificial fill, topsoil, alluvium and upper few feet of Pauba Sandstone within a 1:1 (h:v) projection of the limits of grading should be removed to expose competent Pauba Sandstone bedrock. Areas of loose, dry, or compressible soils will require deeper excavation and processing prior to fill placement. The approximate remedial removal depths are depicted on the *Geologic Map*, Figure 2. The excavation bottoms should expose dense Pauba Sandstone. The engineering geologist should evaluate the actual depth of removal during grading operations. Where over-excavation and compaction is to be conducted, the excavations should be extended laterally a minimum distance of 5 feet beyond the foundation footprint or for a distance equal to the depth of removal plus additional fill, whichever is greater. Patios and building appurtenances should be considered as part of the building footprint when determining the limits of lateral excavation. Grading should be performed under the full-time observation and testing of Geocon.

8.5.5 Proposed spread foundations for each building may derive support in either Pauba Sandstone, or engineered fill, but not a combination of both. Foundations should maintain a minimum depth of 18 inches below the ground surface. Foundations deriving support in Pauba Sandstone should be deepened as necessary to maintain a minimum embedment of 12-inches into the competent Pauba Sandstone. Foundations deriving support in newly placed engineered fill should be underlain by a minimum of 3 feet of engineered fill.

8.5.6 Proposed building slabs-on-grade may derive support directly in newly placed engineered fill, approved Pauba Sandstone, or a combination of both if exposed at the building pad elevation.

8.5.7 The site should be brought to finish grade elevations with engineered fill compacted in layers. Layers of fill should be no thicker than will allow for adequate bonding and compaction. Fill, including backfill and scarified ground surfaces, should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density at or slightly above optimum moisture content (as determined by ASTM D1557). Fill materials placed below optimum moisture content may require additional moisture conditioning prior to placing additional fill.

8.5.8 The fill placed within 4 feet of proposed finish grade should possess a "very low" to "low" expansion potential (EI of 51 or less), where practical.

8.5.9 Import fill (if necessary) should consist of granular materials with a "very low" expansion potential (EI of 20 or less), generally free of deleterious material and rock fragments larger than 6 inches and should be compacted as recommended herein. Geocon should be notified of the import soil source and should perform laboratory testing of import soil prior to its arrival at the site to evaluate its suitability as fill material.

8.6 Utility Trench Backfill

8.6.1 Utility trenches should be properly backfilled in accordance with the requirements of the City of Wildomar and the latest edition of the *Standard Specifications for Public Works Construction* (Greenbook). The pipes should be bedded with well-graded crushed rock or clean sand (Sand Equivalent greater than 30) to a depth of at least one foot over the pipe. If open graded rock is used it should be wrapped in filter fabric to prevent finer soils from migrating into the rock voids. The remainder of the trench backfill may be derived from onsite soil or approved import soil. Backfill of utility trenches should not contain rocks greater than 3 inches in diameter. The use of 2-sack slurry and controlled low strength material (CLSM) are also acceptable as backfill. However, consideration should be given to the possibility of differential settlement where the slurry ends and earthen backfill begins. These transitions should be minimized, and additional stabilization should be considered at these transitions.

8.6.2 Utility trench backfill should be placed in layers no thicker than will allow for adequate bonding and compaction. Utility backfill should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density and moisture conditioned at or slightly above optimum moisture content (as determined by ASTM D1557). Backfill at the finish subgrade elevation of new pavements should be compacted to at least 95 percent of the maximum dry density. Backfill materials placed below the recommended moisture content may require additional moisture conditioning prior to placing additional fill.

8.7 Seismic Design Criteria

8.7.1 The following table summarizes site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. We used the computer program *U.S. Seismic Design Maps*, provided by the OSHPD to calculate the seismic design parameters. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented herein are for the risk-targeted maximum considered earthquake (MCE_R).

TABLE 8.7.1
2019 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	C	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.669g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.618g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.2	Table 1613.2.3(1)
Site Coefficient, F_V	1.4	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	2.012g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.866g	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.341g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.578	Section 1613.2.4 (Eqn 16-39)

8.7.2 The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

TABLE 8.7.2
ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-10 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.725g	Figure 22-7
Site Coefficient, F_{PGA}	1.2	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.87g	Section 11.8.3 (Eqn 11.8-1)

8.7.3 The Maximum Considered Earthquake Ground Motion (MCE) is the level of ground motion that has a 2 percent chance of exceedance in 50 years, with a statistical return period of 2,475 years. According to the 2019 California Building Code and ASCE 7-16, the MCE is to be utilized for the evaluation of liquefaction, lateral spreading, seismic settlements, and it is our understanding that the intent of the Building Code is to maintain "Life Safety" during an MCE event. The Design Earthquake Ground Motion (DE) is the level of ground motion that has a 10 percent chance of exceedance in 50 years, with a statistical return period of 475 years.

8.7.4 Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition. The result of the deaggregation analysis indicates that the predominant earthquake contributing to the MCE peak ground acceleration is characterized as a 7.71 magnitude event occurring at a hypo central distance of 2.37 kilometers from the site.

8.7.5 Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the predominant earthquake contributing to the DE peak ground acceleration is characterized as a 6.8 magnitude occurring at a hypocentral distance of 12.58 kilometers from the site.

8.7.6 Conformance to the criteria for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

8.8 Foundation and Concrete Slabs-On-Grade Recommendations

8.8.1 The foundation recommendations presented herein are intended for all structures after completion of the recommended grading. Spread foundations are recommended for support of proposed site structures and improvements.

8.8.2 The foundation recommendations have been separated into two categories based on either the maximum and differential fill thickness or Expansion Index, as provided in Table 8.8.2. Structures will be Category I; however, the category may be increased to II where maximum fill dictates. Final foundation categories will be evaluated once site grading has been completed.

TABLE 8.8.2
FOUNDATION CATEGORY CRITERIA

Foundation Category	Maximum Fill Thickness, T (Feet)	Differential Fill Thickness, D (Feet)	Expansion Index (EI)
I	$T<20$	$D<10$	$EI\leq50$
II	$20\leq T<50$	$10\leq D<20$	$50<EI\leq90$

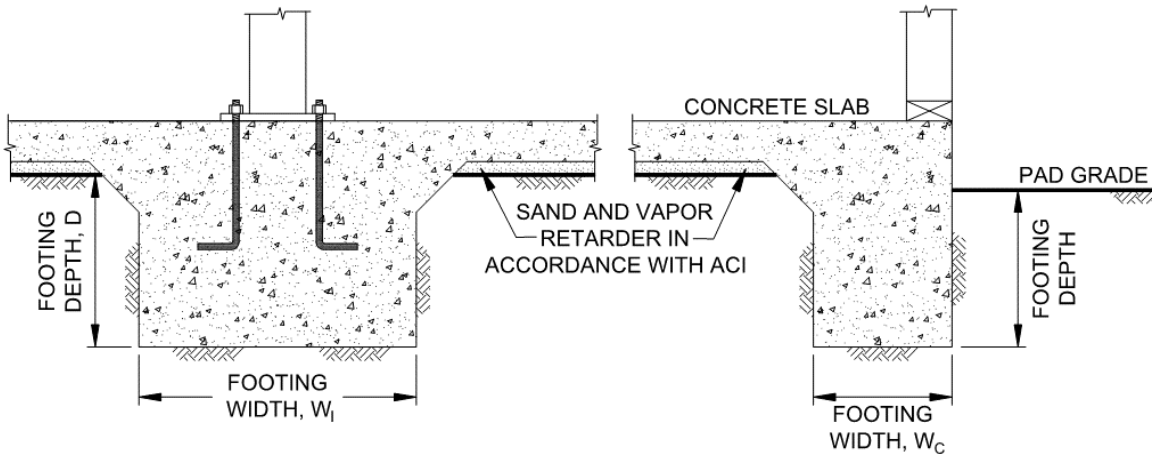
8.8.3 Proposed spread foundations for each building may derive support in either Pauba Sandstone, or engineered fill, but not a combination of both. Foundations should maintain a minimum depth of 18 inches below the ground surface (24 inches for Category II). Foundations deriving support in Pauba Sandstone should be deepened as necessary to maintain a minimum embedment of 18-inches into the Pauba Sandstone. Foundations deriving support in newly placed engineered fill should be underlain by a minimum of 3 feet of engineered fill.

8.8.4 Table 8.8.4 provides a summary of the foundation design recommendations.

TABLE 8.8.4
SUMMARY OF FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Continuous Foundation Width, W_C	12 inches
Minimum Isolated Foundation Width, W_I	24 inches
Minimum Foundation Depth, D	18 Inches Below Lowest Adjacent Grade
Minimum Steel Reinforcement	4 No. 4 Bars, 2 at the Top and 2 at the Bottom
Allowable Bearing Capacity	3,500 psf
Bearing Capacity Increase	500 psf per Foot of Depth
	250 psf per Foot of Width
Maximum Allowable Bearing Capacity	4,500 psf
Estimated Total Settlement	1 Inch
Estimated Differential Settlement	½ Inch in 30 Feet (One-Story Buildings)
Footing Size Used for Settlement	6-Foot Square
Design Expansion Index	20 or less

8.8.5 The foundations should be embedded in accordance with the recommendations herein and the Wall/Column Footing Dimension Detail. The embedment depths should be measured from the lowest adjacent pad grade for both interior and exterior footings. If there is any slope designed footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope (unless designed with a post-tensioned foundation system as discussed herein).



Wall/Column Footing Dimension Detail

8.8.6 The bearing capacity values presented herein are for dead plus live loads and may be increased by one-third when considering transient loads due to wind or seismic forces.

8.8.7 We should observe the foundation excavations prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are similar to those expected and that they have been extended to the appropriate bearing strata. Foundation modifications may be required if unexpected soil conditions are encountered.

8.8.8 Proposed building slabs-on-grade may derive support directly in newly placed engineered fill, approved Pauba Sandstone, or a combination of both if exposed at the building pad elevation.

8.8.9 Table 8.8.9 presents minimum foundation and interior concrete slab design criteria for conventional shallow foundation systems.

TABLE 8.8.9
CONVENTIONAL FOUNDATION RECOMMENDATIONS BY CATEGORY

Foundation Category	Minimum Footing Embedment Depth (inches)	Continuous Footing Reinforcement	Interior Slab Reinforcement
I	18	Four No. 4 bars, two top and two bottom	No. 3 bars at 24 inches on center, both directions
II	24	Four No. 5 bars, two top and two bottom	No. 3 bars at 18 inches on center, both directions

8.8.10 The concrete slab-on-grade should be a minimum of 4 inches thick for Foundation Category I, and 5 inches thick for Foundation Category II.

8.8.11 Slabs-on-grade that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) *Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials* (ACI 302.2R-06) and should be installed in general conformance with ASTM E1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. The vapor retarder should be puncture resistant and durable, so as to avoid perforations during its installation.

8.8.12 The bedding sand thickness should be determined by the project foundation engineer, architect, and/or developer. However, we should be contacted to provide recommendations if the bedding sand is thicker than 4 inches. Placement of 3 inches and 4 inches of sand is common practice in southern California. The foundation engineer should provide appropriate concrete mix design criteria and curing measures that may be utilized to assure proper curing of the slab to reduce the potential for rapid moisture loss and subsequent cracking and/or slab curl.

8.8.13 As an alternative to the conventional foundation recommendations, consideration should be given to the use of post-tensioned concrete slab and foundation systems for the support of the proposed structures. The post-tensioned systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or *WRI/CRSI Design of Slab-on-Ground Foundations*, as required by the 2019 California Building Code (CBC Section 1808.6.2). Although this procedure was developed for expansive soil conditions, it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented in Table 8.8.9 for the Foundation Category designated. The parameters presented in Table 8.8.13 are based on the guidelines presented in the PTI DC 10.5 design manual.

TABLE 8.8.13
POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) DC 10.5-12 Design Parameters	Foundation Category	
	I	II
1. Thornthwaite Index	-20	-20
2. Equilibrium Suction	3.9	3.9
3. Edge Lift Moisture Variation Distance, e_M (Feet)	5.3	5.1
4. Edge Lift, y_M (Inches)	0.61	1.10
5. Center Lift Moisture Variation Distance, e_M (Feet)	9.0	9.0
6. Center Lift, y_M (Inches)	0.30	0.66

8.8.14 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is planned, the slab should possess a thickened edge with a minimum width of 18 inches and extend below the clean sand or crushed rock layer.

8.8.15 If the structural engineer proposes a post-tensioned foundation design method other than the 2019 CBC:

- The deflection criteria presented in Table 8.8.9 are still applicable.
- Interior stiffener beams should be used for Foundation Category II.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 18 inches, and 24 inches for foundation categories I, and II, respectively. The embedment depths should be measured from the lowest adjacent pad grade.

8.8.16 Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

8.8.17 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless designed by the structural engineer.

8.8.18 Foundations may be designed for an allowable soil bearing pressure of 3,500 pounds per square foot (psf) (dead plus live load) for the site. This bearing pressure may be increased by one-third for transient loads due to wind or seismic forces.

8.8.19 The maximum expected static settlement for the planned structures, supported on conventional foundation systems with the above allowable bearing pressures, and deriving support in engineered fill is estimated to be 1 inch and to occur below the heaviest loaded structural element. Settlement of the foundation system is expected to occur on initial application of loading. Differential settlement due to foundation loads is not expected to exceed ½ inch over a horizontal distance of 30 feet.

8.8.20 Isolated footings outside of the slab area, if present, should have the minimum embedment depth and width recommended for conventional foundations for a Foundation Category. In addition, consideration should be given to connecting patio slabs that exceed 5 feet in width to the building foundation, to reduce the potential for future separation to occur.

8.8.21 Interior stiffening beams should be incorporated into the design of the foundation system in accordance with the PTI design procedures.

8.8.22 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned at or slightly above optimum moisture content.

8.8.23 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

8.8.24 Concrete slabs should be provided with adequate crack-control joints, construction joints and/or expansion joints to reduce unsightly shrinkage cracking. The design of joints should consider criteria of the American Concrete Institute when establishing crack-control spacing. Additional reinforcing steel, concrete admixtures and/or closer crack control joint spacing should be considered where concrete-exposed finished floors are planned.

8.8.25 Geocon should be consulted to provide additional design parameters as required by the structural engineer.

8.9 Exterior Concrete Flatwork

8.9.1 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations herein assuming the subgrade materials possess an Expansion Index of 30 or less. Subgrade soils should be compacted to 90 percent relative compaction at or slightly above optimum moisture content. Slab panels should be a minimum of 4 inches thick and when in excess of 8 feet square should be reinforced with No. 3 reinforcing bars spaced 24 inches center-to-center in both directions to reduce the potential for cracking. In addition, concrete flatwork should be provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted in accordance with criteria presented in the *Grading* section prior to concrete placement. Subgrade soil should be properly compacted, and the moisture content of subgrade soil should be verified prior to placing concrete. Base materials will not be required below concrete improvements.

8.9.2 The reinforcement steel should overlap continuously in flatwork to reduce the potential for vertical offsets within flatwork. Additionally, flatwork should be structurally connected to the curbs, where possible, to reduce the potential for offsets between the curbs and the flatwork.

8.9.3 Where exterior flatwork abuts the structure at entrant or exit points, the exterior slab should be dowelled into the structure's foundation stem wall. This recommendation is intended to reduce the potential for differential elevations that could result from differential settlement or minor heave of the flatwork. Dowelling details should be designed by the project structural engineer.

8.9.4 The recommendations presented herein are intended to reduce the potential for cracking of exterior slabs as a result of differential movement. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still crack. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, the use of crack control joints and proper concrete placement and curing. Crack control joints should be spaced at intervals no greater than 12 feet. Literature provided by the Portland Concrete Association (PCA) and American Concrete Institute (ACI) present recommendations for proper concrete mix, construction, and curing practices, and should be incorporated into project construction.

8.10 Conventional Retaining Walls

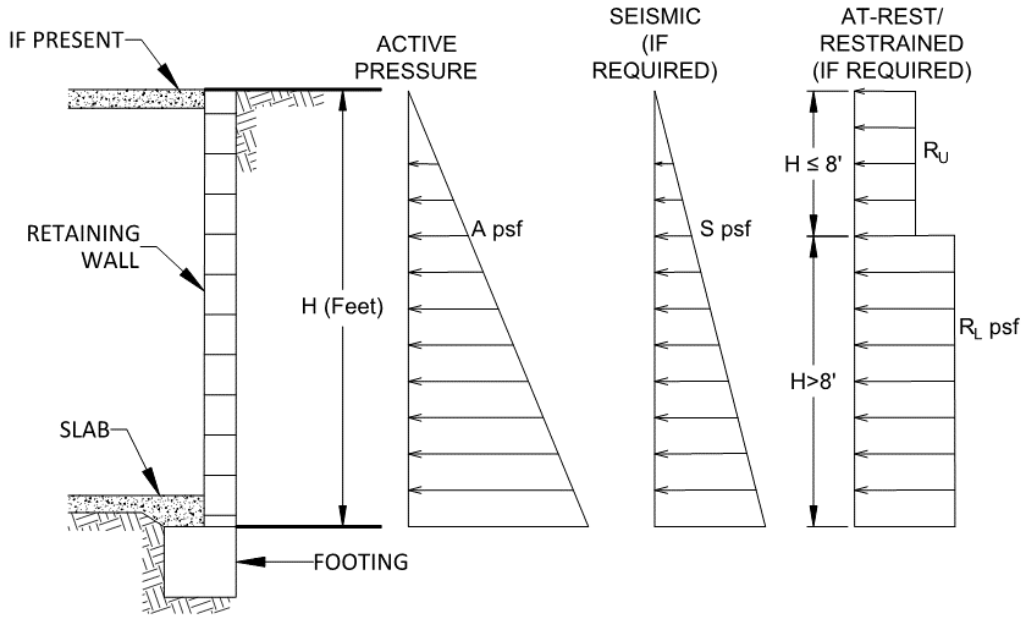
8.10.1 Spread foundations are recommended for support of proposed retaining walls. Soil with an expansion index (EI) of greater than 30 should not be used as backfill material behind retaining walls.

TABLE 8.10.1
RETAINING WALL DESIGN RECOMMENDATIONS

Parameter	Value
Active Soil Pressure, A (Fluid Density, Level Backfill)	30 pcf
Active Soil Pressure, A (Fluid Density, 2:1 Sloping Backfill)	50 pcf
Seismic Pressure, S	15H psf
At-Rest/Restrained Walls Additional Uniform Pressure, R_U (0 to 8 Feet High)	7H psf
At-Rest/Restrained Walls Additional Uniform Pressure, R_L (8+ Feet High)	13H psf
Expected Expansion Index for the Subject Property	EI≤30

H equals the height of the retaining portion of the wall

8.10.2 The project retaining walls should be designed as shown in the Retaining Wall Loading Diagram.



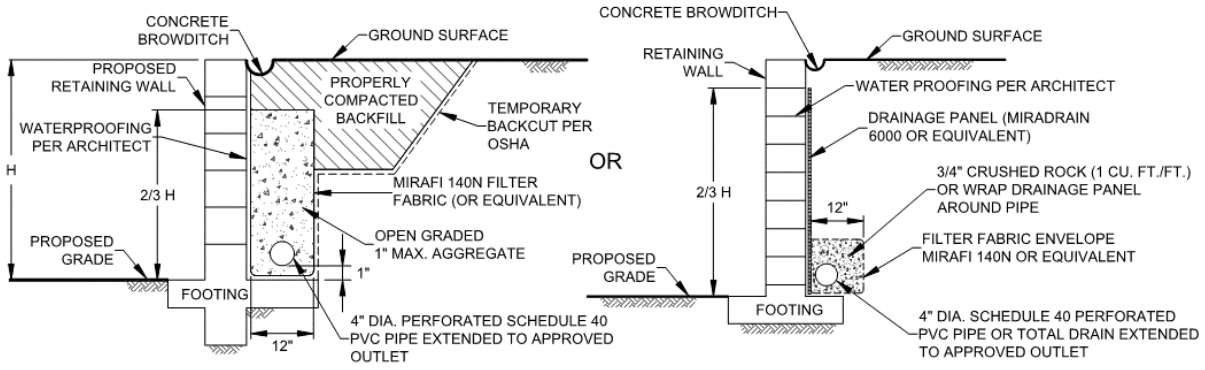
Retaining Wall Loading Diagram

8.10.3 Unrestrained walls are those that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall) at the top of the wall. Where walls are restrained from movement at the top (at-rest condition), an additional uniform pressure should be applied to the wall. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to 2 feet of fill soil should be added to the upper 10 feet of the retaining wall.

8.10.4 The structural engineer should determine the Seismic Design Category for the project in accordance with Section 1613.3.5 of the 2019 CBC or Section 11.6 of ASCE 7-16. For structures assigned to Seismic Design Category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 1803.5.12 of the 2019 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall.

8.10.5 Retaining walls should be designed to ensure stability against overturning sliding, and excessive foundation pressure. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, it is not necessary to consider active pressure on the keyway.

8.10.6 Drainage openings through the base of the wall (weep holes) should not be used where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The recommendations herein assume a properly compacted granular (EI of 90 or less) free-draining backfill material with no hydrostatic forces or imposed surcharge load. The retaining wall should be properly drained as shown in the Typical Retaining Wall Drainage Detail. If conditions different than those described are expected, or if specific drainage details are desired, Geocon should be contacted for additional recommendations.



Typical Retaining Wall Drainage Detail

8.10.7 The retaining walls may be designed using either the active and restrained (at-rest) loading condition or the active and seismic loading condition as suggested by the structural engineer. Typically, it appears the design of the restrained condition for retaining wall loading may be adequate for the seismic design of the retaining walls. However, the active earth pressure combined with the seismic design load should be reviewed and also considered in the design of the retaining walls.

8.10.8 In general, wall foundations should be designed in accordance with Table 8.10.8. The proximity of the foundation to the top of a slope steeper than 3:1 could impact the allowable soil bearing pressure. Therefore, retaining wall foundations should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.

TABLE 8.10.8
SUMMARY OF RETAINING WALL FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Retaining Wall Foundation Width	12 inches
Minimum Retaining Wall Foundation Depth	18 Inches
Minimum Steel Reinforcement	Per Structural Engineer
Allowable Bearing Capacity	3,500 psf
Bearing Capacity Increase	500 psf per Foot of Depth
	300 psf per Foot of Width
Maximum Allowable Bearing Capacity	4,500 psf
Estimated Total Settlement	1 Inch
Estimated Differential Settlement	½ Inch in 30 Feet

8.10.9 The recommendations presented herein are generally applicable to the design of rigid concrete or masonry retaining walls. In the event that other types of walls (such as mechanically stabilized earth [MSE] walls, soil nail walls, or soldier pile walls) are planned, Geocon should be consulted for additional recommendations.

8.10.10 It is common to see retaining walls constructed in the areas of the elevator pits. The retaining walls should be properly drained and designed in accordance with the recommendations presented herein. If the elevator pit walls are not drained, the walls should be designed with an increased active pressure with an equivalent fluid density of 90 pcf. It is also common to see seepage and water collection within the elevator pit. The pit should be designed and properly waterproofed to prevent seepage and water migration into the elevator pit.

8.10.11 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The retaining walls and improvements above the retaining walls should be designed to incorporate an appropriate amount of lateral deflection as determined by the structural engineer.

8.10.12 Soil contemplated for use as retaining wall backfill, including import materials, should be identified in the field prior to backfill. At that time, Geocon should obtain samples for laboratory testing to evaluate its suitability. Modified lateral earth pressures may be necessary if the backfill soil does not meet the required expansion index or shear strength. City or regional standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. In this regard, on-site soil to be used as backfill may or may not meet the values for standard wall designs. Geocon should be consulted to assess the suitability of the on-site soil for use as wall backfill if standard wall designs will be used.

8.10.13 Retaining walls up to 6 feet high and not restrained at the top and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid density of 30 pounds per cubic foot (pcf). Where the backfill will be inclined at no steeper than 2:1 (horizontal to vertical), an active soil pressure of 50 pcf is recommended. These soil pressures assume that the backfill materials within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall possess an EI of 30 or less. For walls where backfill materials do not conform to the criteria herein, Geocon should be consulted for additional recommendations.

8.10.14 Unrestrained walls are those that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Where walls are restrained from movement at the top, walls with a level backfill surface should be designed for a soil pressure equivalent to the pressure exerted by a fluid density of 50 pcf.

8.10.15 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The retaining walls and improvements above the retaining walls should be designed to incorporate an appropriate amount of lateral deflection as determined by the structural engineer.

8.10.16 Retaining walls should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and waterproofed as required by the project architect. The soil immediately adjacent to the backfilled retaining wall should be composed of free draining material completely wrapped in Mirafi 140N (or equivalent) filter fabric for a lateral

distance of 1 foot for the bottom two-thirds of the height of the retaining wall. The upper one-third should be backfilled with less permeable compacted fill to reduce water infiltration. Alternatively, a drainage panel, such as a Miradrain 6000 or equivalent, can be placed along the back of the wall. The use of drainage openings through the base of the wall (weep holes) is not recommended where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The recommendations herein assume a properly compacted backfill (EI of 20 or less) with no hydrostatic forces or imposed surcharge load. If conditions different than those described are expected or if specific drainage details are desired, Geocon should be contacted for additional recommendations. A graphic depicting typical retaining wall drainage is provided below.

8.11 Lateral Loading

8.11.1 To resist lateral loads, a passive pressure exerted by an equivalent fluid weight of 250 pounds per cubic foot (pcf) should be used for the design of footings or shear keys poured neat against compacted fill or Pauba Sandstone. The allowable passive pressure assumes a horizontal surface extending at least 5 feet or 3 times the surface generating the passive pressure, whichever is greater. The upper 12 inches of material in areas not protected by floor slabs or pavement should not be included in design for passive resistance.

8.11.2 If friction is to be used to resist lateral loads, an allowable coefficient of friction between compacted fill or Pauba Sandstone and concrete of 0.35 should be used for design.

8.12 Preliminary Pavement Recommendations

8.12.1 The final pavement design should be based on R-value testing of soils at road subgrade elevation. Roadways should be designed in accordance with the County of Riverside Ordinance No. 461, *Road Improvement Standards & Specifications*, Section 8.07 and Standard Drawing No. 114, *Roadway Design Requirements,* when final Traffic Indices (TI) and R-value test results of subgrade soils are completed.

8.12.2 For preliminary design purposes, we used an assumed R-value test result of 30 based on the material observed in the field. A value of 78 was considered for aggregate base materials for the purposes of this preliminary analysis. Pavements should meet the minimum requirement for pavement thickness per County of Riverside Ordinance No. 461, *Road Improvement Standards & Specifications*, Section 8.07 and Standard Drawing No. 114, *Roadway Design Requirements*. Preliminary flexible pavement sections are presented in Table 8.12.2. Geocon should be contacted if other roadway classifications and traffic indices are appropriate for the project.

TABLE 8.12.2
PRELIMINARY FLEXIBLE PAVEMENT SECTIONS

Road Classification	Assumed Traffic Index	Assumed Subgrade R-Value	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Local Street/Access Road	5.5	30	3	7
Enhanced Local Street at School or Park	6.5	30	4	8
Collector	7.0	30	4	10

8.12.3 The upper 12 inches of the roadway subgrade soil should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at or slightly above optimum moisture content (as determined by ASTM D1557).

8.12.4 The asphalt concrete materials should conform to Section 203-6, of the latest edition of the California *Greenbook*. Class 2 Aggregate Base should conform to Section 26 of the Caltrans *Standard Specifications*. Base materials should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at or slightly above optimum moisture content (as determined by ASTM D1557). Asphalt concrete should be compacted to a density of 95 percent of the laboratory Hveem density (as determined by ASTM D1561).

8.12.5 A rigid Portland cement concrete (PCC) pavement section should be placed in roadway aprons and cross gutters. We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330-21 *Commercial Concrete Parking Lots and Site Paving Design and Construction – Guide.* Table 8.12.5 provides the traffic categories and design parameters used for the calculations for 20-year design life.

TABLE 8.12.5
TRAFFIC CATEGORIES

Traffic Category	Description	Reliability (%)	Slabs Cracked at End of Design Life (%)
A	Car Parking Areas and Access Lanes	60	15
B	Entrance and Truck Service Lanes	60	15
C	School or City Buses (Excluding Large Articulated Buses)	75	15
D	Heavy Duty Trucks (Gross Weight of 80 Kips)	75	15
E	Garbage or Fire Truck Lane	75	15

8.12.6 We used the parameters presented in Table 8.12.6 to calculate the pavement design sections. We should be contacted to provide updated design sections, if necessary.

TABLE 8.12.6
RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of Subgrade Reaction, k	100 pci
Modulus of Rupture for Concrete, M_R	500 psi
Concrete Compressive Strength	3,000 psi
Concrete Modulus of Elasticity, E	3,150,000 psi

8.12.7 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in Table 8.12.7.

TABLE 8.12.7
RIGID VEHICULAR PAVEMENT RECOMMENDATIONS

Traffic Category	Trucks Per Day	Portland Cement Concrete, T (Inches)
A = Car Parking Areas and Access Lanes	10	6
B = Entrance and Truck Service Lanes	10	6½
B = Entrance and Truck Service Lanes	50	7
B = Entrance and Truck Service Lanes	100	7
C = School or City Buses	50	10
C = School or City Buses	100	10½
D = Heavy Duty Trucks	50	7½
D = Heavy Duty Trucks	100	8½
E = Garbage or Fire Truck Lanes	5	7½
E = Garbage or Fire Truck Lanes	10	7½

8.12.8 The PCC vehicular pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. The garbage truck pad should be large enough such that all wheels are on the concrete pad during the loading operations.

8.12.9 Adequate joint spacing should be incorporated into the design and construction of the rigid pavement in accordance with Table 8.12.9.

TABLE 8.12.9
MAXIMUM JOINT SPACING

Pavement Thickness, T (Inches)	Maximum Joint Spacing (Feet)
4<T<5	10
5≤T<6	12.5
6≤T	15

8.12.10 The rigid pavement should also be designed and constructed incorporating the parameters presented in Table 8.12.10.

TABLE 8.12.10
ADDITIONAL RIGID PAVEMENT RECOMMENDATIONS

Subject	Value
Thickened Edge	1.2 Times Slab Thickness Adjacent to Structures
	1.5 Times Slab Thickness Adjacent to Soil
	Minimum Increase of 2 Inches
	4 Feet Wide
Crack Control Joint Depth	Early Entry Sawn = T/6 to T/5, 1.25 Inch Minimum
	Conventional (Tooled or Conventional Sawing) = T/4 to T/3
Crack Control Joint Width	¼-Inch for Sealed Joints and Per Sealer Manufacturer's Recommendations
	$^{1}/_{16}$- to $^{1}/_{4}$-Inch is Common for Unsealed Joints

8.12.11 Reinforcing steel will not be necessary within the concrete for geotechnical purposes with the possible exception of dowels at construction joints as discussed herein.

8.12.12 To control the location and spread of concrete shrinkage cracks, crack-control joints (weakened plane joints) should be included in the design of the concrete pavement slab. Crack-control joints should be sealed with an appropriate sealant to prevent the migration of water through the control joint to the subgrade materials. The depth of the crack-control joints should be in accordance with the referenced ACI guide.

8.12.13 To provide load transfer between adjacent pavement slab sections, a butt-type construction joint should be constructed. The butt-type joint should be thickened by at least 20 percent at the edge and taper back at least 4 feet from the face of the slab.

8.12.14 Concrete curb/gutter should be placed on soil subgrade compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Cross-gutters that receives vehicular should be placed on subgrade soil compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Base materials should not be placed below the curb/gutter, or cross-gutters so water is not able to migrate from the adjacent parkways to the pavement sections. Where flatwork is located directly adjacent to the curb/gutter, the concrete flatwork should be structurally connected to the curbs to help reduce the potential for offsets between the curbs and the flatwork.

8.13 Temporary Excavations

8.13.1 The recommendations included herein are provided for stable excavations. It is the responsibility of the contractor and their competent person to ensure all excavations, temporary slopes and trenches are properly constructed and maintained in accordance with applicable OSHA guidelines in order to maintain safety and the stability of the excavations and adjacent improvements. These excavations should not be allowed to become saturated or to dry out. Surcharge loads should not be permitted to a distance equal to the height of the excavation from the top of the excavation. If there is any improvement designed, the top of the excavation should be a minimum of 15 feet from the edge of existing improvements. Excavations steeper than those recommended or closer than 15 feet from an existing surface improvement should be shored in accordance with applicable OSHA codes and regulations.

8.13.2 The stability of the excavations is dependent on the design and construction of the shoring system and site conditions. Therefore, Geocon cannot be responsible for site safety and the stability of the proposed excavations.

8.13.3 Where there is insufficient space for sloped excavations, shoring or trench shields should be used to support excavations. Shoring may also be necessary where sloped excavation could remove vertical or lateral support of existing improvements, including existing utilities and adjacent structures. Recommendations for temporary shoring are provided in the following section.

8.13.4 Where sloped embankments are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The contractor's competent person should inspect the soils exposed in the cut slopes during excavation in accordance with OSHA regulations so that modifications of the slopes can be made if variations in the soil conditions occur.

8.14 Site Drainage and Moisture Protection

8.14.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2019 CBC 1804.4 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

8.14.2 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks and detected leaks should be repaired promptly. Detrimental soil movement could occur if water can infiltrate the soil for prolonged periods of time.

8.14.3 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. We recommend that area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes be used. In addition, where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall or the use of an impermeable geosynthetic along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

8.14.4 Proposed infiltration systems should be offset from the outside edge of planned foundations a minimum lateral distance of 20 feet to reduce the occurrence of water migrating below the load projection of planned structures.

8.14.5 If not properly constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to infiltration areas. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeology study at the site. Downgradient and adjacent structures may be subjected to seeps, movement of foundations and slabs, or other impacts as a result of water infiltration.

8.15 Plan Review

8.15.1 Grading and foundation plans should be reviewed by the Geotechnical Engineer of Record prior to finalization of design to check that the plans have been prepared in substantial conformance with the recommendations of this report, and to provide additional analyses or recommendations, if necessary.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in this investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that expected herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials was not part of the scope of services provided by Geocon West, Inc.

This report is issued with the understanding that it is the responsibility of the owner, or of their representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The requirements for concrete and reinforcing steel presented in this report are preliminary recommendations from a geotechnical perspective. The Structural Engineer should provide the final recommendations for structural design of concrete and reinforcing steel for foundation systems, floor slabs, exterior concrete, or other systems where concrete and reinforcing steel are utilized, in accordance with the latest version of applicable codes.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project Geotechnical Engineer of Record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

LIST OF REFERENCES

1. American Concrete Institute, 2019, *Building Code Requirements for Structural Concrete*, Report by ACI Committee 318.

2. American Concrete Institute, 2008, *Guide for Design and Construction of Concrete Parking Lots*, Report by ACI Committee 330.

3. ASCE 7-16, 2019, *Minimum Design Loads for Buildings and Other Structures*.

4. California Building Standards Commission, 2019, *California Building Code (CBC)*, California Code of Regulations Title 24, Part 2.

5. California Geological Survey, 2003, *Earthquake Shaking Potential for California*, from USGS/CGS Seismic Hazards Model, CSSC No. 03-02.

6. California Department of Transportation (Caltrans), Division of Engineering Services, Materials Engineering and Testing Services, 2021, *Corrosion Guidelines, Version 3.2,* dated March.

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8. Jennings, C. W. and Bryant, W. A., 2010, *Fault Activity Map of California,* California Geological Survey Geologic Data Map No. 6.

9. Kennedy, Michael P., 1977, *Recency and Character of Faulting Along the Elsinore Fault Zone in Southern Riverside County, California,* California Division of Mines and Geology, Special Report 131.

10. KTGY, 2022, *Conceptual Site Plan*, www.ktgy.com, dated September 30.

11. Legg, M.R., J.C. Borrero, and C.E. Synolakis, 2003*, Evaluation of Tsunami Risk to Southern California Coastal Cities*, EERI, NEHRP Professional Fellowship Report PF2002-11, dated January.

12. Morton, D.M. and Weber, F.H., 2003, *Preliminary Geologic Map of the Elsinore 7.5' Quadrangle, Riverside County, California*, U.S. Geological Survey, Open-File Report OF-2003-281, 1:24,000.BedGISIn View

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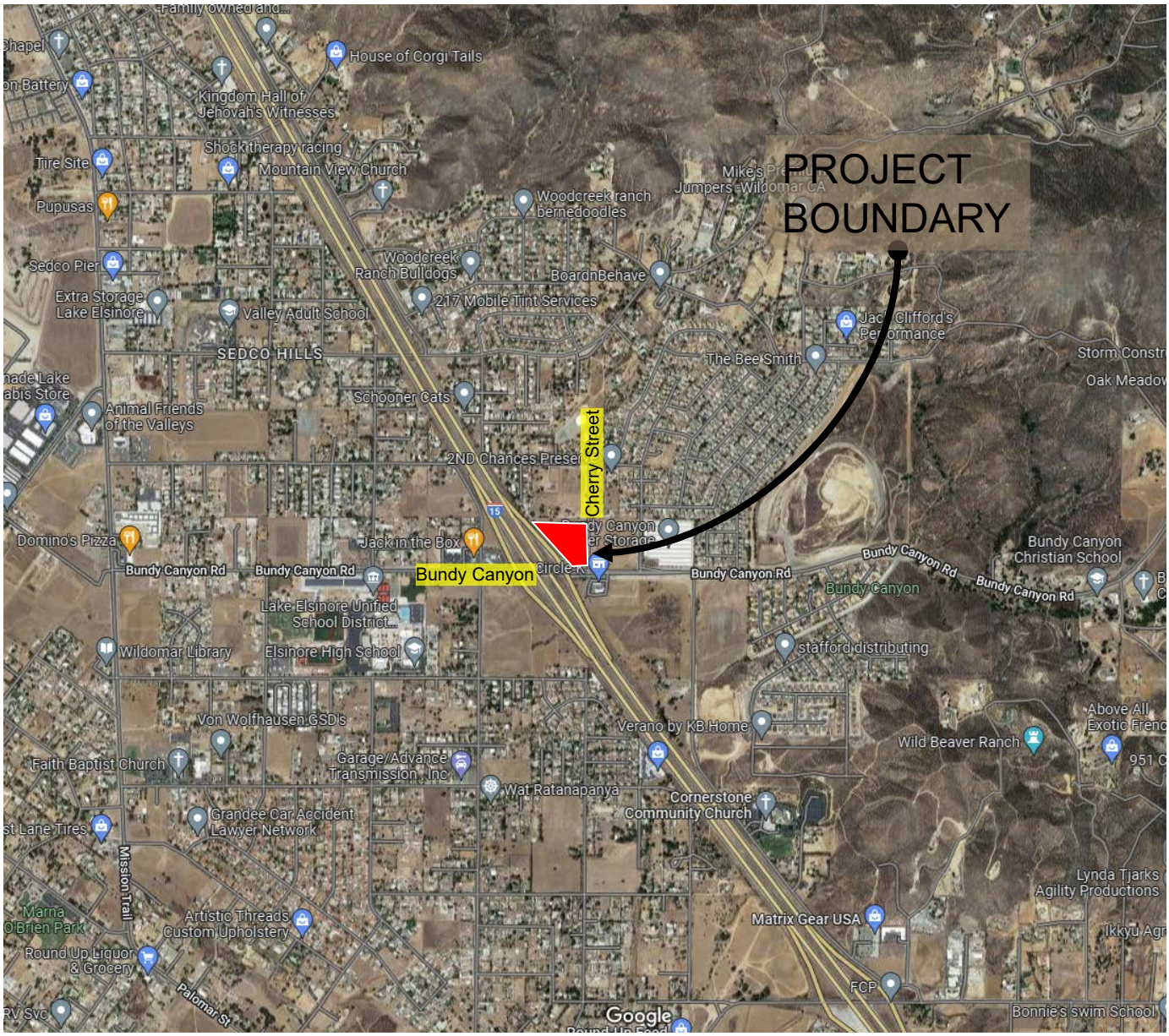
14. Riverside County GIS (RC GIS), *Map My County* website, http://mmc.rivcoit.org/MMC_Public/Custom/disclaimer/Default.htm; accessed December 2022.

15. Riverside County Flood Control and Water Conservation District, 2011, *Design Handbook for Low Impact Development Best Management Practices,* dated September.

16. United States Geological Survey (USGS), *Unified Hazard Tool*, https://earthquake.usgs.gov/hazards/interactive/; accessed December 2022.



0’ 1000’ 2000’

SCALE: 1” = 1000’

N

SOURCE: Google Earth, 2022

VICINITY MAP

GEOCON WEST, INC.
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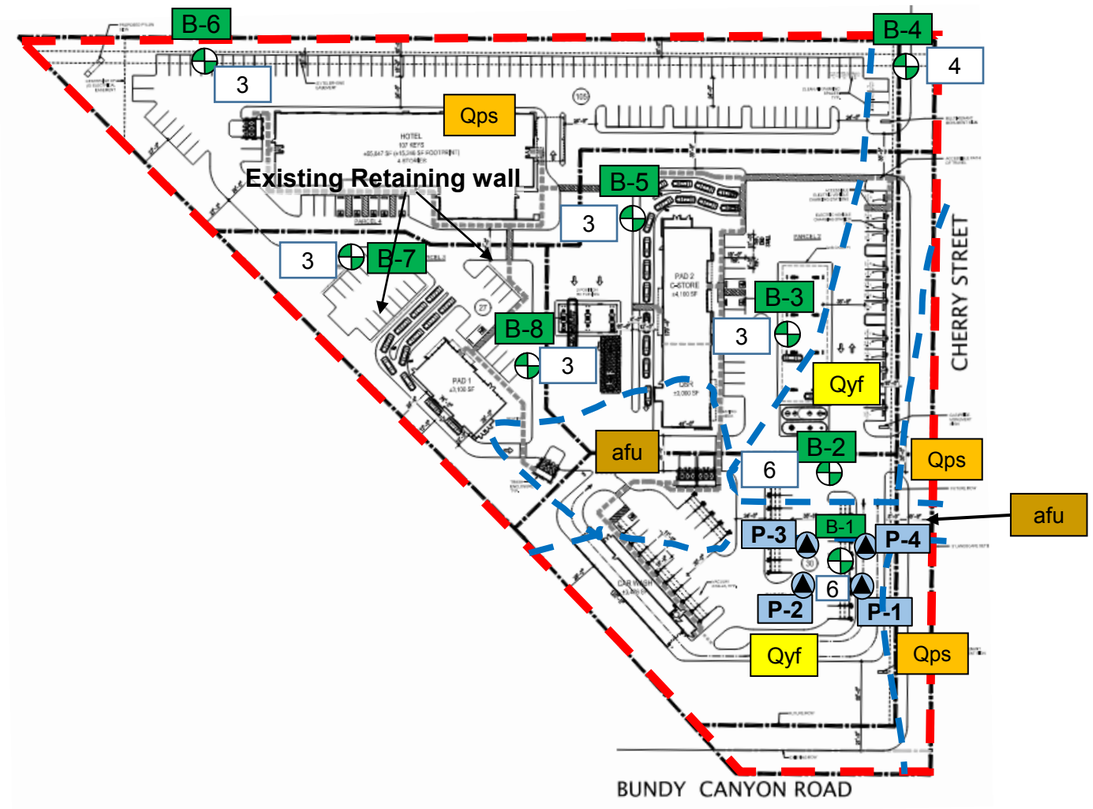
41571 CORNING PLACE #101, MURRIETA, CALIFORNIA 92562
PHONE 951-304-2300 www.geoconinc.com

HD		

PROPOSED CHERRY OUTPOST
CHERRY ST & BUNDY CANYON RD
WILDOMAR, CALIFORNIA

JANUARY 2023	PROJECT NO. T3010-22-01	FIG. 1



GEOCON LEGEND

Locations are approximate

B-8 ..... HOLLOW STEM AUGER BORING LOCATION

6 ..... DEPTH OF EXPECTED REMEDIAL REMOVAL BELOW EXISTING GRADE (ft)

P-4 ..... PERCOLATION TEST LOCATION

..... LIMIT OF THE PROJECT

afu ..... UNDOCUMENTED ARTIFICIAL FILL

Qyf ..... YOUNG ALLUVIUM

Qps ..... POTATO SANDSTONE

..... GEOLOGIC CONTACT

0’ 50’ 100’

SCALE: 1” = 50’

N

Source: KTGY Architecture and Planning, 2022, *Conceptual Site Plan*, dated September 30.

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GEOLOGIC MAP

PROPOSED CHERRY OUTPOST
CHERRY ST & BUNDY CANYON RD
WILDOMAR, CALIFORNIA

HD			JANUARY 2023	PROJECT NO. T3010-22-01	FIG. 2

APPENDIX A

APPENDIX A

EXPLORATORY EXCAVATIONS

Eight exploratory borings and four percolation test borings were drilled on November 30, 2022. Percolation testing was conducted on December 1, 2022. The borings and percolation holes were drilled with a CME-75 truck mounted drill rig. Borings B-1 through B-8 were drilled to depths between 20½ and 26 feet. Percolation test borings were drilled to depths of 5 feet. Representative and relatively undisturbed samples were obtained by driving a 3-inch O. D., California Modified Sampler into the "undisturbed" soil mass with blows from an above-ground auto-hammer. The sampler was equipped with 1-inch by 2⅜-inch brass sampler rings to facilitate removal and testing. Bulk samples were also obtained. The soil conditions encountered in the excavations were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). Logs of the geotechnical borings are presented on Figures A-1 through A-8, with logs of the percolation test borings presented on Figures A-9 and A-12. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The approximate locations of the borings are indicated on the *Geotechnical Map* (see Figure 2).

Percolation testing was performed in accordance with *Riverside County Flood Control and Water Conservation District, LID BMP Manual, Appendix A*. The percolation tests were run in general accordance with *Section 2.3, Shallow Percolation Test*. Percolation test result data are presented on Figures A-13 and A-16.

PROJECT NO. T3010-22-01

BORING B-1

ELEV. (MSL.) **1410** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-1@0-5' (BULK/DRIVE)			SM	**Young ALLUVIAL Fan Deposits (Quall)** Silty SAND, loose to medium dense, moist, orange brown; fine to coarse sand; abundant small pores			
2								
4								
6	B-1@5'				**PAUBA SANDSTONE (Qps)** Silty SAND, very dense, dry, orange brown; fine to coarse sand; less pores	55	101.5	5.2
8								
10	B-1@10'					75/11"	121.0	7.8
12								
14								
16	B-1@15'				-Becomes cemented	50/6"	98.1	7.2
18								
20	B-1@20'				-Becomes moist; locally massive; driller added H2O to facilitate drilling	50/6"	122.0	5.3
22								
24								
	B-1@25'				-Becomes dry, strong brown to orange brown.	50/5"	119.7	6.2

Total Depth = 25'5"
Groundwater not encountered
Penetration resistance for 140-lb hammer falling 30 inches by auto hammer
Backfilled with cuttings 11/30/2022

T3010-22-02 BORING LOGS.GPJ

Figure A-1,
Log of Boring B-1, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-2

ELEV. (MSL.) **1418** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-2@0-5'			SM	**Young ALLUVIAL Fan Deposits (Quall)** Silty SAND, loose to dense, dry, dark brown; fine to coarse sand			
2								
4	B-2@2.5'				**PAUBA SANDSTONE (Qps)** Moist, Orange Brown, weathered, Cemneted	59	123.6	3.9
6	B-2@5'					85	127.8	6.0
8	B-2@7.5'				-Becomes dry, Very dense	90/10"	125.7	12.0
10	B-2@10'				-Becomes very dense	50/6"	125.3	6.8
12								
14								
16	B-2@15'					83/12"	122.9	4.6
18								
20	B-2@20'				-Becomes dense, light brown to strong brown; more cemented trace Clay	59	114.5	6.3
					Total Depth = 21'6" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-2,
Log of Boring B-2, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-3

ELEV. (MSL.) **1423** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, strong brown			
2	B-3@2.5'		■				**PAUBA SANDSTONE (Qps)** Silty SAND, very dense, dry, light to orange brown; trace porousity	76/12"	110.5	5.2
4										
6	B-3@5' B-3@0-5'	▨	■				-Becomes cemented	95/12"	116.1	10.9
8	B-3@7.5'	▨	■				-Becomes very dense	77/12"	119.7	8.8
10	B-3@10'		■				Less dense	80	120.4	11.8
12										
14										
16	B-3@15'		■				Difficult Drilling	77/12"	119.5	9.9
18										
20	B-3@20'		■				Driller added water to facilitate drilling, very dense	80/12"	122.1	4.9
22										
24										
	B-3@25'		■					95/11"	127.6	4.4
							Total Depth = 25'11" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-3,
Log of Boring B-3, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-4

ELEV. (MSL.) **1431** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-4@0-5'					SM	**Young ALLUVIAL Fan Deposits (Quall)** Silty SAND, loose, moist, strong brown			
2										
4							**PAUBA SANDSTONE (Qps)** Silty SAND, dense, dry, light brown; cemented			
6	B-4@5'							85/11"	124.7	4.4
8										
10	B-4@10'							72	127.3	7.4
12										
14										
16	B-4@15'						-Becomes Clayey	64	126.5	5.7
18										
20	B-4@20'						-Increase in sand	63	126.6	3
							Total Depth = 21'6" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-4,
Log of Boring B-4, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-5

ELEV. (MSL.) **1428** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, strong brown			
2							**PAUBA SANDSTONE (Qps)** Silty SAND, dense, dry, light orange brown			
4										
6	B-5@5' B-5@0-5'							50	117.8	4.5
8										
10	B-5@10'						-gray to brown	49	122.7	2.1
12										
14										
16	B-5@15'						-Becomes very dense, dry; cemented	85/12"	129.9	4.8
18										
20	B-5@20'						-Becomes Clayey	78/12"	116.5	5.2
							Total Depth = 21' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-5,
Log of Boring B-5, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-6

ELEV. (MSL.) **1419** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, dry, strong brown			
2										
							PAUBA SANDSTONE (Qps) Silty SAND, dense, dry, strong brown; cemented			
4										
6	B-6@5' B-6@0-5'							90	116.1	6.6
8										
10	B-6@10'						-Becomes very dense, light brown	75/12"	118.8	5.7
12										
14										
16	B-6@15'						-Becomes dense, dry	82		
18										
20	B-6@20'						-Becomes lighter in color; increase in sand	71	121.8	3.0

Total Depth = 21'6"
Groundwater not encountered
Penetration resistance for 140-lb hammer falling 30 inches by auto hammer
Backfilled with cuttings 11/30/2022

Figure A-6,
Log of Boring B-6, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-7

ELEV. (MSL.) **1419** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0						SM	**TOPSOIL** Silty SAND, loose, dry, strong brown			
2										
4							**PAUBA SANDSTONE (Qps)** Silty SAND, medium dense, dry, light brown to strong brown			
6	B-7@5' B-7@0-5'							48	129.5	5.3
8										
10	B-7@10'						-Becomes cemented	49		
12										
14										
16	B-7@15'						-density increases with depth	75	132.5	8.4
18										
20	B-7@20'						-Becomes very dense	78/12"	129.8	7.7
							Total Depth = 21' Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-7,
Log of Boring B-7, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

BORING B-8

ELEV. (MSL.) **1421** DATE COMPLETED **11/30/2022**

EQUIPMENT **CME 75 HSA** BY: **A. KAZEM**

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B-8@0-5'					SM	**TOPSOIL** Silty SAND, loose, dry, strong brown			
2							**PAUBA SANDSTONE (Qps)**			
	B-8@2.5'						Silty SAND, dense, dry; strong brown Becomes medium dense	69	123.0	3.3
4										
	B-8@5'							28	118.0	3.5
6										
8	B-8@7.5'						-Becomes cemented	21	121.0	2.9
10	B-8@10'							44	120.1	2.7
12										
14										
	B-8@15'						-Becomes very dense	88	127.2	5.5
16										
18										
20	B-8@20'						-Difficult drilling	66	130.2	12.0
							Total Depth = 21'6" Groundwater not encountered Penetration resistance for 140-lb hammer falling 30 inches by auto hammer Backfilled with cuttings 11/30/2022			

Figure A-8,
Log of Boring B-8, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-1** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-9,
Log of Boring P-1, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-2** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-10,
Log of Boring P-2, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-3** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-11,
Log of Boring P-3, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. T3010-22-01

DEPTH IN FEET	SAMPLE NO.	BULK	DRIVE	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING P-4** ELEV. (MSL.)**1410** DATE COMPLETED **11/30/2022** EQUIPMENT _____ BY: **A. KAZEM**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
							MATERIAL DESCRIPTION			
0						SM	**ALLUVIUM (Qyf)** Silty SAND, medium dense, dry, orange brown; fine to coarse sand; abundant small pores			
2										
4										
							Total Depth = 5' Groundwater not encountered Percolation Test Equipment set Presaturated with 5 gallons of water Backfilled with cuttings 12/1/2022			

Figure A-12,
Log of Boring P-4, Page 1 of 1

T3010-22-02 BORING LOGS.GPJ

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PERCOLATION TEST REPORT

Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-1			**Date Excavated:**		11/30/2022
Length of Test Pipe:			60.0	inches	**Soil Classification:**		0
Height of Pipe above Ground:			6.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			54.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							

Sandy Soil Criteria Test

Trial No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Level (in)	Final Water Level (in)	Δ in Water Level (in)	Percolation Rate (min/inch)
1	9:00 AM 9:25 AM	25	25	39.0	37.0	2.0	12.5
2	9:25 AM 9:50 AM	25	50	40.0	35.5	4.5	5.6
			Soil Criteria: Normal				

Percolation Test

Reading No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Head (in)	Final Water Head (in)	Δ in Water Level (in)	Percolation Rate (min/inch)
1	10:00 AM 10:30 AM	30	30	40.8	37.5	3.3	9.2
2	10:30 AM 11:00 AM	30	60	41.0	38.0	3.0	10.0
3	11:00 AM 11:30 AM	30	90	38.0	35.0	3.0	10.0
4	11:30 AM 12:00 PM	30	120	41.0	38.3	2.8	10.9
5	12:00 PM 12:30 PM	30	150	38.3	35.5	2.8	10.9
6	12:30 PM 1:00 PM	30	180	40.0	37.3	2.8	10.9
7	1:00 PM 1:30 PM	30	210	37.3	34.8	2.5	12.0
8	1:30 PM 2:00 PM	30	240	41.5	39.0	2.5	12.0
9	2:00 PM 2:30 PM	30	270	39.0	36.5	2.5	12.0
10	2:30 PM 3:00 PM	30	300	40.8	38.3	2.5	12.0
11	3:00 PM 3:30 PM	30	330	38.3	35.8	2.5	12.0
12	3:30 PM 4:00 PM	30	360	40.3	37.8	2.5	12.0

Infiltration Rate (in/hr):			0.2				
Radius of test hole (in):			4				**Figure A-13**
Average Head (in):			39.0				

PERCOLATION TEST REPORT							
Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-2			**Date Excavated:**		11/30/2022
Length of Test Pipe:			60.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			5.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			55.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:01 AM 9:26 AM	25	25	41.5	38.0	3.5	7.1
2	9:26 AM 9:51 AM	25	50	43.0	39.0	4.0	6.2
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	10:00 AM 10:30 AM	30	30	43.8	39.0	4.8	6.3
2	10:30 AM 11:00 AM	30	60	45.0	40.8	4.3	7.1
3	11:00 AM 11:30 AM	30	90	40.8	36.8	4.0	7.5
4	11:30 AM 12:00 PM	30	120	44.5	40.8	3.8	8.0
5	12:00 PM 12:30 PM	30	150	40.8	37.0	3.8	8.0
6	12:30 PM 1:00 PM	30	180	44.5	41.0	3.5	8.6
7	1:00 PM 1:30 PM	30	210	41.0	37.5	3.5	8.6
8	1:30 PM 2:00 PM	30	240	44.8	41.5	3.3	9.2
9	2:00 PM 2:30 PM	30	270	41.5	38.3	3.3	9.2
10	2:30 PM 3:00 PM	30	300	43.8	40.8	3.0	10.0
11	3:00 PM 3:30 PM	30	330	40.8	37.8	3.0	10.0
12	3:30 PM 4:00 PM	30	360	41.8	38.8	3.0	10.0
Infiltration Rate (in/hr):			0.3				
Radius of test hole (in):			4				**Figure A-14**
Average Head (in):			40.3				

PERCOLATION TEST REPORT							
Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-3			**Date Excavated:**		11/30/2022
Length of Test Pipe:			63.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			6.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			57.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:02 AM 9:27 AM	25	25	46.0	41.0	5.0	5.0
2	9:27 AM 9:52 AM	25	50	43.5	38.0	5.5	4.5
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	10:02 AM 10:32 AM	30	30	44.0	38.3	5.8	5.2
2	10:32 AM 11:02 AM	30	60	45.0	38.8	6.3	4.8
3	11:02 AM 11:32 AM	30	90	38.8	32.8	6.0	5.0
4	11:32 AM 12:02 PM	30	120	45.0	38.8	6.3	4.8
5	12:02 PM 12:32 PM	30	150	38.8	32.3	6.5	4.6
6	12:32 PM 1:02 PM	30	180	44.8	38.8	6.0	5.0
7	1:02 PM 1:32 PM	30	210	38.8	32.8	6.0	5.0
8	1:32 PM 2:02 PM	30	240	42.8	37.0	5.8	5.2
9	2:02 PM 2:32 PM	30	270	37.0	31.3	5.8	5.2
10	2:32 PM 3:02 PM	30	300	43.5	38.0	5.5	5.5
11	3:02 PM 3:32 PM	30	330	45.8	40.3	5.5	5.5
12	3:32 PM 4:02 PM	30	360	40.3	34.8	5.5	5.5
Infiltration Rate (in/hr):			0.6				
Radius of test hole (in):			4				**Figure A-15**
Average Head (in):			37.5				

PERCOLATION TEST REPORT							
Project Name:		Cherry Outpost GI			**Project No.:**		T3010-22-01
Test Hole No.:		P-4			**Date Excavated:**		11/30/2022
Length of Test Pipe:			60.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			6.0	inches	**Presoak Date:**		11/30/2022
Depth of Test Hole:			54.0	inches	**Perc Test Date:**		12/1/2022
Check for Sandy Soil Criteria Tested by:				AK	**Percolation Tested by:**		AK
Water level measured from BOTTOM of hole							
Sandy Soil Criteria Test							
Trial No.	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
		Interval	**Elapsed**	**Level**	**Level**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	9:03 AM 9:28 AM	25	25	40.5	35.0	5.5	4.5
2	9:28 AM 9:53 AM	25	50	39.0	33.3	5.8	4.3
			Soil Criteria: Normal				
			Percolation Test				
Reading	**Time**	**Time**	**Total**	**Initial Water**	**Final Water**	**Δ in Water**	**Percolation**
No.		**Interval**	**Elapsed**	**Head**	**Head**	**Level**	**Rate**
		(min)	**Time (min)**	**(in)**	**(in)**	**(in)**	**(min/inch)**
1	10:03 AM 10:33 AM	30	30	38.0	31.8	6.3	4.8
2	10:33 AM 11:03 AM	30	60	40.0	33.8	6.3	4.8
3	11:03 AM 11:33 AM	30	90	33.8	27.5	6.3	4.8
4	11:33 AM 12:03 PM	30	120	34.5	28.8	5.8	5.2
5	12:03 PM 12:33 PM	30	150	28.8	23.0	5.8	5.2
6	12:33 PM 1:03 PM	30	180	39.5	34.0	5.5	5.5
7	1:03 PM 1:33 PM	30	210	34.0	28.5	5.5	5.5
8	1:33 PM 2:03 PM	30	240	37.5	32.3	5.3	5.7
9	2:03 PM 2:33 PM	30	270	32.3	27.0	5.3	5.7
10	2:33 PM 3:03 PM	30	300	42.8	37.8	5.0	6.0
11	3:03 PM 3:33 PM	30	330	37.8	32.8	5.0	6.0
12	3:33 PM 4:03 PM	30	360	40.5	35.5	5.0	6.0
Infiltration Rate (in/hr):			0.5				
Radius of test hole (in):			4				**Figure A-16**
Average Head (in):			38.0				

APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in accordance with current, generally accepted test methods of ASTM International (ASTM) or other suggested procedures. We analyzed selected soil samples for in-place dry density/moisture content, maximum dry density/optimum moisture content, expansion potential, corrosivity, grain size analysis, consolidation potential, and direct shear strength. The results of the laboratory tests are presented on Figures B-1 through B-13 and on the logs presented in *Appendix A*.

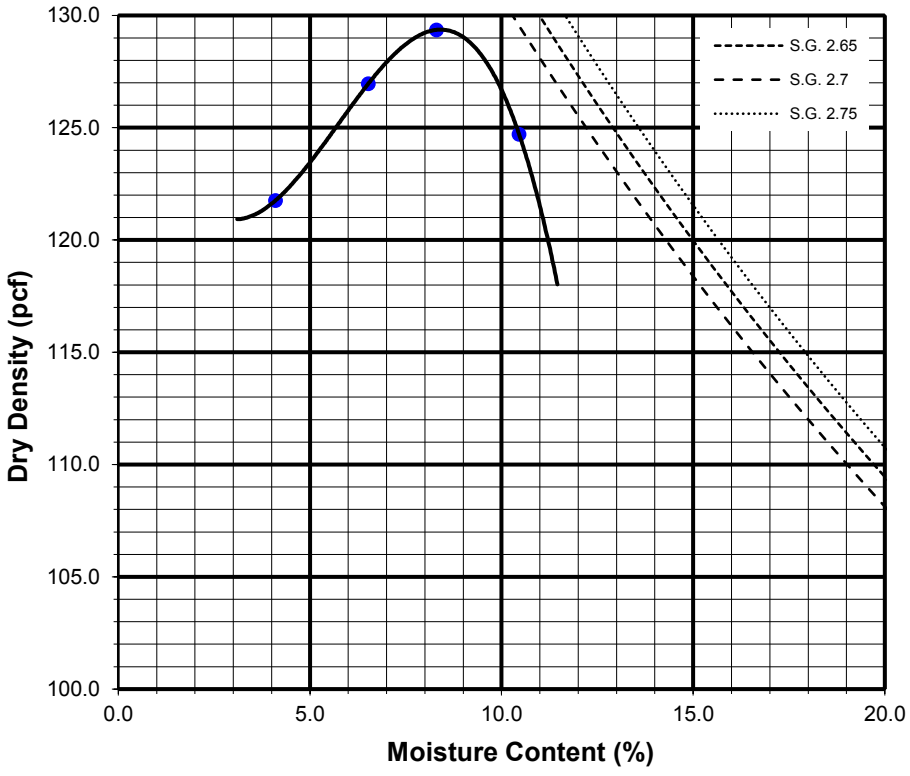
Sample No:

B1@0-5	Silty SAND (SM), brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6174	6302	6375	6340		
Weight of Mold	(g)	4259	4259	4259	4259		
Net Weight of Soil	(g)	1915	2043	2116	2081		
Wet Weight of Soil + Cont.	(g)	654.9	642.7	761.8	717.5		
Dry Weight of Soil + Cont.	(g)	639.2	619.1	723.3	674.1		
Weight of Container	(g)	256.4	257.2	259.4	259.1		
Moisture Content	(%)	4.1	6.5	8.3	10.5		
Wet Density	(pcf)	126.8	135.2	140.1	137.8		
Dry Density	(pcf)	121.8	127.0	129.4	124.7		

Maximum Dry Density (pcf)	**129.5**

Optimum Moisture Content (%)	**8.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

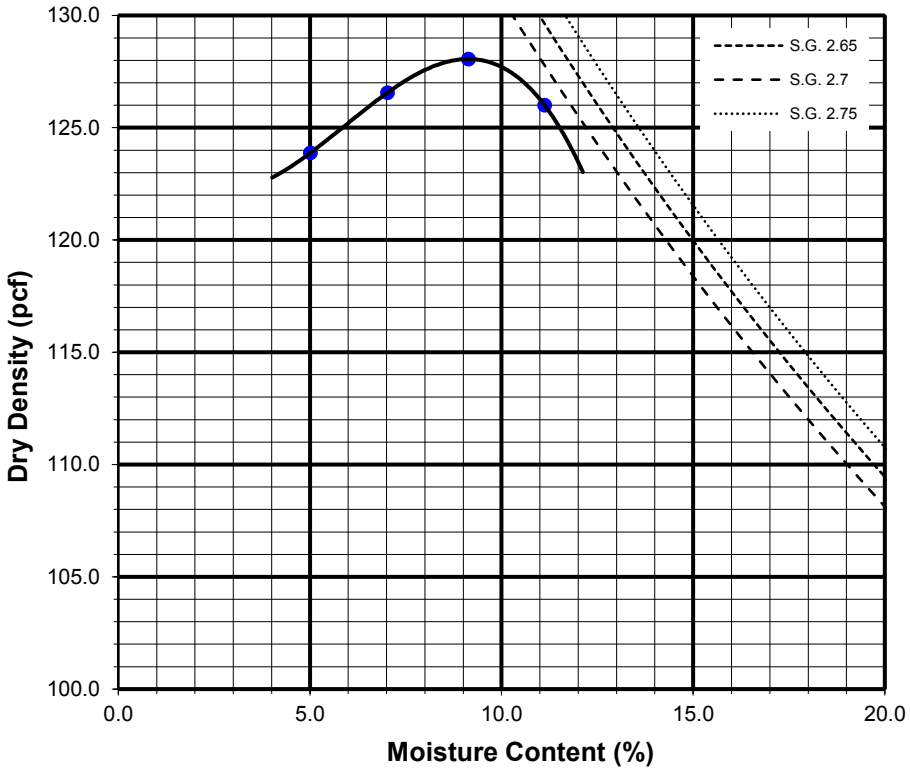
Jan 23 Figure B-1

Sample No:

B3@0-5'	Silty SAND (SM), brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6333	6337	6268	6187		
Weight of Mold	(g)	4222	4222	4222	4222		
Net Weight of Soil	(g)	2111	2115	2046	1965		
Wet Weight of Soil + Cont.	(g)	767.8	730.0	699.2	674.6		
Dry Weight of Soil + Cont.	(g)	719.0	675.4	665.4	651.2		
Weight of Container	(g)	184.8	184.4	184.2	184.4		
Moisture Content	(%)	9.1	11.1	7.0	5.0		
Wet Density	(pcf)	139.8	140.0	135.5	130.1		
Dry Density	(pcf)	128.1	126.0	126.6	123.9		

Maximum Dry Density (pcf)	**128.0**	**Optimum Moisture Content (%)**	**9.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

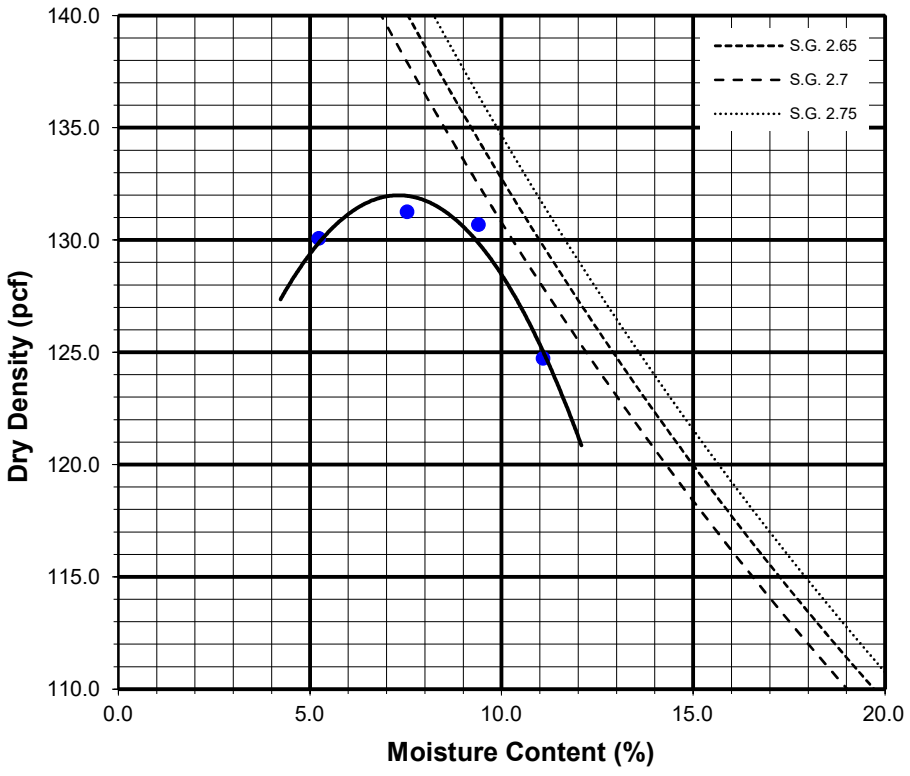
Jan 23 Figure B-2

Sample No:

B6@0-5	Silty SAND (SM), brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6327	6391	6419	6352		
Weight of Mold	(g)	4259	4259	4259	4259		
Net Weight of Soil	(g)	2068	2132	2160	2093		
Wet Weight of Soil + Cont.	(g)	674.3	707.6	776.2	730.5		
Dry Weight of Soil + Cont.	(g)	653.5	676.2	731.5	683.4		
Weight of Container	(g)	256.0	259.2	255.8	258.4		
Moisture Content	(%)	5.2	7.5	9.4	11.1		
Wet Density	(pcf)	136.9	141.1	143.0	138.6		
Dry Density	(pcf)	130.1	131.3	130.7	124.7		

Maximum Dry Density (pcf)	**131.5**	**Optimum Moisture Content (%)**	**8.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-3

B3@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	630.3	660.5
Wt. of Mold	(gm)	200.3	200.3
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	473.2	660.5
Dry Wt. of Soil + Cont.	(gm)	452.3	400.0
Wt. of Container	(gm)	173.2	200.3
Moisture Content	(%)	7.5	15.1
Wet Density	(pcf)	129.7	138.6
Dry Density	(pcf)	120.7	120.5
Void Ratio		0.4	0.4
Total Porosity		0.3	0.3
Pore Volume	(cc)	58.8	62.8
Degree of Saturation	(%) [S_{meas}]	51.4	95.8

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
12/14/2022	10:00	1.0	0	0.4069
12/14/2022	10:10	1.0	10	0.4066
Add Distilled Water to the Specimen				
12/15/2022	10:00	1.0	1430	0.4258
12/15/2022	11:00	1.0	1490	0.4258

Expansion Index (EI meas) =	19.2
Expansion Index (Report) =	19

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

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EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-4

SUMMARY OF LABORATORY
POTENTIAL OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
AASHTO T289 ASTM D4972 and AASHTO T288 ASTM G187

Sample No.	pH	Resistivity (ohm centimeters)
B3@0-5	9.3	1900 (Corrosive)
B6@0-5	8.8	4400 (Moderately Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
AASHTO T291 ASTM C1218

Sample No.	Chloride Ion Content (%)
B3@0-5	0.012
B6@0-5	0.008

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
AASHTO T290 ASTM C1580

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure
B3@0-5	0.000	S0
B6@0-5	0.000	S0

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CORROSIVITY TEST RESULTS

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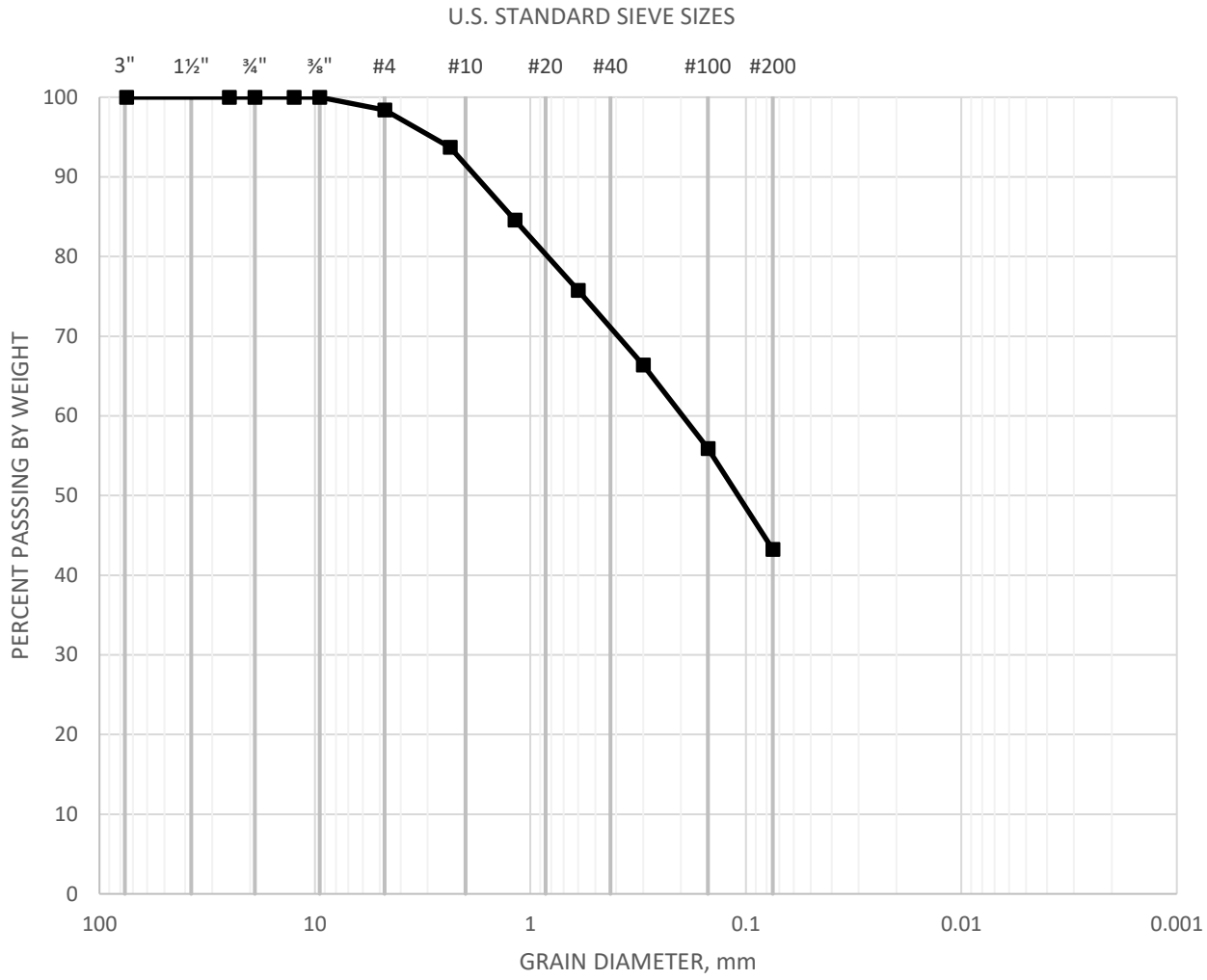
Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-5

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	D60	D30	D10
B1@0-5	Silty SAND (SM), brown	0.2	0.075	0.075

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GRAIN SIZE DISTRIBUTION

ASTM D 6913

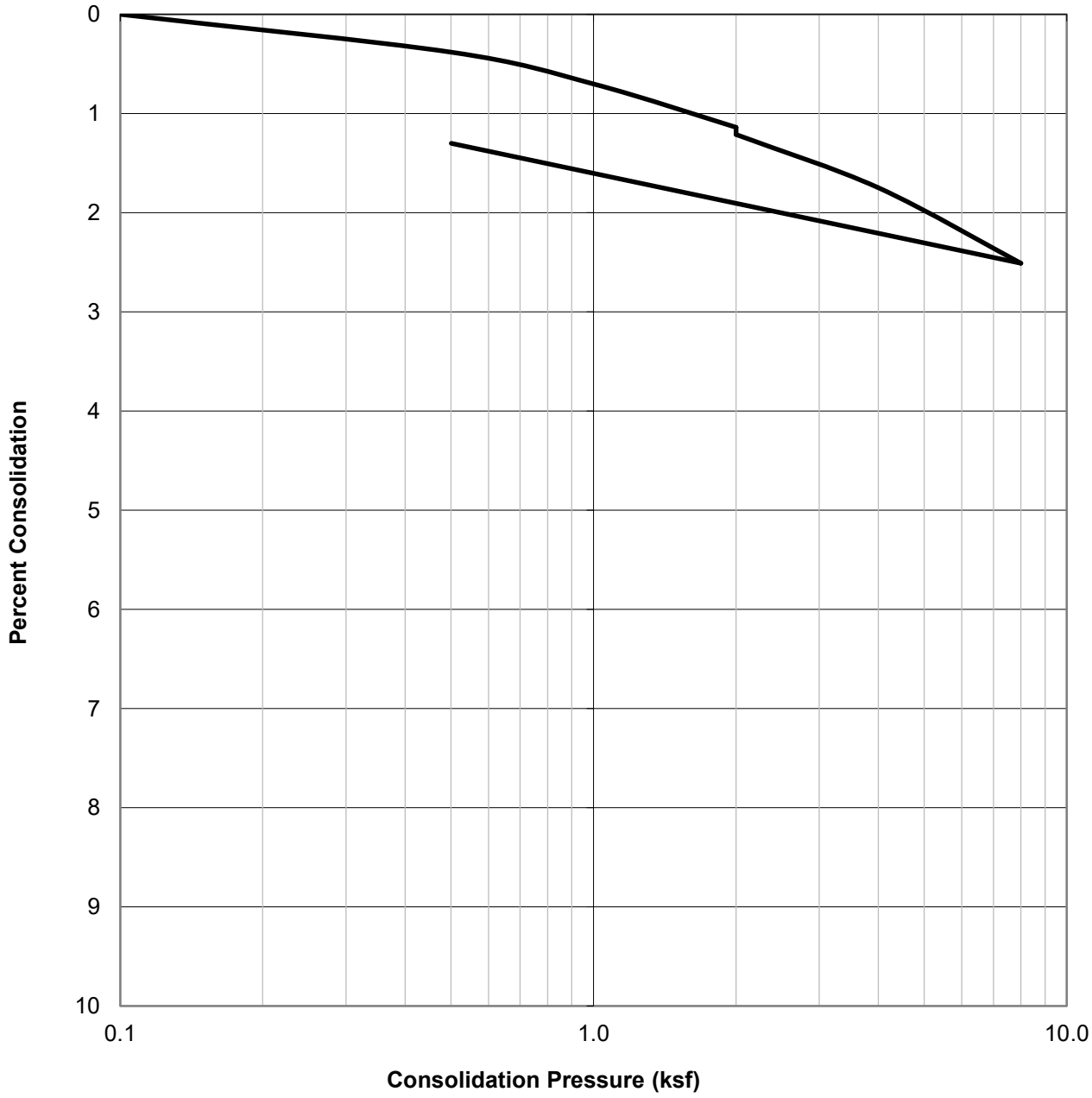
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@0-5	Silty SAND (SM), brown	122.2	8.9	13.6

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

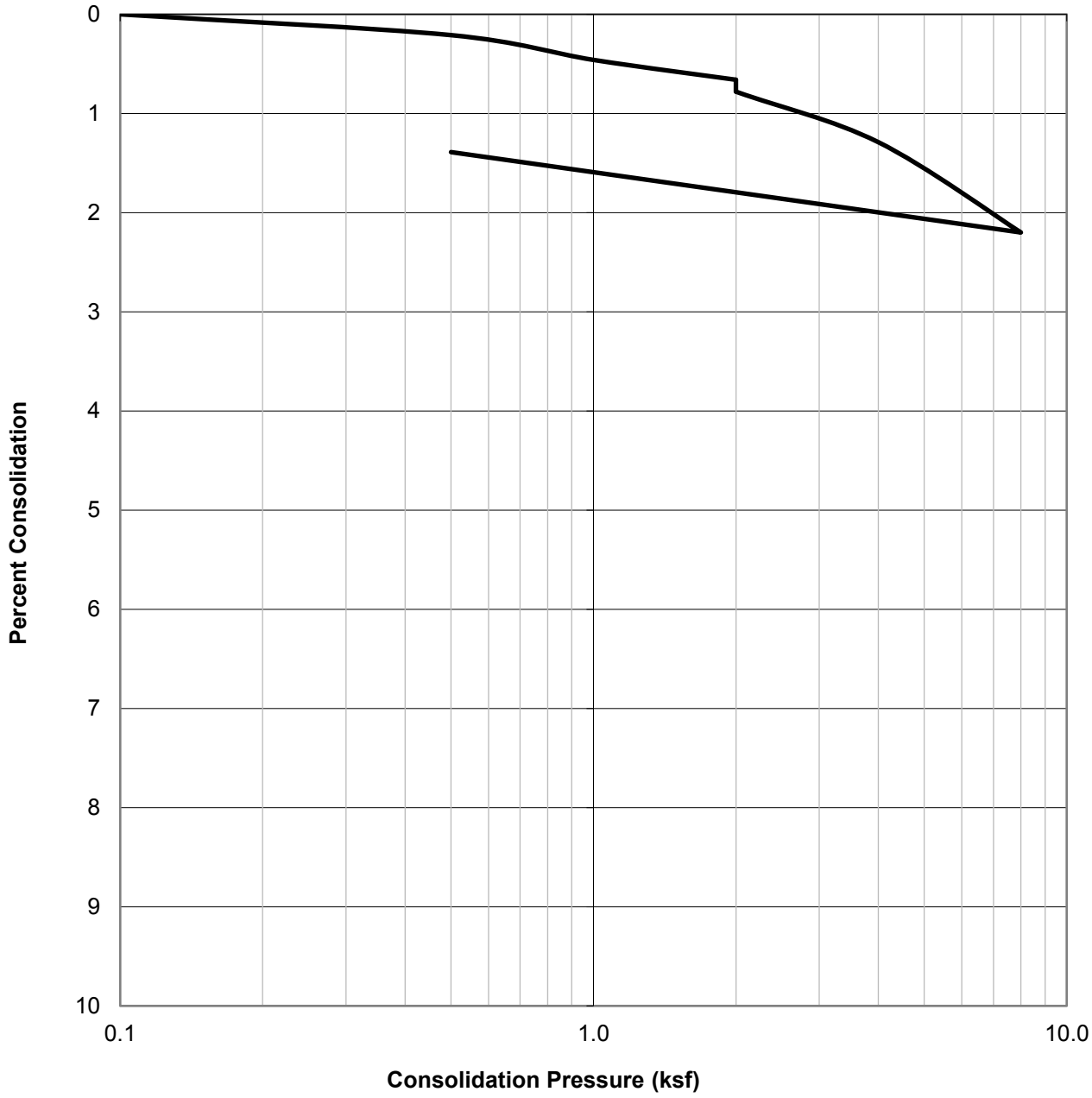
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-7

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B6@0-5	Silty SAND (SM), brown	117.4	9.0	14.3

GEOCON

CONSOLIDATION TEST RESULTS

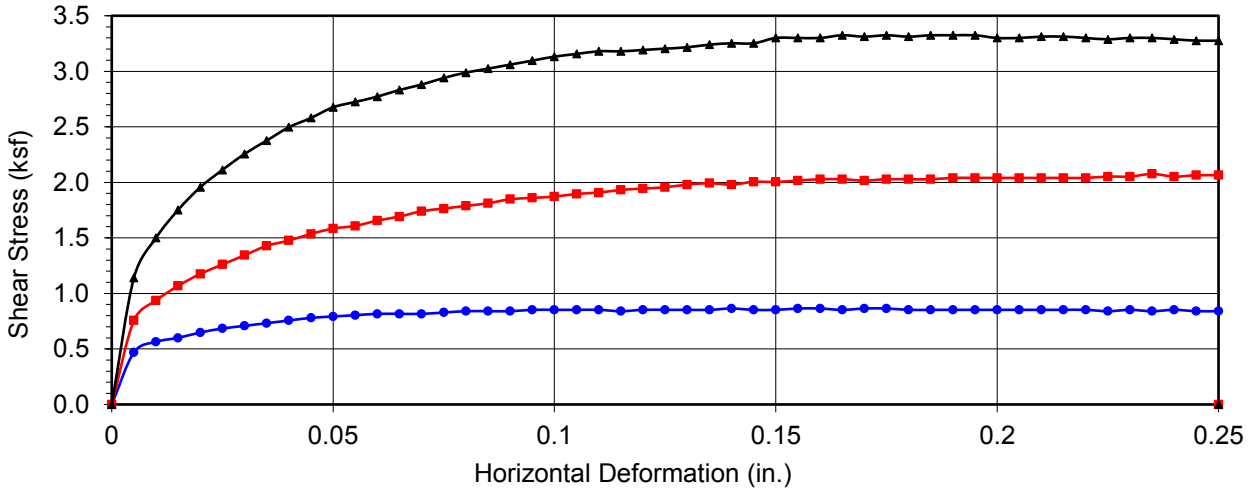
ASTM D-2435

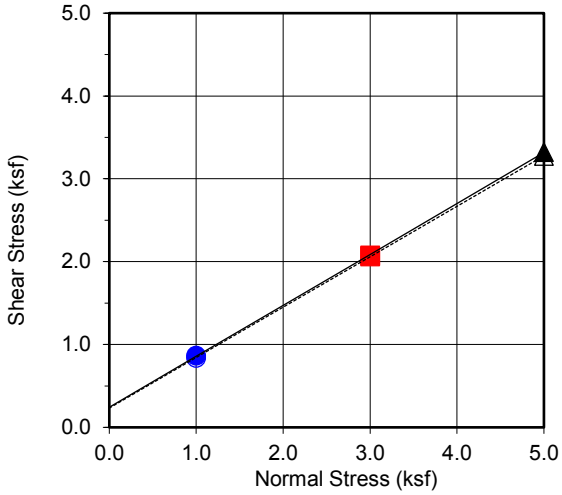
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-8





Boring No.	**B3**
Sample No.	**B3@0-5**
Depth (ft)	**0-5**
Sample Type:	Bulk

Soil Identification:

Silty SAND (SM), brown

Strength Parameters

	C (psf)	ϕ (°)
Peak	243	32
Ultimate	233	31

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.86	■ 2.08	▲ 3.32
Shear Stress @ End of Test (ksf)	○ 0.84	□ 2.06	△ 3.28
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	9.1	8.9	9.0
Initial Dry Density (pcf)	115.1	115.0	115.0
Initial Degree of Saturation (%)	52.7	51.3	52.0
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	14.6	12.6	10.9

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

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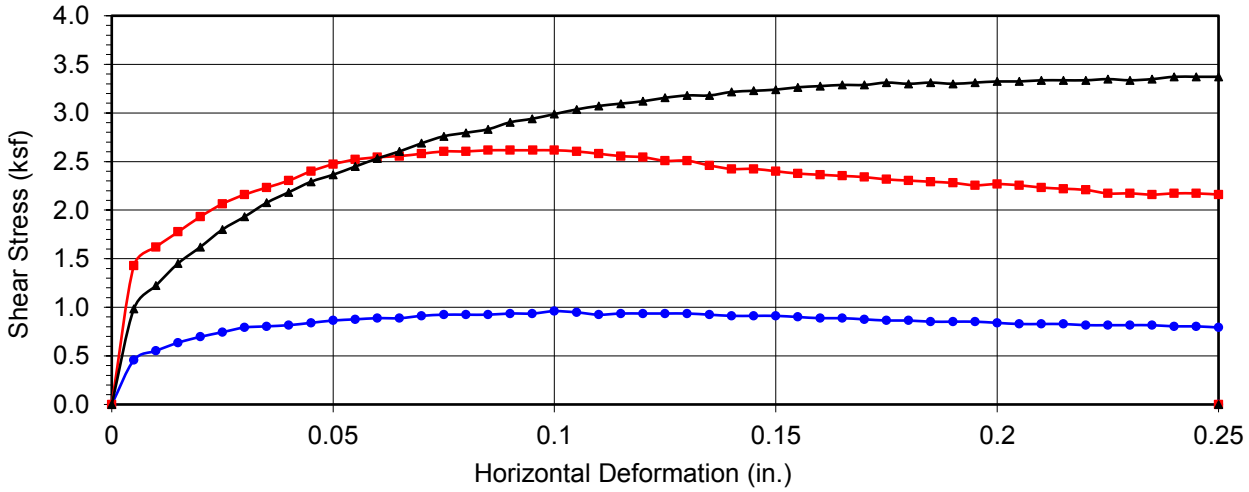
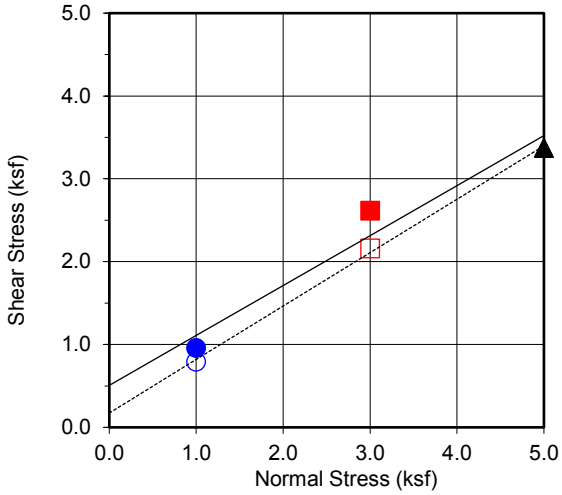
Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-9





Boring No.	**B3**
Sample No.	**B3@5**
Depth (ft)	**5**
Sample Type:	Ring

Soil Identification:		
Silty SAND (SM), brown		
Strength Parameters		
	C (psf)	ϕ (°)
Peak	507	31
Ultimate	173	33

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.96	■ 2.62	▲ 3.37
Shear Stress @ End of Test (ksf)	○ 0.79	□ 2.16	△ 3.37
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	10.9	10.3	10.3
Initial Dry Density (pcf)	124.3	122.7	119.4
Initial Degree of Saturation (%)	82.5	74.1	67.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.4	15.9	15.5

GEOCON

DIRECT SHEAR TEST RESULTS

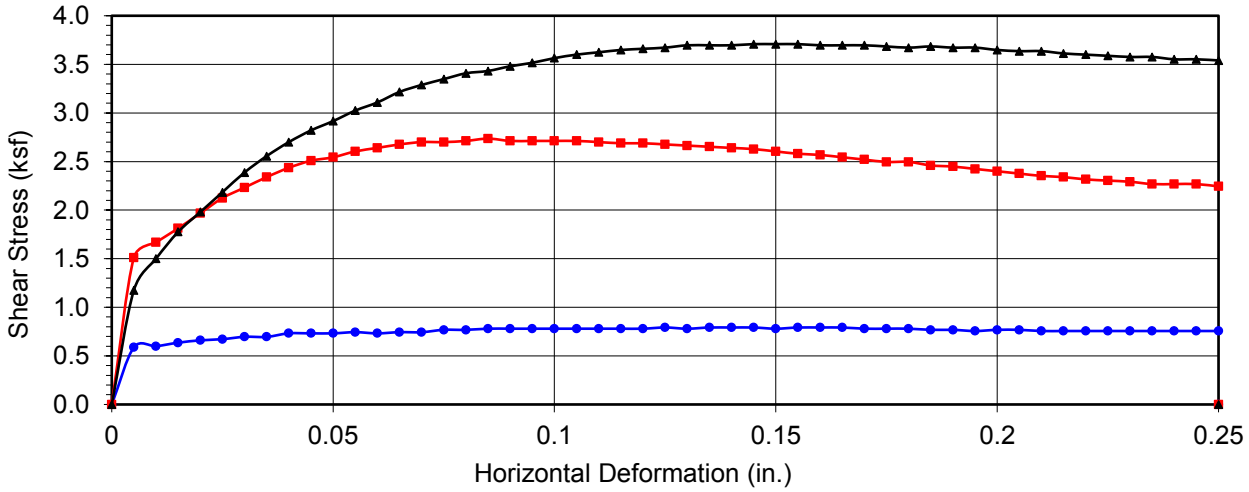
Consolidated Drained ASTM D-3080

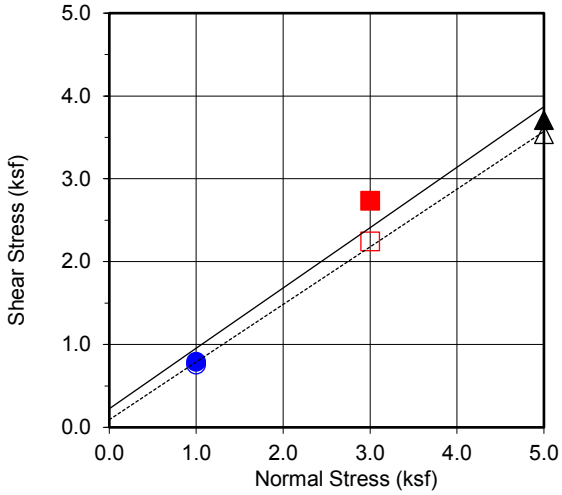
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-10





Boring No.	**B3**
Sample No.	**B3@10**
Depth (ft)	**10**
Sample Type:	ring

Soil Identification:		
Silty SAND (SM), brown		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	225	36
Ultimate	92	35

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.79	■ 2.74	▲ 3.71
Shear Stress @ End of Test (ksf)	○ 0.76	□ 2.24	△ 3.54
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	13.2	11.8	11.0
Initial Dry Density (pcf)	116.7	127.6	115.2
Initial Degree of Saturation (%)	80.2	99.1	64.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	18.6	15.6	16.2

GEOCON

DIRECT SHEAR TEST RESULTS

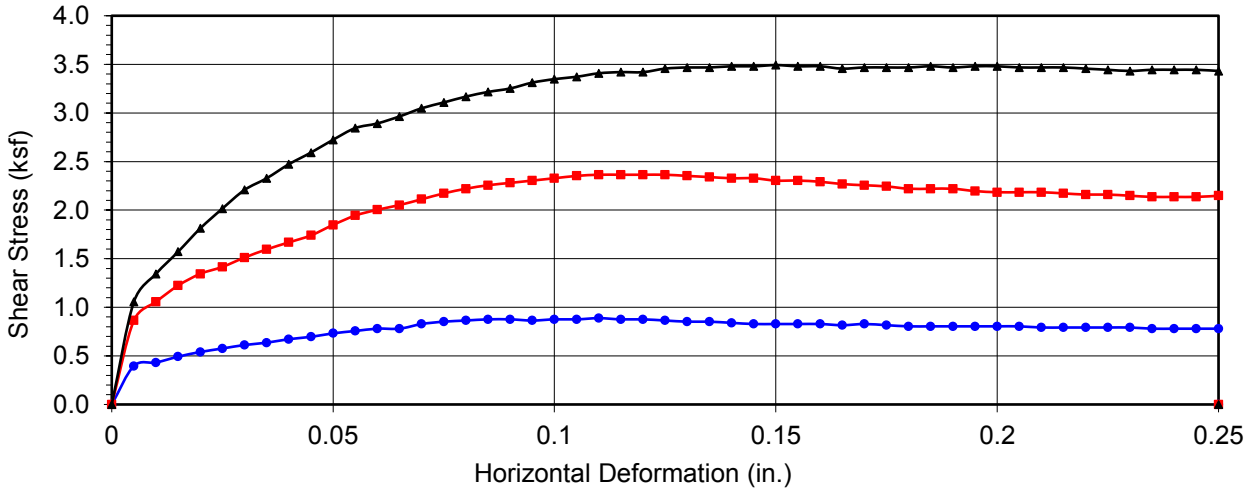
Consolidated Drained ASTM D-3080

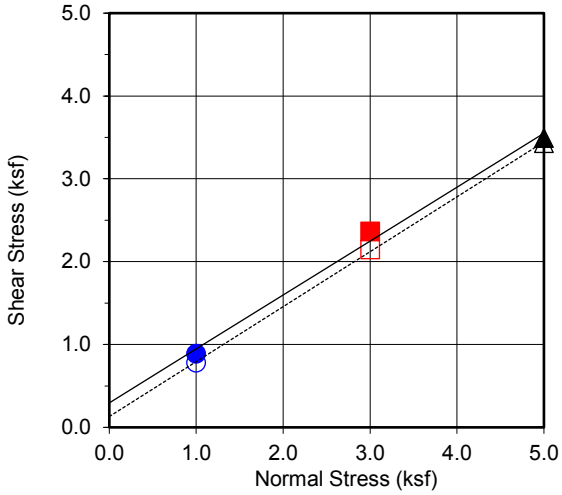
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-11





Boring No.	**B3**
Sample No.	**B3@15**
Depth (ft)	**15**
Sample Type:	Ring

Soil Identification:

Silty SAND (SM), brown

Strength Parameters

	C (psf)	ϕ (°)
Peak	295	33
Ultimate	131	34

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.89	■ 2.36	▲ 3.49
Shear Stress @ End of Test (ksf)	○ 0.78	□ 2.15	△ 3.43
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	10.1	8.7	8.0
Initial Dry Density (pcf)	113.2	113.1	114.2
Initial Degree of Saturation (%)	55.7	48.1	45.5
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.0	15.0	15.0

GEOCON

DIRECT SHEAR TEST RESULTS

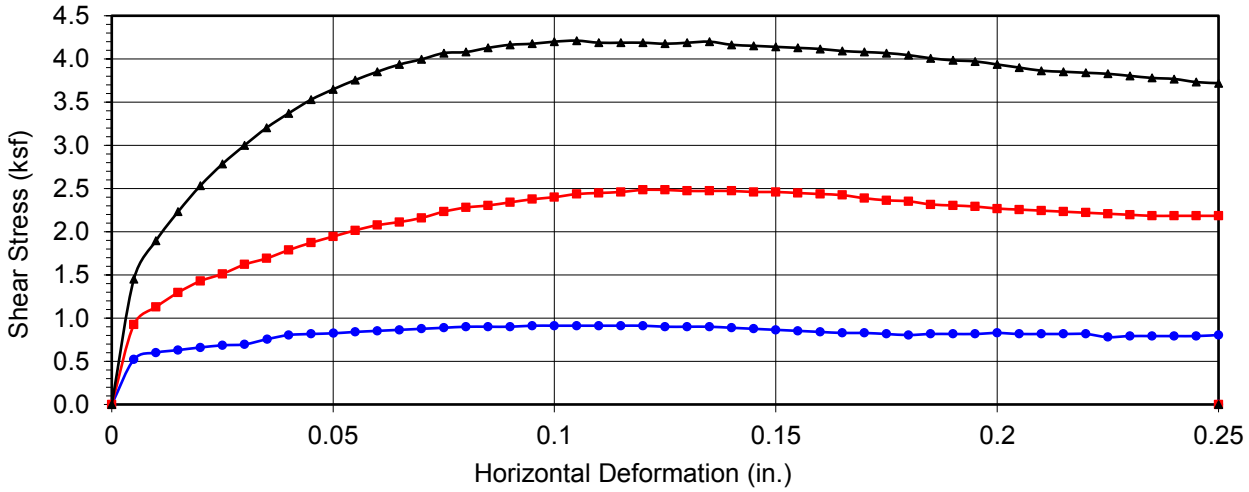
Consolidated Drained ASTM D-3080

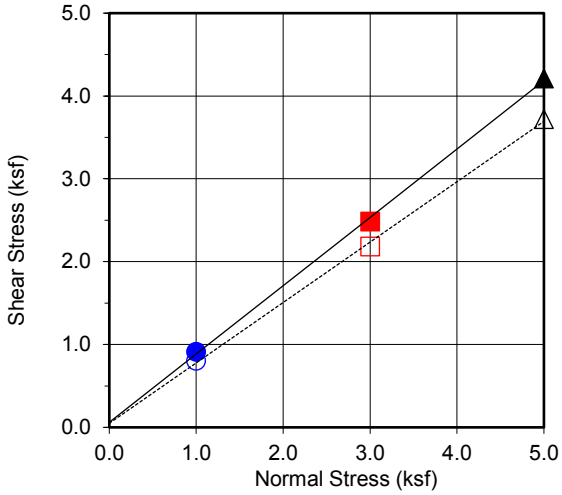
Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-12





Boring No.	**B6**
Sample No.	**B6@5**
Depth (ft)	**5**
Sample Type:	Ring

Soil Identification:		
SM		
Strength Parameters		
	C (psf)	ϕ (°)
Peak	61	40
Ultimate	49	36

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.91	■ 2.48	▲ 4.21
Shear Stress @ End of Test (ksf)	○ 0.80	□ 2.18	△ 3.72
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	7.2	7.2	6.6
Initial Dry Density (pcf)	106.7	113.4	124.6
Initial Degree of Saturation (%)	33.5	40.1	50.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	17.1	15.3	14.0

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

Checked by: ARK

Project No.: T3010-22-01

PROPOSED CHERRY OUTPOST
NWC OF BUNDY CANYON AND CHERRY STREET
WILDOMAR, CALIFORNIA

Jan 23 Figure B-13

APPENDIX C

APPENDIX C

RECOMMENDED GRADING SPECIFICATIONS

FOR

PROPOSED CHERRY OUTPOST
ASSESSOR'S PARCELS
366-290-007 & -008
NWC OF BUNDY CANYON AND
CHERRY STREET
WILDOMAR, CALIFORNIA

PROJECT NO. T3010-22-01

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition

4. CLEARING AND PREPARING AREAS TO BE FILLED

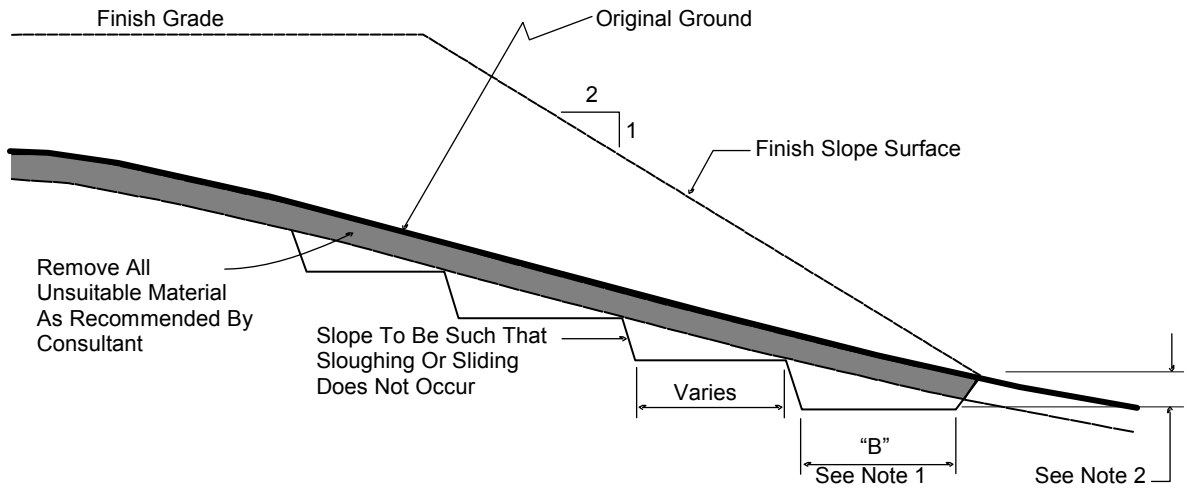
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

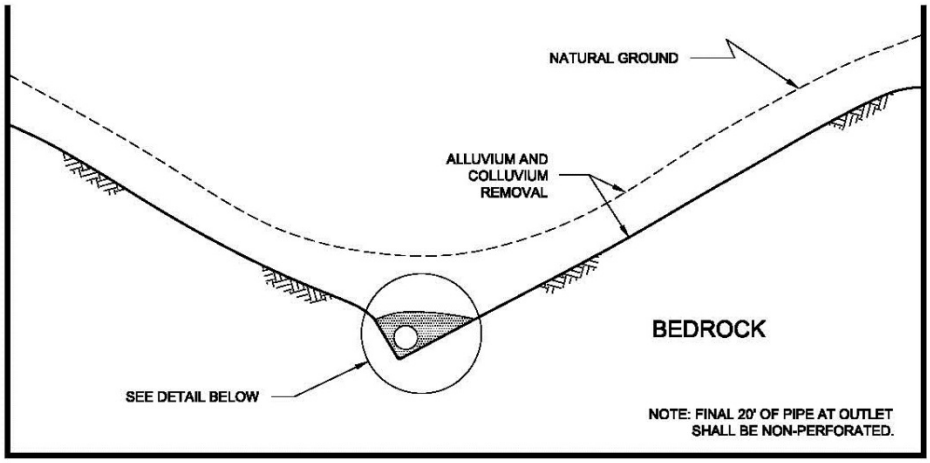
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

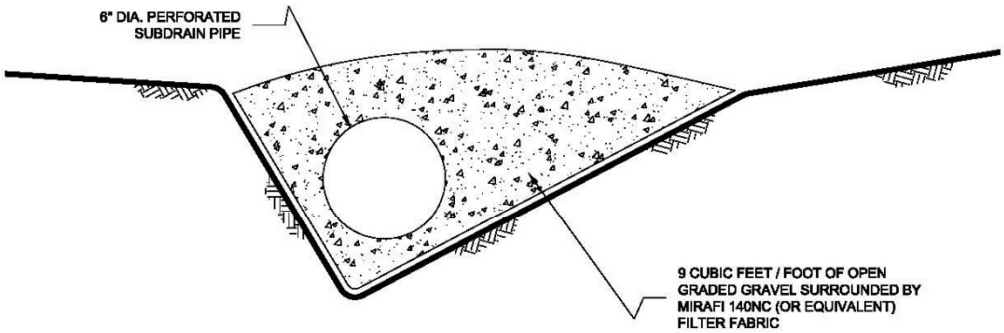
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

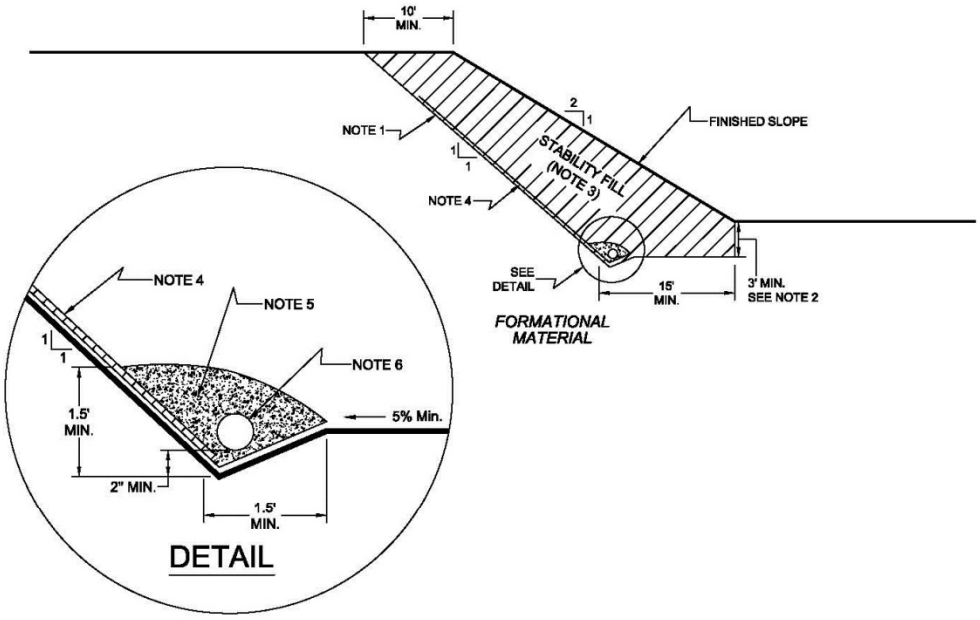
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

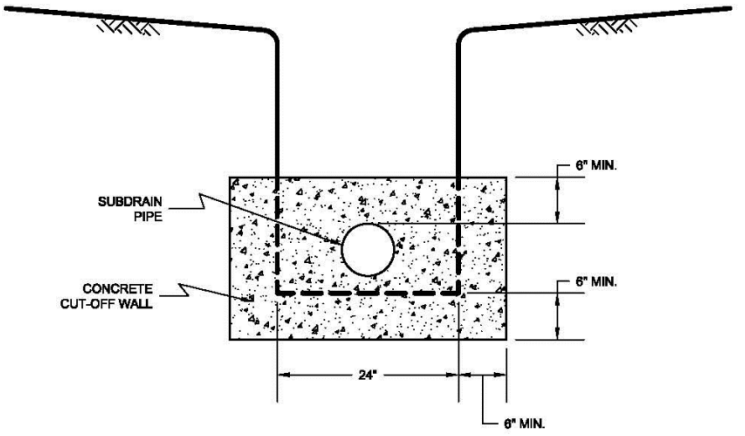
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

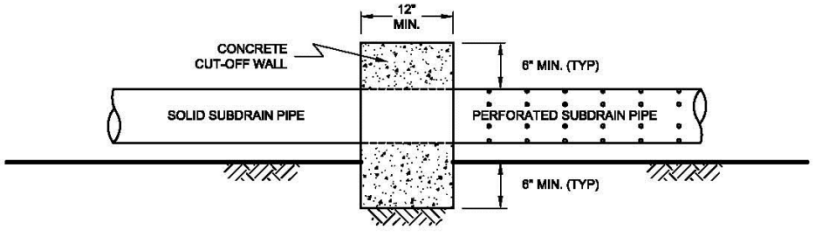
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

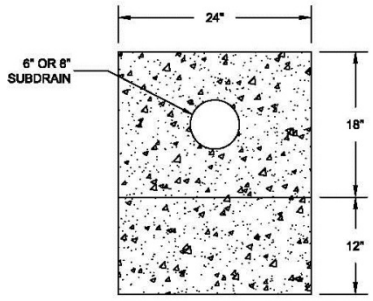


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

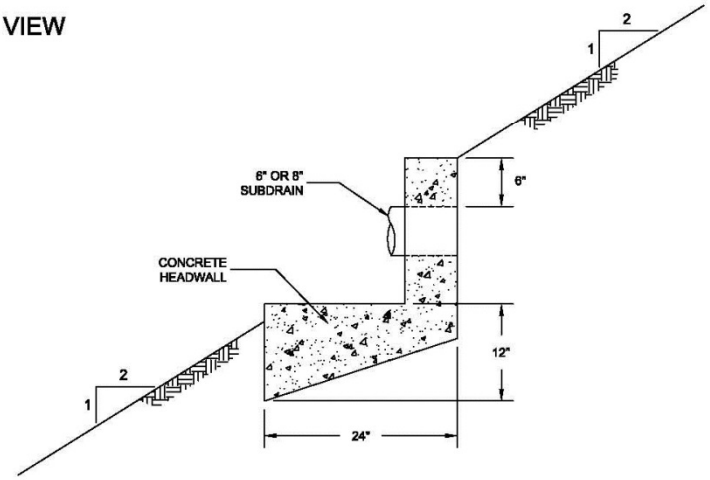
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an "as-built" map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth)*.

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

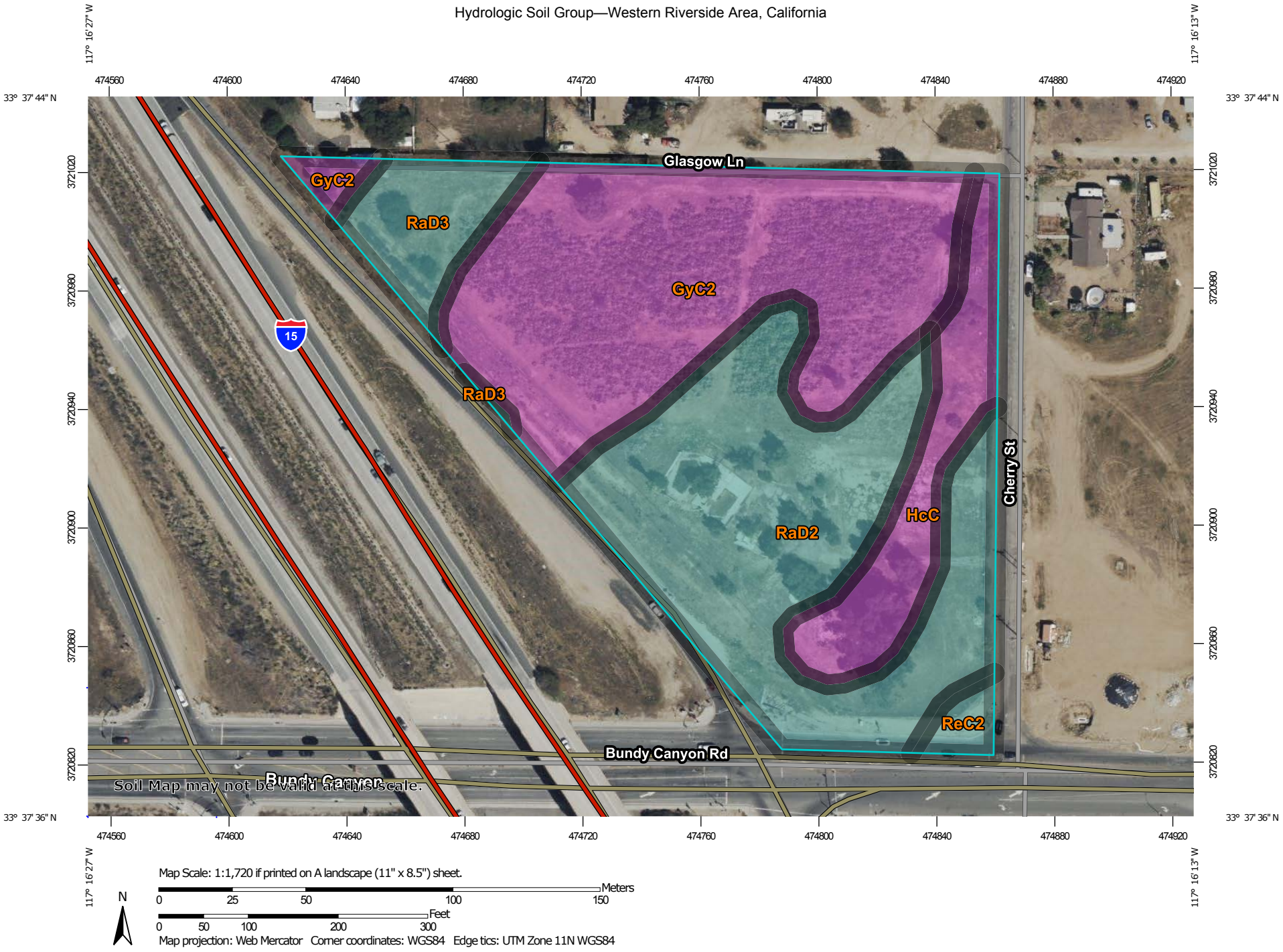
9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.



Map Scale: 1:1,720 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 16, Aug 30, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 14, 2022—Mar 17, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	A	3.2	41.3%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	0.9	11.7%
RaD2	Ramona sandy loam, 8 to 15 percent slopes, eroded	C	3.0	38.6%
RaD3	Ramona sandy loam, 8 to 15 percent slopes, severely eroded	C	0.5	6.9%
ReC2	Ramona very fine sandy loam, 0 to 8 percent slopes, eroded	C	0.1	1.6%
Totals for Area of Interest			**7.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Examples of material to provide in Appendix 4 may include but are not limited to the following:

- Environmental Site Assessments conducted for the project,
- Other information on Past Site Use that impacts the feasibility of LID BMP implementation on the site.

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 2.3 of the SMR WQMP and Sections D of this Template.

Appendix 5: LID Feasibility Supplemental Information

Information that supports or supplements the determination of LID technical feasibility documented in Section D

Examples of material to provide in Appendix 5 may include but are not limited to the following:

- Technical feasibility criteria for DMAs
- Site specific analysis of technical infeasibility of all LID BMPs (if Alternative Compliance is needed)
- Documentation of Approval criteria for Proprietary Biofiltration BMPs

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 2.3 of the SMR WQMP and Sections D of this Template.

Table 2-4: Harvest and Use Data for Irrigation Use[A]

General landscape type	Conservation Design: K_L[B]=0.35	Active Turf Areas: K_L[B]=0.70
Design Capture Storm Depth[C], in	Minimum required irrigated area per tributary impervious acre for partial capture (ac/ac)	
0.50	0.36	0.22
0.55	0.72	0.35
0.60	1.08	0.47
0.65	1.45	0.60
0.75	2.17	1.16
0.80	2.53	1.41
0.85	2.90	1.66
0.90	3.26	1.91
0.95	3.62	2.16
1.00	3.98	2.41
1.05	4.35	2.66
1.10	4.71	2.91
1.15	5.07	3.16
1.20	5.43	3.41

[A]ET data from the CIMIS station at Temecula used for this analysis

[B] (KL) incorporates plant species, microclimate and water management/irrigation practices, as described in the 2011 Orange County WQMP and Technical Guidance Document.

[C]Design storm capture = 0.7 in. was calculated using Lake Elsinore rainfall; 1.0 in. with Temecula rainfall. Other values were linearly interpolated/extrapolated

Proposed Irrigated Area: 1.64 acre
Proposed Impervious Area:4.43 acre

$\frac{1.64}{4.43}$ =

Harvest and Reuse not feasible

Appendix 6: LID BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation to supplement Section D

Examples of material to provide in Appendix 6 may include but are not limited to the following:

- DCV calculations,
- LID BMP sizing calculations from Exhibit C of the SMR WQMP
- Design details/drawings from manufacturers for proprietary BMPs

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 3.4 of the SMR WQMP and Sections D.4 of this Template.

3.5 Bioretention Facility

Type of BMP	LID – Bioretention
Treatment Mechanisms	Infiltration, Evapotranspiration, Evaporation, Biofiltration
Maximum Drainage Area	This BMP is intended to be integrated into a project's landscaped area in a distributed manner. Typically, contributing drainage areas to Bioretention Facilities range from less than 1 acre to a maximum of around 10 acres.
Other Names	Rain Garden, Bioretention Cell, Bioretention Basin, Biofiltration Basin, Landscaped Filter Basin, Porous Landscape Detention

Description

Bioretention Facilities are shallow, vegetated basins underlain by an engineered soil media. Healthy plant and biological activity in the root zone maintain and renew the macro-pore space in the soil and maximize plant uptake of pollutants and runoff. This keeps the Best Management Practice (BMP) from becoming clogged and allows more of the soil column to function as both a sponge (retaining water) and a highly effective and self-maintaining biofilter. In most cases, the bottom of a Bioretention Facility is unlined, which also provides an opportunity for infiltration to the extent the underlying onsite soil can accommodate. When the infiltration rate of the underlying soil is exceeded, fully biotreated flows are discharged via underdrains. Bioretention Facilities therefore will inherently achieve the maximum feasible level of infiltration and evapotranspiration and achieve the minimum feasible (but highly biotreated) discharge to the storm drain system.

Siting Considerations

These facilities work best when they are designed in a relatively level area. Unlike other BMPs, Bioretention Facilities can be used in smaller landscaped spaces on the site, such as:

- ✓ Parking islands
- ✓ Medians
- ✓ Site entrances

Landscaped areas on the site (such as may otherwise be required through minimum landscaping ordinances), can often be designed as Bioretention Facilities. This can be accomplished by:

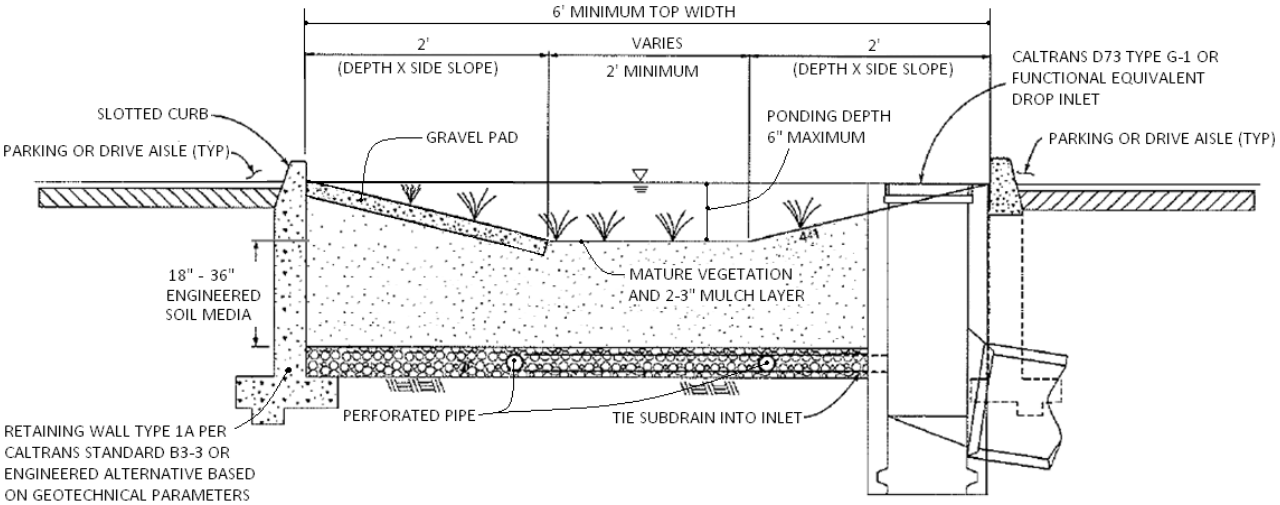
- *Depressing* landscaped areas below adjacent impervious surfaces, rather than elevating those areas
- Grading the site to direct runoff from those impervious surfaces *into* the Bioretention Facility, rather than away from the landscaping
- Sizing and designing the depressed landscaped area as a Bioretention Facility as described in this Fact Sheet

Bioretention Facilities should however not be used downstream of areas where large amounts of sediment can clog the system. Placing a Bioretention Facility at the toe of a steep slope should also be avoided due to the potential for clogging the engineered soil media with erosion from the slope, as well as the potential for damaging the vegetation.

Design and Sizing Criteria

The recommended cross section necessary for a Bioretention Facility includes:

- Vegetated area
- 18' minimum depth of engineered soil media
- 12' minimum gravel layer depth with 6' perforated pipes (added flow control features such as orifice plates may be required to mitigate for HCOC conditions)



While the 18-inch minimum engineered soil media depth can be used in some cases, it is recommended to use 24 inches or a preferred 36 inches to provide an adequate root zone for the chosen plant palate. Such a design also provides for improved removal effectiveness for nutrients. The recommended ponding depth inside of a Bioretention Facility is 6 inches; measured from the flat bottom surface to the top of the water surface as shown in Figure 1.

Because this BMP is filled with an engineered soil media, pore space in the soil and gravel layer is assumed to provide storage volume. However, several considerations must be noted:

- Surcharge storage above the soil surface (6 inches) is important to assure that design flows do not bypass the BMP when runoff exceeds the soil's absorption rate.
- In cases where the Bioretention Facility contains engineered soil media deeper than 36 inches, the pore space within the engineered soil media can only be counted to the 36-inch depth.
- A maximum of 30 percent pore space can be used for the soil media whereas a maximum of 40 percent pore space can be use for the gravel layer.

Figure 1: Standard Layout for a Bioretention Facility

Engineered Soil Media Requirements

The engineered soil media shall be comprised of 85 percent mineral component and 15 percent organic component, by volume, drum mixed prior to placement. The mineral component shall be a Class A sandy loam topsoil that meets the range specified in Table 1 below. The organic component shall be nitrogen stabilized compost[1], such that nitrogen does not leach from the media.

Table 1: Mineral Component Range Requirements

Percent Range	Component
70-80	Sand
15-20	Silt
5-10	Clay

The trip ticket, or certificate of compliance, shall be made available to the inspector to prove the engineered mix meets this specification.

Vegetation Requirements

Vegetative cover is important to minimize erosion and ensure that treatment occurs in the Bioretention Facility. The area should be designed for at least 70 percent mature coverage throughout the Bioretention Facility. To prevent the BMP from being used as walkways, Bioretention Facilities shall be planted with a combination of small trees, densely planted shrubs, and natural grasses. Grasses shall be native or ornamental; preferably ones that do not need to be mowed. The application of fertilizers and pesticides should be minimal. To maintain oxygen levels for the vegetation and promote biodegradation, it is important that vegetation not be completely submerged for any extended period of time. Therefore, a maximum of 6 inches of ponded water shall be used in the design to ensure that plants within the Bioretention Facility remain healthy.

A 2 to 3-inch layer of standard shredded aged hardwood mulch shall be placed as the top layer inside the Bioretention Facility. The 6-inch ponding depth shown in Figure 1 above shall be measured from the top surface of the 2 to 3-inch mulch layer.

Curb Cuts

To allow water to flow into the Bioretention Facility, 1-foot-wide (minimum) curb cuts should be placed approximately every 10 feet around the perimeter of the Bioretention Facility. Figure 2 shows a curb cut in a Bioretention Facility. Curb cut flow lines must be at or above the V_{BMP} water surface level.

[1] For more information on compost, visit the US Composting Council website at: http://compostingcouncil.org/



Figure 2: Curb Cut located in a Bioretention Facility

To reduce erosion, a gravel pad shall be placed at each inlet point to the Bioretention Facility. The gravel should be 1- to 1.5-inch diameter in size. The gravel should overlap the curb cut opening a minimum of 6 inches. The gravel pad inside the Bioretention Facility should be flush with the finished surface at the curb cut and extend to the bottom of the slope.

In addition, place an apron of stone or concrete, a foot square or larger, inside each inlet to prevent vegetation from growing up and blocking the inlet. See Figure 3.

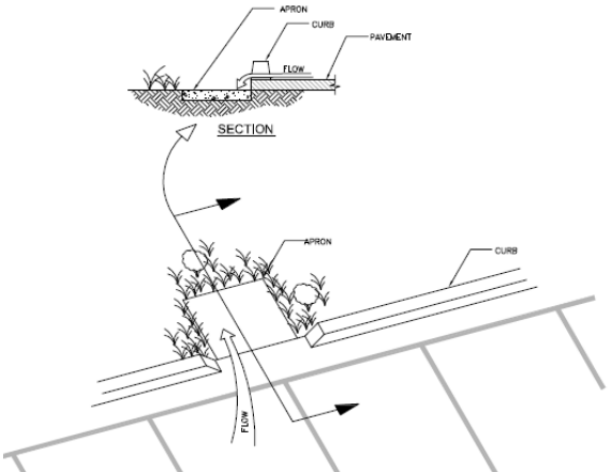


Figure 3: Apron located in a Bioretention Facility

Terracing the Landscaped Filter Basin

It is recommended that Bioretention Facilities be level. In the event the facility site slopes and lacks proper design, water would fill the lowest point of the BMP and then discharge from the basin without being treated. To ensure that the water will be held within the Bioretention Facility on sloped sites, the BMP must be terraced with nonporous check dams to provide the required storage and treatment capacity.

The terraced version of this BMP shall be used on non-flat sites with no more than a 3 percent slope. The surcharge depth cannot exceed 0.5 feet, and side slopes shall not exceed 4:1. Table 2 below shows the spacing of the check dams, and slopes shall be rounded up (i.e., 2.5 percent slope shall use 10' spacing for check dams).

Table 2: Check Dam Spacing

6" Check Dam Spacing	
Slope	**Spacing**
1%	*25'*
2%	*15'*
3%	*10'*

Roof Runoff

Roof downspouts may be directed towards Bioretention Facilities. However, the downspouts must discharge onto a concrete splash block to protect the Bioretention Facility from erosion.

Retaining Walls

It is recommended that Retaining Wall Type 1A, per Caltrans Standard B3-3 or equivalent, be constructed around the entire perimeter of the Bioretention Facility. This practice will protect the sides of the Bioretention Facility from collapsing during construction and maintenance or from high service loads adjacent to the BMP. Where such service loads would not exist adjacent to the BMP, an engineered alternative may be used if signed by a licensed civil engineer.

Side Slope Requirements

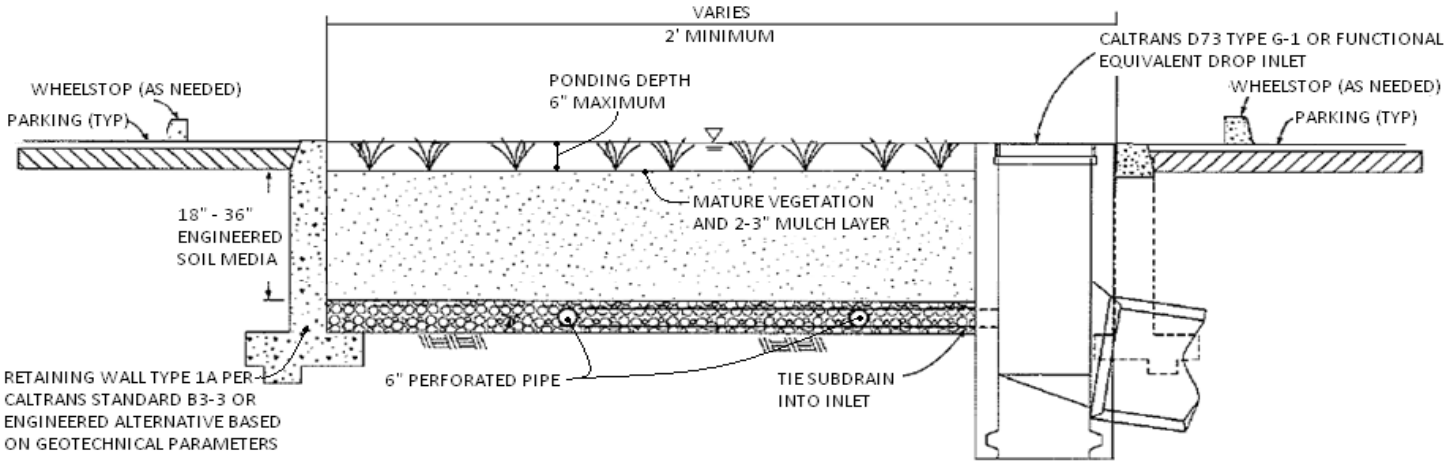
Bioretention Facilities Requiring Side Slopes

The design should assure that the Bioretention Facility does not present a tripping hazard. Bioretention Facilities proposed near pedestrian areas, such as areas parallel to parking spaces or along a walkway, must have a gentle slope to the bottom of the facility. Side slopes inside of a Bioretention Facility shall be 4:1. A typical cross section for the Bioretention Facility is shown in Figure 1.

Bioretention Facilities Not Requiring Side Slopes

Where cars park perpendicular to the Bioretention Facility, side slopes are not required. A 6-inch maximum drop may be used, and the Bioretention Facility must be planted with trees and shrubs to prevent pedestrian access. In this case, a curb is not placed around the Bioretention Facility,

but wheel stops shall be used to prevent vehicles from entering the Bioretention Facility, as shown in Figure 4.



Planter Boxes

Bioretention Facilities can also be placed above ground as planter boxes. Planter boxes must have a minimum width of 2 feet, a maximum surcharge depth of 6 inches, and no side slopes are necessary. Planter boxes must be constructed so as to ensure that the top surface of the engineered soil media will remain level. This option may be constructed of concrete, brick, stone or other stable materials that will not warp or bend. Chemically treated wood or galvanized steel, which has the ability to contaminate stormwater, should not be used. Planter boxes must be lined with an impermeable liner on all sides, including the bottom. Due to the impermeable liner, the inside bottom of the planter box shall be designed and constructed with a cross fall, directing treated flows within the subdrain layer toward the point where subdrain exits the planter box, and subdrains shall be oriented with drain holes oriented down. These provisions will help avoid excessive stagnant water within the gravel underdrain layer. Similar to the in-ground Bioretention Facility versions, this BMP benefits from healthy plants and biological activity in the root zone. Planter boxes should be planted with appropriately selected vegetation.



Figure 5: Planter Box
Source: LA Team Effort

Overflow

An overflow route is needed in the Bioretention Facility design to bypass stored runoff from storm events larger than V_{BMP} or in the event of facility or subdrain clogging. Overflow systems must connect to an acceptable discharge point, such as a downstream conveyance system as shown in Figure 1 and Figure 4. The inlet to the overflow structure shall be elevated inside the Bioretention Facility to be flush with the ponding surface for the design capture volume (V_{BMP}) as shown in Figure 4. This will allow the design capture volume to be fully treated by the Bioretention Facility, and for larger events to safely be conveyed to downstream systems. The overflow inlet shall **not** be located in the entrance of a Bioretention Facility, as shown in Figure 6.

Underdrain Gravel and Pipes

An underdrain gravel layer and pipes shall be provided in accordance with Appendix B – Underdrains.



Figure 6: Incorrect Placement of an Overflow Inlet.

Inspection and Maintenance Schedule

The Bioretention Facility area shall be inspected for erosion, dead vegetation, soggy soils, or standing water. The use of fertilizers and pesticides on the plants inside the Bioretention Facility should be minimized.

Schedule	Activity
Ongoing	• Keep adjacent landscape areas maintained. Remove clippings from landscape maintenance activities. • Remove trash and debris • Replace damaged grass and/or plants • Replace surface mulch layer as needed to maintain a 2-3 inch soil cover.
After storm events	• Inspect areas for ponding
Annually	• Inspect/clean inlets and outlets

Bioretention Facility Design Procedure

1) Enter the area tributary, A_T, to the Bioretention Facility.

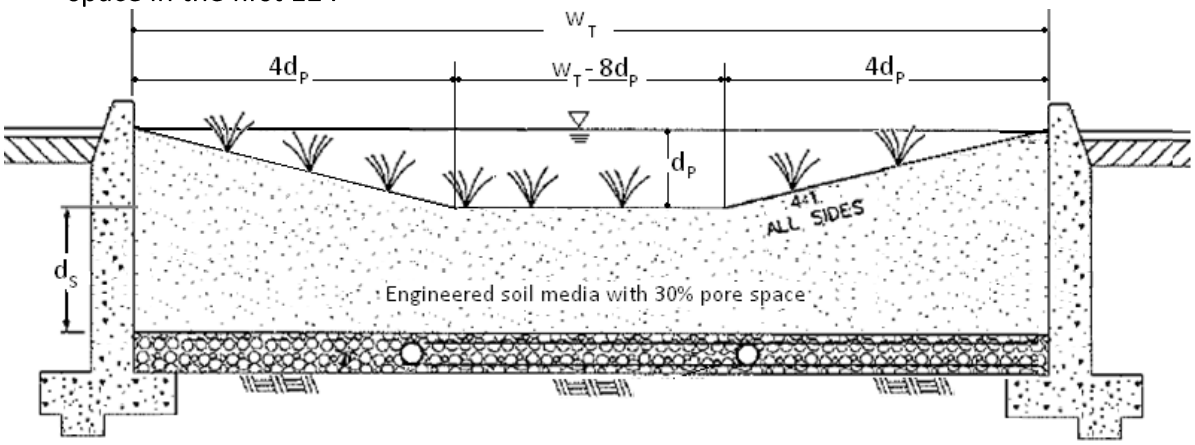
2) Enter the Design Volume, V_{BMP}, determined from Section 2.1 of this Handbook.

3) Select the type of design used. There are two types of Bioretention Facility designs: the standard design used for most project sites that include side slopes, and the modified design used when the BMP is located perpendicular to the parking spaces or with planter boxes that do not use side slopes.

4) Enter the depth of the engineered soil media, d_S. The minimum depth for the engineered soil media can be 18' in limited cases, but it is recommended to use 24' or a preferred 36' to provide an adequate root zone for the chosen plant palette. Engineered soil media deeper than 36' will only get credit for the pore space in the first 36'.

5) Enter the top width of the Bioretention Facility.

6) Calculate the total effective depth, d_E, within the Bioretention Facility. The maximum allowable pore space of the soil media is 30% while the maximum allowable pore space for the gravel layer is 40%. Gravel layer deeper than 12' will only get credit for the pore space in the first 12'.



a. For the design with side slopes the following equation shall be used to determine the total effective depth. Where, d_P is the depth of ponding within the basin.

$$d_E(\text{ft}) = \frac{0.3 \times \left[\left(w_T(\text{ft}) \times d_S(\text{ft})\right) + 4\left(d_P(\text{ft})\right)^2\right] + 0.4 \times 1(\text{ft}) + d_P(\text{ft})\left[4d_P(\text{ft}) + \left(w_T(\text{ft}) - 8d_P(\text{ft})\right)\right]}{w_T(\text{ft})}$$

This above equation can be simplified if the maximum ponding depth of 0.5' is used. The equation below is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(\text{ft}) = (0.3 \times d_S(\text{ft}) + 0.4 \text{ x } 1(\text{ft})) - \left(\frac{0.7\ (\text{ft}^2)}{w_T(\text{ft})}\right) + 0.5(\text{ft})$$

b. For the design without side slopes the following equation shall be used to determine the total effective depth:

$$d_E(\text{ft}) = d_P(\text{ft}) + [(0.3) \times d_S(\text{ft}) + (0.4) \times 1(\text{ft})]$$

The equation below, using the maximum ponding depth of 0.5', is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(\text{ft}) = 0.5\ (\text{ft}) + [(0.3) \times d_S(\text{ft}) + (0.4) \times 1(\text{ft})]$$

7) Calculate the minimum surface area, A_M, required for the Bioretention Facility. This does not include the curb surrounding the Bioretention Facility or side slopes.

$$A_M(\text{ft}^2) = \frac{V_{BMP}(\text{ft}^3)}{d_E\ (\text{ft})}$$

8) Enter the proposed surface area. This area shall not be less than the minimum required surface area.

9) Verify that side slopes are no steeper than 4:1 in the standard design, and are not required in the modified design.

10) Provide the diameter, minimum 6 inches, of the perforated underdrain used in the Bioretention Facility. See Appendix B for specific information regarding perforated pipes.

11) Provide the slope of the site around the Bioretention Facility, if used. The maximum slope is 3 percent for a standard design.

12) Provide the check dam spacing, if the site around the Bioretention Facility is sloped.

13) Describe the vegetation used within the Bioretention Facility.

References Used to Develop this Fact Sheet

Anderson, Dale V. "Landscaped Filter Basin Soil Requirements." Riverside, May 2010.

California Department of Transportation. CalTrans Standard Plans. 15 September 2005. May 2010 <http://www.dot.ca.gov/hq/esc/oe/project_plans/HTM/stdplns-met-new99.htm>.

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Contra Costa Clean Water Program. Stormwater Quality Requirements for Development Applications. 3rd Edition. Contra Costa, 2006.

County of Los Angeles Public Works. Stormwater Best Management Practice Design and Maintenance Manual. Los Angeles, 2009.

Kim, Hunho, Eric A. Seagren and Allen P. Davis. "Engineered Bioretention for Removal of Nitrate from Stormwater Runoff." Water Environment Research 75.4 (2003): 355-366.

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Montgomery County Maryland Department of Permitting Services Water Resources Section. Biofiltration (BF). Montgomery County, 2005.

Program, Ventura Countywide Stormwater Quality Management. Technical Guidance Manual for Stormwater Quality Control Measures. Ventura, 2002.

United States Environmental Protection Agency. Storm Water Technology Fact Sheet Bioretention. Washington D.C, 1999.

Urban Drainage and Flood Control District. Urban Storm Drainage Criteria Manual Volume 3 - Best Management Practices. Vol. 3. Denver, 2008. 3 vols.

Urbonas, Ben R. Stormwater Sand Filter Sizing and Design: A Unit Operations Approach. Denver: Urban Drainage and Flood Control District, 2002.

Bioretention Facility - Design Procedure	BMP ID: A	Legend:	Required Entries / Calculated Cells

Company Name:	Tait and Associates	Date:	1/15/2024
Designed by:	Richard T	County/City Case No.:	

Design Volume

Enter the area tributary to this feature	A_T=	5.95	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	10,262	ft^3

Type of Bioretention Facility Design

- ○ Side slopes required (parallel to parking spaces or adjacent to walkways)
- ◉ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	3.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	40.0	ft
Total Effective Depth, d_E			
$d_E = [(0.3) \times d_S + (0.4) \times 1] + 0.5$	d_E =	1.80	ft
Minimum Surface Area, A_m			
$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$	A_M =	5,702	ft^2
Proposed Surface Area	A=	7,234	ft^2
Minimum Required Length of Bioretention Facility, L	L =	142.6	ft

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	3	:1
Diameter of Underdrain		6	inches
Longitudinal Slope of Site (3% maximum)		0	%
6" Check Dam Spacing		0	feet
Describe Vegetation:			

Notes:

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Tait and Associates	Date	1/15/2024
Designed by	Richard T	Case No	
Company Project Number/Name	SP8997 Wildomar Cherry Outpost		

BMP Identification

BMP NAME / ID: DMA-A

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A	*158656*	*Concrete or Asphalt*	*1*	*0.89*	*141521.2*			
A	*38500*	*Natural (A Soil)*	*0.03*	*0.06*	*2407.8*			
A	*27121*	*Natural (C Soil)*	*0.3*	*0.23*	*6106.7*			
A	*34812*	*Roofs*	*1*	*0.89*	*31052.3*			

Appendix 7: Hydromodification

Supporting Detail Relating to compliance with the Hydromodification Performance Standards

Examples of material to provide in Appendix 7 may include but are not limited to the following:

- Hydromodification Exemption Exhibit,
- Potential Critical Coarse Sediment Yield Area Mapping
- Hydromodification BMP sizing calculations,
- SMRHM report files,
- Site-Specific Critical Coarse Sediment Analysis,
- Design details/drawings from manufacturers for proprietary BMPs

This information should support the hydromodification exemption (if applicable) and hydrologic control BMP and Sediment Supply BMP sections of this Template. Refer to Section 2.4 and 3.6 of the SMR WQMP and Sections E of this Template.

```
_____
*****************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                      (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1334

                          Analysis prepared by:

                           TAIT & ASSOCIATES INC.
                          701 N. PARKCENTER DRIVE
                        SANTA ANA, CALIFORNIA 92705


 ************************ DESCRIPTION OF STUDY *************************
* SP8997 - WILDOMAR CHERRY OUTPOST                                      *
* EXISTING CONDITION RATIONAL METHOD                                    *
* 100-YEAR STORM EVENT                                                  *
 *************************************************************************

  FILE NAME: WIL100EX.DAT
  TIME/DATE OF STUDY: 10:25 03/21/2023
-----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
-----------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.600
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.786
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.680
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.310
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.3967061
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.3994898
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.310
  SLOPE OF INTENSITY DURATION CURVE = 0.3995
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

*****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     20.00 IS CODE =  21
-----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
=============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH POOR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   645.00
  UPSTREAM ELEVATION(FEET) =   1429.29
  DOWNSTREAM ELEVATION(FEET) =   1397.26
  ELEVATION DIFFERENCE(FEET) =     32.03
  TC = 0.533*[(  645.00**3)/(    32.03)]**.2 =   12.913
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4146
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      3.61
  TOTAL AREA(ACRES) =      3.60   TOTAL RUNOFF(CFS) =      3.61

*****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
-----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7214
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    2.24   SUBAREA RUNOFF(CFS) =    3.91
  TOTAL AREA(ACRES) =        5.8   TOTAL RUNOFF(CFS) =       7.52
  TC(MIN.) =   12.91

*****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
-----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
=============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8515
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.02   SUBAREA RUNOFF(CFS) =    0.04
  TOTAL AREA(ACRES) =        5.9   TOTAL RUNOFF(CFS) =       7.56
  TC(MIN.) =   12.91

*****************************************************************************
```

```
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.420
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8821
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.21   SUBAREA RUNOFF(CFS) =    0.45
  TOTAL AREA(ACRES) =        6.1   TOTAL RUNOFF(CFS) =       8.01
  TC(MIN.) =   12.91
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.1  TC(MIN.) =     12.91
  PEAK FLOW RATE(CFS)   =       8.01
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
        RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                    (RCFC&WCD)  1978 HYDROLOGY MANUAL
         (c) Copyright 1982-2016 Advanced Engineering Software (aes)
                    (Rational Tabling Version 23.0)
                Release Date: 07/01/2016  License ID 1334

                        Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* SP8997 - WILDOMAR CHERRY OUTPOST                                     *
* PROPOSED CONDITION RATIONAL METHOD                                   *
* 100-YEAR STORM EVENT                                                 *
 ************************************************************************

  FILE NAME: 100YRPR.DAT
  TIME/DATE OF STUDY: 15:04 04/30/2024
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  1.600
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.786
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.680
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.310
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.3967061
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.3994898
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.310
  SLOPE OF INTENSITY DURATION CURVE = 0.3995
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     20.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   507.90
  UPSTREAM ELEVATION(FEET) =   1429.00
  DOWNSTREAM ELEVATION(FEET) =   1410.47
  ELEVATION DIFFERENCE(FEET) =     18.53
  TC = 0.303*[(  507.90**3)/(    18.53)]**.2 =    7.104
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8568
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      4.05
  TOTAL AREA(ACRES) =      1.54   TOTAL RUNOFF(CFS) =      4.05

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4682
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.34   SUBAREA RUNOFF(CFS) =    0.49
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       4.54
  TC(MIN.) =    7.10

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7532
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =       4.57
  TC(MIN.) =    7.10

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     20.00 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.072
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8853
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.29   SUBAREA RUNOFF(CFS) =    0.79
  TOTAL AREA(ACRES) =        2.2   TOTAL RUNOFF(CFS) =       5.35
  TC(MIN.) =    7.10

************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     30.00 IS CODE =  31
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1407.47  DOWNSTREAM(FEET) =  1406.75
```

```
  FLOW LENGTH(FEET) =   129.70   MANNING'S N =  0.013
  DEPTH OF FLOW IN  36.0 INCH PIPE IS  27.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   0.91
  ESTIMATED PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.35
  PIPE TRAVEL TIME(MIN.) =   2.37    Tc(MIN.) =    9.47
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     30.00 =     637.60 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     30.00 TO NODE     60.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1406.75  DOWNSTREAM(FEET) =   1406.17
  CHANNEL LENGTH THRU SUBAREA(FEET) =   120.40   CHANNEL SLOPE =  0.0048
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
  CHANNEL FLOW THRU SUBAREA(CFS) =       5.35
  FLOW VELOCITY(FEET/SEC.) =   1.76   FLOW DEPTH(FEET) =   0.43
  TRAVEL TIME(MIN.) =   1.14   Tc(MIN.) =   10.61
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     60.00 =     758.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE     60.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.61
  RAINFALL INTENSITY(INCH/HR) =   2.62
  TOTAL STREAM AREA(ACRES) =     2.18
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      5.35

****************************************************************************
  FLOW PROCESS FROM NODE     40.00 TO NODE     50.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   705.90
  UPSTREAM ELEVATION(FEET) =   1423.23
  DOWNSTREAM ELEVATION(FEET) =   1408.85
  ELEVATION DIFFERENCE(FEET) =     14.38
  TC = 0.303*[(  705.90**3)/(    14.38)]**.2 =    9.105
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8546
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      1.60
  TOTAL AREA(ACRES) =      0.67   TOTAL RUNOFF(CFS) =      1.60

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8841
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.33   SUBAREA RUNOFF(CFS) =    0.80
  TOTAL AREA(ACRES) =        1.0   TOTAL RUNOFF(CFS) =       2.40
  TC(MIN.) =    9.11

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4459
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.33   SUBAREA RUNOFF(CFS) =    0.41
  TOTAL AREA(ACRES) =        1.3   TOTAL RUNOFF(CFS) =       2.81
  TC(MIN.) =    9.11

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     50.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.782
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7406
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.25   SUBAREA RUNOFF(CFS) =    0.52
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       3.33
  TC(MIN.) =    9.11

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     60.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1406.77  DOWNSTREAM(FEET) =  1406.17
  FLOW LENGTH(FEET) =     7.10   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.24
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.33
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    9.16
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     60.00 =     713.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE     60.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.16
  RAINFALL INTENSITY(INCH/HR) =   2.78
  TOTAL STREAM AREA(ACRES) =     1.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.33
```

```
  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        5.35    10.61        2.617          2.18
      2        3.33     9.16        2.776          1.58

 ********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 **************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1        7.95     9.16       2.776
      2        8.50    10.61       2.617

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       8.50   Tc(MIN.) =   10.61
  TOTAL AREA(ACRES) =        3.8
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     60.00 =     758.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     60.00 TO NODE    140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1406.14  DOWNSTREAM(FEET) =   1396.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   160.10   CHANNEL SLOPE =  0.0633
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.50
  CHANNEL FLOW THRU SUBAREA(CFS) =       8.50
  FLOW VELOCITY(FEET/SEC.) =   4.74   FLOW DEPTH(FEET) =   0.26
  TRAVEL TIME(MIN.) =   0.56   Tc(MIN.) =   11.18
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE    140.00 =     918.10 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.18
  RAINFALL INTENSITY(INCH/HR) =   2.56
  TOTAL STREAM AREA(ACRES) =     3.76
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      8.50

****************************************************************************
  FLOW PROCESS FROM NODE     70.00 TO NODE    140.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   160.10
  UPSTREAM ELEVATION(FEET) =   1406.14
  DOWNSTREAM ELEVATION(FEET) =   1396.00
  ELEVATION DIFFERENCE(FEET) =     10.14
  TC = 0.709*[(  160.10**3)/(    10.14)]**.2 =    9.382
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.749
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7390
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      0.88
  TOTAL AREA(ACRES) =      0.43   TOTAL RUNOFF(CFS) =      0.88

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.749
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4432
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.11   SUBAREA RUNOFF(CFS) =    0.13
  TOTAL AREA(ACRES) =        0.5   TOTAL RUNOFF(CFS) =       1.01
  TC(MIN.) =    9.38

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.38
  RAINFALL INTENSITY(INCH/HR) =   2.75
  TOTAL STREAM AREA(ACRES) =     0.54
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.01

****************************************************************************
  FLOW PROCESS FROM NODE     80.00 TO NODE     90.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.50
  UPSTREAM ELEVATION(FEET) =   1420.08
  DOWNSTREAM ELEVATION(FEET) =   1407.79
  ELEVATION DIFFERENCE(FEET) =     12.29
  TC = 0.303*[(  423.50**3)/(    12.29)]**.2 =    6.915
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8854
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      1.96
  TOTAL AREA(ACRES) =      0.71   TOTAL RUNOFF(CFS) =      1.96

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8571
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.16   SUBAREA RUNOFF(CFS) =    0.42
  TOTAL AREA(ACRES) =        0.9   TOTAL RUNOFF(CFS) =       2.38
  TC(MIN.) =    6.91

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4706
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.01
  TOTAL AREA(ACRES) =        0.9   TOTAL RUNOFF(CFS) =       2.39
  TC(MIN.) =    6.91

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     90.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.106
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7545
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.01   SUBAREA RUNOFF(CFS) =    0.04
  TOTAL AREA(ACRES) =        0.9   TOTAL RUNOFF(CFS) =       2.42
  TC(MIN.) =    6.91

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE    140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1406.14  DOWNSTREAM(FEET) =   1396.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   150.08   CHANNEL SLOPE =  0.0676
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   1.50
  CHANNEL FLOW THRU SUBAREA(CFS) =       2.42
  FLOW VELOCITY(FEET/SEC.) =   3.04   FLOW DEPTH(FEET) =   0.12
  TRAVEL TIME(MIN.) =   0.82   Tc(MIN.) =    7.74
  LONGEST FLOWPATH FROM NODE     80.00 TO NODE    140.00 =     573.58 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.74
  RAINFALL INTENSITY(INCH/HR) =   2.97
  TOTAL STREAM AREA(ACRES) =     0.89
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      2.42

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    110.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
================================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   125.70
  UPSTREAM ELEVATION(FEET) =   1408.84
  DOWNSTREAM ELEVATION(FEET) =   1406.98
  ELEVATION DIFFERENCE(FEET) =      1.86
  TC = 0.303*[(  125.70**3)/(     1.86)]**.2 =    4.867
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8600
  SOIL CLASSIFICATION IS "A"
  SUBAREA RUNOFF(CFS) =      0.29
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.29

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8870
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.06   SUBAREA RUNOFF(CFS) =    0.20
  TOTAL AREA(ACRES) =        0.2   TOTAL RUNOFF(CFS) =       0.49
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4996
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.03   SUBAREA RUNOFF(CFS) =    0.04
  TOTAL AREA(ACRES) =        0.2   TOTAL RUNOFF(CFS) =       0.54
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    140.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1403.98  DOWNSTREAM(FEET) =  1396.00
  FLOW LENGTH(FEET) =    22.90   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.50
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.54
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =    5.15
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    140.00 =     148.60 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  4 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.15
  RAINFALL INTENSITY(INCH/HR) =   3.49
  TOTAL STREAM AREA(ACRES) =     0.19
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      0.54

****************************************************************************
  FLOW PROCESS FROM NODE    120.00 TO NODE    130.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   186.90
  UPSTREAM ELEVATION(FEET) =   1416.64
  DOWNSTREAM ELEVATION(FEET) =   1407.59
  ELEVATION DIFFERENCE(FEET) =      9.05
  TC = 0.303*[(  186.90**3)/(     9.05)]**.2 =    4.500
  COMPUTED TIME OF CONCENTRATION INCREASED TO 5 MIN.
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8870
  SOIL CLASSIFICATION IS "C"
  SUBAREA RUNOFF(CFS) =      0.90
  TOTAL AREA(ACRES) =      0.29   TOTAL RUNOFF(CFS) =      0.90

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8600
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.17   SUBAREA RUNOFF(CFS) =    0.50
  TOTAL AREA(ACRES) =        0.5   TOTAL RUNOFF(CFS) =       1.40
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .4996
  SOIL CLASSIFICATION IS "A"
  SUBAREA AREA(ACRES) =    0.06   SUBAREA RUNOFF(CFS) =    0.11
  TOTAL AREA(ACRES) =        0.5   TOTAL RUNOFF(CFS) =       1.52
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.535
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .7696
  SOIL CLASSIFICATION IS "C"
  SUBAREA AREA(ACRES) =    0.06   SUBAREA RUNOFF(CFS) =    0.16
  TOTAL AREA(ACRES) =        0.6   TOTAL RUNOFF(CFS) =       1.68
  TC(MIN.) =    5.00

****************************************************************************
  FLOW PROCESS FROM NODE    130.00 TO NODE    140.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1405.62  DOWNSTREAM(FEET) =  1396.00
  FLOW LENGTH(FEET) =    30.20   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.19
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.68
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =    5.16
  LONGEST FLOWPATH FROM NODE    120.00 TO NODE    140.00 =     217.10 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    140.00 TO NODE    140.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  5
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  5 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.16
  RAINFALL INTENSITY(INCH/HR) =   3.49
  TOTAL STREAM AREA(ACRES) =     0.58
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      1.68

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1        8.50    11.18        2.563          3.76
      2        1.01     9.38        2.749          0.54
      3        2.42     7.74        2.969          0.89
      4        0.54     5.15        3.493          0.19
      5        1.68     5.16        3.491          0.58

 ******************************WARNING*********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  5 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
```

```
      1        8.30     5.15       3.493
      2        8.30     5.16       3.491
      3       11.02     7.74       2.969
      4       12.13     9.38       2.749
      5       13.15    11.18       2.563

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      13.15   Tc(MIN.) =   11.18
  TOTAL AREA(ACRES) =        6.0
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE    140.00 =     918.10 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.0  TC(MIN.) =     11.18
  PEAK FLOW RATE(CFS)   =      13.15
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
_______________________________________________________________________
***********************************************************************

             F L O O D    R O U T I N G    A N A L Y S I S
             USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
        (c) Copyright 1989-2016 Advanced Engineering Software (aes)
            Ver. 23.0  Release Date: 07/01/2016  License ID 1334

                        Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* CHERRY OUTPOST                                                       *
* 100 YR - EXISTING CONDITION                                          *
* SMALL AREA UNIT HYDROGRAPH                                           *
 ************************************************************************

  FILE NAME: 100YREXH.DAT
  TIME/DATE OF STUDY: 07:41 01/16/2024

   The Small Area Unit Hydrograph Procedures in Section J
   of the Hydrology Manual provides estimates of runoff
   hydrograph and runoff volume for watersheds whose time of
   concentration is less than 25 minutes. The PROGRAM User
   should check the applicability of using the small area unit
   hydrograph procedures, and follow the guidelines in
   Sections J and K.5 in complex watershed modeling.


***********************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     20.00 IS CODE = 1.2
-----------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
=======================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    6.07
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.467
    LOW LOSS FRACTION = 0.445
    TIME OF CONCENTRATION(MIN.) = 12.91
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    USER SPECIFIED RAINFALL VALUES ARE USED:
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.31
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.85
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.31
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.13
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.96
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.87

-----------------------------------------------------------------------
    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.54
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     1.43
```

```
-----------------------------------------------------------------------
♠
=======================================================================

                    2 4 - H O U R    S T O R M
                 R U N O F F    H Y D R O G R A P H

=======================================================================
              HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
       (Notes: Time indicated is at END of Each Unit Intervals.
               Peak 5-minute rainfall intensity is modeled as
               a constant value for entire 5-minute period.)
-----------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        2.7       5.4       8.2      10.9
-----------------------------------------------------------------------
   0.017      0.0000      0.00  Q        .         .         .         .
   0.033      0.0000      0.00  Q        .         .         .         .
   0.050      0.0000      0.00  Q        .         .         .         .
   0.067      0.0000      0.00  Q        .         .         .         .
   0.083      0.0000      0.00  Q        .         .         .         .
   0.100      0.0000      0.02  Q        .         .         .         .
   0.117      0.0001      0.05  Q        .         .         .         .
   0.133      0.0002      0.08  Q        .         .         .         .
   0.150      0.0004      0.11  Q        .         .         .         .
   0.167      0.0006      0.14  Q        .         .         .         .
   0.183      0.0008      0.17  Q        .         .         .         .
   0.200      0.0011      0.19  Q        .         .         .         .
   0.217      0.0014      0.22  Q        .         .         .         .
   0.233      0.0017      0.25  Q        .         .         .         .
   0.250      0.0021      0.28  VQ       .         .         .         .
   0.267      0.0025      0.31  VQ       .         .         .         .
   0.283      0.0030      0.34  VQ       .         .         .         .
   0.300      0.0035      0.36  VQ       .         .         .         .
   0.317      0.0040      0.37  VQ       .         .         .         .
   0.333      0.0045      0.37  VQ       .         .         .         .
   0.350      0.0050      0.37  VQ       .         .         .         .
   0.367      0.0055      0.37  VQ       .         .         .         .
   0.383      0.0060      0.37  VQ       .         .         .         .
   0.400      0.0065      0.37  VQ       .         .         .         .
   0.417      0.0070      0.37  VQ       .         .         .         .
   0.433      0.0076      0.37  VQ       .         .         .         .
   0.450      0.0081      0.37  VQ       .         .         .         .
   0.467      0.0086      0.37  VQ       .         .         .         .
   0.483      0.0091      0.37  VQ       .         .         .         .
   0.500      0.0096      0.37  VQ       .         .         .         .
   0.517      0.0101      0.37  VQ       .         .         .         .
   0.533      0.0106      0.37  VQ       .         .         .         .
   0.550      0.0111      0.37  VQ       .         .         .         .
   0.567      0.0116      0.37  VQ       .         .         .         .
   0.583      0.0121      0.37  VQ       .         .         .         .
   0.600      0.0126      0.37  VQ       .         .         .         .
   0.617      0.0132      0.37  VQ       .         .         .         .
   0.633      0.0137      0.37  VQ       .         .         .         .
   0.650      0.0142      0.37  VQ       .         .         .         .
   0.667      0.0147      0.37  VQ       .         .         .         .
   0.683      0.0152      0.37  VQ       .         .         .         .
   0.700      0.0157      0.37  VQ       .         .         .         .
   0.717      0.0162      0.37  VQ       .         .         .         .
```

0.733	0.0167	0.37	VQ	.	.	.	.
0.750	0.0173	0.37	VQ	.	.	.	.
0.767	0.0178	0.37	VQ	.	.	.	.
0.783	0.0183	0.37	VQ	.	.	.	.
0.800	0.0188	0.37	VQ	.	.	.	.
0.817	0.0193	0.37	VQ	.	.	.	.
0.833	0.0198	0.37	VQ	.	.	.	.
0.850	0.0204	0.37	VQ	.	.	.	.
0.867	0.0209	0.37	VQ	.	.	.	.
0.883	0.0214	0.37	VQ	.	.	.	.
0.900	0.0219	0.37	VQ	.	.	.	.
0.917	0.0224	0.37	VQ	.	.	.	.
0.933	0.0229	0.37	VQ	.	.	.	.
0.950	0.0234	0.37	VQ	.	.	.	.
0.967	0.0240	0.38	VQ	.	.	.	.
0.983	0.0245	0.38	VQ	.	.	.	.
1.000	0.0250	0.38	VQ	.	.	.	.
1.017	0.0255	0.38	VQ	.	.	.	.
1.033	0.0260	0.38	VQ	.	.	.	.
1.050	0.0266	0.38	VQ	.	.	.	.
1.067	0.0271	0.38	VQ	.	.	.	.
1.083	0.0276	0.38	VQ	.	.	.	.
1.100	0.0281	0.38	VQ	.	.	.	.
1.117	0.0286	0.38	VQ	.	.	.	.
1.133	0.0292	0.38	VQ	.	.	.	.
1.150	0.0297	0.38	VQ	.	.	.	.
1.167	0.0302	0.38	VQ	.	.	.	.
1.183	0.0307	0.38	VQ	.	.	.	.
1.200	0.0312	0.38	VQ	.	.	.	.
1.217	0.0318	0.38	VQ	.	.	.	.
1.233	0.0323	0.38	VQ	.	.	.	.
1.250	0.0328	0.38	VQ	.	.	.	.
1.267	0.0333	0.38	VQ	.	.	.	.
1.283	0.0339	0.38	VQ	.	.	.	.
1.300	0.0344	0.38	VQ	.	.	.	.
1.317	0.0349	0.38	VQ	.	.	.	.
1.333	0.0354	0.38	VQ	.	.	.	.
1.350	0.0359	0.38	VQ	.	.	.	.
1.367	0.0365	0.38	VQ	.	.	.	.
1.383	0.0370	0.38	VQ	.	.	.	.
1.400	0.0375	0.38	VQ	.	.	.	.
1.417	0.0380	0.38	VQ	.	.	.	.
1.433	0.0386	0.38	.Q	.	.	.	.
1.450	0.0391	0.38	.Q	.	.	.	.
1.467	0.0396	0.38	.Q	.	.	.	.
1.483	0.0401	0.38	.Q	.	.	.	.
1.500	0.0407	0.38	.Q	.	.	.	.
1.517	0.0412	0.38	.Q	.	.	.	.
1.533	0.0417	0.38	.Q	.	.	.	.
1.550	0.0423	0.38	.Q	.	.	.	.
1.567	0.0428	0.38	.Q	.	.	.	.
1.583	0.0433	0.38	.Q	.	.	.	.
1.600	0.0438	0.38	.Q	.	.	.	.
1.617	0.0444	0.38	.Q	.	.	.	.
1.633	0.0449	0.38	.Q	.	.	.	.
1.650	0.0454	0.38	.Q	.	.	.	.
1.667	0.0460	0.38	.Q	.	.	.	.
1.683	0.0465	0.38	.Q	.	.	.	.
1.700	0.0470	0.39	.Q	.	.	.	.
1.717	0.0476	0.39	.Q	.	.	.	.
1.733	0.0481	0.39	.Q	.	.	.	.
1.750	0.0486	0.39	.Q	.	.	.	.
1.767	0.0491	0.39	.Q	.	.	.	.
1.783	0.0497	0.39	.Q	.	.	.	.
1.800	0.0502	0.39	.Q	.	.	.	.
1.817	0.0507	0.39	.Q	.	.	.	.
1.833	0.0513	0.39	.Q	.	.	.	.
1.850	0.0518	0.39	.Q	.	.	.	.
1.867	0.0523	0.39	.Q	.	.	.	.
1.883	0.0529	0.39	.Q	.	.	.	.
1.900	0.0534	0.39	.Q	.	.	.	.
1.917	0.0539	0.39	.Q	.	.	.	.
1.933	0.0545	0.39	.Q	.	.	.	.
1.950	0.0550	0.39	.Q	.	.	.	.
1.967	0.0556	0.39	.Q	.	.	.	.
1.983	0.0561	0.39	.Q	.	.	.	.
2.000	0.0566	0.39	.Q	.	.	.	.
2.017	0.0572	0.39	.Q	.	.	.	.
2.033	0.0577	0.39	.Q	.	.	.	.
2.050	0.0582	0.39	.Q	.	.	.	.
2.067	0.0588	0.39	.Q	.	.	.	.
2.083	0.0593	0.39	.Q	.	.	.	.
2.100	0.0599	0.39	.Q	.	.	.	.
2.117	0.0604	0.39	.Q	.	.	.	.
2.133	0.0609	0.39	.Q	.	.	.	.
2.150	0.0615	0.39	.Q	.	.	.	.
2.167	0.0620	0.39	.Q	.	.	.	.
2.183	0.0625	0.39	.Q	.	.	.	.
2.200	0.0631	0.39	.Q	.	.	.	.
2.217	0.0636	0.39	.Q	.	.	.	.
2.233	0.0642	0.39	.Q	.	.	.	.
2.250	0.0647	0.39	.Q	.	.	.	.
2.267	0.0652	0.39	.Q	.	.	.	.
2.283	0.0658	0.39	.Q	.	.	.	.
2.300	0.0663	0.39	.Q	.	.	.	.
2.317	0.0669	0.39	.Q	.	.	.	.
2.333	0.0674	0.39	.Q	.	.	.	.
2.350	0.0680	0.39	.Q	.	.	.	.
2.367	0.0685	0.39	.Q	.	.	.	.
2.383	0.0690	0.39	.Q	.	.	.	.
2.400	0.0696	0.40	.Q	.	.	.	.
2.417	0.0701	0.40	.Q	.	.	.	.
2.433	0.0707	0.40	.Q	.	.	.	.
2.450	0.0712	0.40	.Q	.	.	.	.
2.467	0.0718	0.40	.Q	.	.	.	.
2.483	0.0723	0.40	.Q	.	.	.	.
2.500	0.0729	0.40	.Q	.	.	.	.
2.517	0.0734	0.40	.Q	.	.	.	.
2.533	0.0740	0.40	.Q	.	.	.	.
2.550	0.0745	0.40	.Q	.	.	.	.
2.567	0.0750	0.40	.Q	.	.	.	.
2.583	0.0756	0.40	.Q	.	.	.	.
2.600	0.0761	0.40	.Q	.	.	.	.
2.617	0.0767	0.40	.Q	.	.	.	.
2.633	0.0772	0.40	.QV	.	.	.	.
2.650	0.0778	0.40	.QV	.	.	.	.
2.667	0.0783	0.40	.QV	.	.	.	.
2.683	0.0789	0.40	.QV	.	.	.	.

2.700	0.0794	0.40	.QV	.	.	.	.
2.717	0.0800	0.40	.QV	.	.	.	.
2.733	0.0805	0.40	.QV	.	.	.	.
2.750	0.0811	0.40	.QV	.	.	.	.
2.767	0.0816	0.40	.QV	.	.	.	.
2.783	0.0822	0.40	.QV	.	.	.	.
2.800	0.0827	0.40	.QV	.	.	.	.
2.817	0.0833	0.40	.QV	.	.	.	.
2.833	0.0838	0.40	.QV	.	.	.	.
2.850	0.0844	0.40	.QV	.	.	.	.
2.867	0.0850	0.40	.QV	.	.	.	.
2.883	0.0855	0.40	.QV	.	.	.	.
2.900	0.0861	0.40	.QV	.	.	.	.
2.917	0.0866	0.40	.QV	.	.	.	.
2.933	0.0872	0.40	.QV	.	.	.	.
2.950	0.0877	0.40	.QV	.	.	.	.
2.967	0.0883	0.40	.QV	.	.	.	.
2.983	0.0888	0.40	.QV	.	.	.	.
3.000	0.0894	0.40	.QV	.	.	.	.
3.017	0.0900	0.40	.QV	.	.	.	.
3.033	0.0905	0.40	.QV	.	.	.	.
3.050	0.0911	0.40	.QV	.	.	.	.
3.067	0.0916	0.40	.QV	.	.	.	.
3.083	0.0922	0.40	.QV	.	.	.	.
3.100	0.0927	0.40	.QV	.	.	.	.
3.117	0.0933	0.41	.QV	.	.	.	.
3.133	0.0939	0.41	.QV	.	.	.	.
3.150	0.0944	0.41	.QV	.	.	.	.
3.167	0.0950	0.41	.QV	.	.	.	.
3.183	0.0955	0.41	.QV	.	.	.	.
3.200	0.0961	0.41	.QV	.	.	.	.
3.217	0.0967	0.41	.QV	.	.	.	.
3.233	0.0972	0.41	.QV	.	.	.	.
3.250	0.0978	0.41	.QV	.	.	.	.
3.267	0.0983	0.41	.QV	.	.	.	.
3.283	0.0989	0.41	.QV	.	.	.	.
3.300	0.0995	0.41	.QV	.	.	.	.
3.317	0.1000	0.41	.QV	.	.	.	.
3.333	0.1006	0.41	.QV	.	.	.	.
3.350	0.1012	0.41	.QV	.	.	.	.
3.367	0.1017	0.41	.QV	.	.	.	.
3.383	0.1023	0.41	.QV	.	.	.	.
3.400	0.1029	0.41	.QV	.	.	.	.
3.417	0.1034	0.41	.QV	.	.	.	.
3.433	0.1040	0.41	.QV	.	.	.	.
3.450	0.1046	0.41	.QV	.	.	.	.
3.467	0.1051	0.41	.QV	.	.	.	.
3.483	0.1057	0.41	.QV	.	.	.	.
3.500	0.1063	0.41	.QV	.	.	.	.
3.517	0.1068	0.41	.QV	.	.	.	.
3.533	0.1074	0.41	.QV	.	.	.	.
3.550	0.1080	0.41	.QV	.	.	.	.
3.567	0.1085	0.41	.QV	.	.	.	.
3.583	0.1091	0.41	.QV	.	.	.	.
3.600	0.1097	0.41	.QV	.	.	.	.
3.617	0.1102	0.41	.QV	.	.	.	.
3.633	0.1108	0.41	.QV	.	.	.	.
3.650	0.1114	0.41	.QV	.	.	.	.
3.667	0.1119	0.41	.QV	.	.	.	.
3.683	0.1125	0.42	.QV	.	.	.	.
3.700	0.1131	0.42	.QV	.	.	.	.
3.717	0.1137	0.42	.QV	.	.	.	.
3.733	0.1142	0.42	.QV	.	.	.	.
3.750	0.1148	0.42	.QV	.	.	.	.
3.767	0.1154	0.42	.QV	.	.	.	.
3.783	0.1160	0.42	.Q V	.	.	.	.
3.800	0.1165	0.42	.Q V	.	.	.	.
3.817	0.1171	0.42	.Q V	.	.	.	.
3.833	0.1177	0.42	.Q V	.	.	.	.
3.850	0.1183	0.42	.Q V	.	.	.	.
3.867	0.1188	0.42	.Q V	.	.	.	.
3.883	0.1194	0.42	.Q V	.	.	.	.
3.900	0.1200	0.42	.Q V	.	.	.	.
3.917	0.1206	0.42	.Q V	.	.	.	.
3.933	0.1211	0.42	.Q V	.	.	.	.
3.950	0.1217	0.42	.Q V	.	.	.	.
3.967	0.1223	0.42	.Q V	.	.	.	.
3.983	0.1229	0.42	.Q V	.	.	.	.
4.000	0.1235	0.42	.Q V	.	.	.	.
4.017	0.1240	0.42	.Q V	.	.	.	.
4.033	0.1246	0.42	.Q V	.	.	.	.
4.050	0.1252	0.42	.Q V	.	.	.	.
4.067	0.1258	0.42	.Q V	.	.	.	.
4.083	0.1264	0.42	.Q V	.	.	.	.
4.100	0.1269	0.42	.Q V	.	.	.	.
4.117	0.1275	0.42	.Q V	.	.	.	.
4.133	0.1281	0.42	.Q V	.	.	.	.
4.150	0.1287	0.42	.Q V	.	.	.	.
4.167	0.1293	0.42	.Q V	.	.	.	.
4.183	0.1299	0.42	.Q V	.	.	.	.
4.200	0.1304	0.42	.Q V	.	.	.	.
4.217	0.1310	0.42	.Q V	.	.	.	.
4.233	0.1316	0.42	.Q V	.	.	.	.
4.250	0.1322	0.42	.Q V	.	.	.	.
4.267	0.1328	0.43	.Q V	.	.	.	.
4.283	0.1334	0.43	.Q V	.	.	.	.
4.300	0.1340	0.43	.Q V	.	.	.	.
4.317	0.1345	0.43	.Q V	.	.	.	.
4.333	0.1351	0.43	.Q V	.	.	.	.
4.350	0.1357	0.43	.Q V	.	.	.	.
4.367	0.1363	0.43	.Q V	.	.	.	.
4.383	0.1369	0.43	.Q V	.	.	.	.
4.400	0.1375	0.43	.Q V	.	.	.	.
4.417	0.1381	0.43	.Q V	.	.	.	.
4.433	0.1387	0.43	.Q V	.	.	.	.
4.450	0.1392	0.43	.Q V	.	.	.	.
4.467	0.1398	0.43	.Q V	.	.	.	.
4.483	0.1404	0.43	.Q V	.	.	.	.
4.500	0.1410	0.43	.Q V	.	.	.	.
4.517	0.1416	0.43	.Q V	.	.	.	.
4.533	0.1422	0.43	.Q V	.	.	.	.
4.550	0.1428	0.43	.Q V	.	.	.	.
4.567	0.1434	0.43	.Q V	.	.	.	.
4.583	0.1440	0.43	.Q V	.	.	.	.
4.600	0.1446	0.43	.Q V	.	.	.	.
4.617	0.1452	0.43	.Q V	.	.	.	.
4.633	0.1458	0.43	.Q V	.	.	.	.
4.650	0.1464	0.43	.Q V	.	.	.	.

4.667	0.1470	0.43	.Q	V	.	.	.	.
4.683	0.1476	0.43	.Q	V	.	.	.	.
4.700	0.1481	0.43	.Q	V	.	.	.	.
4.717	0.1487	0.43	.Q	V	.	.	.	.
4.733	0.1493	0.43	.Q	V	.	.	.	.
4.750	0.1499	0.43	.Q	V	.	.	.	.
4.767	0.1505	0.43	.Q	V	.	.	.	.
4.783	0.1511	0.43	.Q	V	.	.	.	.
4.800	0.1517	0.43	.Q	V	.	.	.	.
4.817	0.1523	0.43	.Q	V	.	.	.	.
4.833	0.1529	0.44	.Q	V	.	.	.	.
4.850	0.1535	0.44	.Q	V	.	.	.	.
4.867	0.1541	0.44	.Q	V	.	.	.	.
4.883	0.1547	0.44	.Q	V	.	.	.	.
4.900	0.1553	0.44	.Q	V	.	.	.	.
4.917	0.1559	0.44	.Q	V	.	.	.	.
4.933	0.1565	0.44	.Q	V	.	.	.	.
4.950	0.1571	0.44	.Q	V	.	.	.	.
4.967	0.1577	0.44	.Q	V	.	.	.	.
4.983	0.1584	0.44	.Q	V	.	.	.	.
5.000	0.1590	0.44	.Q	V	.	.	.	.
5.017	0.1596	0.44	.Q	V	.	.	.	.
5.033	0.1602	0.44	.Q	V	.	.	.	.
5.050	0.1608	0.44	.Q	V	.	.	.	.
5.067	0.1614	0.44	.Q	V	.	.	.	.
5.083	0.1620	0.44	.Q	V	.	.	.	.
5.100	0.1626	0.44	.Q	V	.	.	.	.
5.117	0.1632	0.44	.Q	V	.	.	.	.
5.133	0.1638	0.44	.Q	V	.	.	.	.
5.150	0.1644	0.44	.Q	V	.	.	.	.
5.167	0.1650	0.44	.Q	V	.	.	.	.
5.183	0.1656	0.44	.Q	V	.	.	.	.
5.200	0.1663	0.44	.Q	V	.	.	.	.
5.217	0.1669	0.44	.Q	V	.	.	.	.
5.233	0.1675	0.44	.Q	V	.	.	.	.
5.250	0.1681	0.44	.Q	V	.	.	.	.
5.267	0.1687	0.44	.Q	V	.	.	.	.
5.283	0.1693	0.44	.Q	V	.	.	.	.
5.300	0.1699	0.44	.Q	V	.	.	.	.
5.317	0.1705	0.45	.Q	V	.	.	.	.
5.333	0.1711	0.45	.Q	V	.	.	.	.
5.350	0.1718	0.45	.Q	V	.	.	.	.
5.367	0.1724	0.45	.Q	V	.	.	.	.
5.383	0.1730	0.45	.Q	V	.	.	.	.
5.400	0.1736	0.45	.Q	V	.	.	.	.
5.417	0.1742	0.45	.Q	V	.	.	.	.
5.433	0.1748	0.45	.Q	V	.	.	.	.
5.450	0.1755	0.45	.Q	V	.	.	.	.
5.467	0.1761	0.45	.Q	V	.	.	.	.
5.483	0.1767	0.45	.Q	V	.	.	.	.
5.500	0.1773	0.45	.Q	V	.	.	.	.
5.517	0.1779	0.45	.Q	V	.	.	.	.
5.533	0.1786	0.45	.Q	V	.	.	.	.
5.550	0.1792	0.45	.Q	V	.	.	.	.
5.567	0.1798	0.45	.Q	V	.	.	.	.
5.583	0.1804	0.45	.Q	V	.	.	.	.
5.600	0.1810	0.45	.Q	V	.	.	.	.
5.617	0.1817	0.45	.Q	V	.	.	.	.
5.633	0.1823	0.45	.Q	V	.	.	.	.
5.650	0.1829	0.45	.Q	V	.	.	.	.
5.667	0.1835	0.45	.Q	V	.	.	.	.
5.683	0.1842	0.45	.Q	V	.	.	.	.
5.700	0.1848	0.45	.Q	V	.	.	.	.
5.717	0.1854	0.45	.Q	V	.	.	.	.
5.733	0.1860	0.45	.Q	V	.	.	.	.
5.750	0.1867	0.45	.Q	V	.	.	.	.
5.767	0.1873	0.45	.Q	V	.	.	.	.
5.783	0.1879	0.46	.Q	V	.	.	.	.
5.800	0.1885	0.46	.Q	V	.	.	.	.
5.817	0.1892	0.46	.Q	V	.	.	.	.
5.833	0.1898	0.46	.Q	V	.	.	.	.
5.850	0.1904	0.46	.Q	V	.	.	.	.
5.867	0.1911	0.46	.Q	V	.	.	.	.
5.883	0.1917	0.46	.Q	V	.	.	.	.
5.900	0.1923	0.46	.Q	V	.	.	.	.
5.917	0.1930	0.46	.Q	V	.	.	.	.
5.933	0.1936	0.46	.Q	V	.	.	.	.
5.950	0.1942	0.46	.Q	V	.	.	.	.
5.967	0.1948	0.46	.Q	V	.	.	.	.
5.983	0.1955	0.46	.Q	V	.	.	.	.
6.000	0.1961	0.46	.Q	V	.	.	.	.
6.017	0.1968	0.46	.Q	V	.	.	.	.
6.033	0.1974	0.46	.Q	V	.	.	.	.
6.050	0.1980	0.46	.Q	V	.	.	.	.
6.067	0.1987	0.46	.Q	V	.	.	.	.
6.083	0.1993	0.46	.Q	V	.	.	.	.
6.100	0.1999	0.46	.Q	V	.	.	.	.
6.117	0.2006	0.46	.Q	V	.	.	.	.
6.133	0.2012	0.46	.Q	V	.	.	.	.
6.150	0.2018	0.46	.Q	V	.	.	.	.
6.167	0.2025	0.46	.Q	V	.	.	.	.
6.183	0.2031	0.46	.Q	V	.	.	.	.
6.200	0.2038	0.46	.Q	V	.	.	.	.
6.217	0.2044	0.47	.Q	V	.	.	.	.
6.233	0.2050	0.47	.Q	V	.	.	.	.
6.250	0.2057	0.47	.Q	V	.	.	.	.
6.267	0.2063	0.47	.Q	V	.	.	.	.
6.283	0.2070	0.47	.Q	V	.	.	.	.
6.300	0.2076	0.47	.Q	V	.	.	.	.
6.317	0.2083	0.47	.Q	V	.	.	.	.
6.333	0.2089	0.47	.Q	V	.	.	.	.
6.350	0.2096	0.47	.Q	V	.	.	.	.
6.367	0.2102	0.47	.Q	V	.	.	.	.
6.383	0.2108	0.47	.Q	V	.	.	.	.
6.400	0.2115	0.47	.Q	V	.	.	.	.
6.417	0.2121	0.47	.Q	V	.	.	.	.
6.433	0.2128	0.47	.Q	V	.	.	.	.
6.450	0.2134	0.47	.Q	V	.	.	.	.
6.467	0.2141	0.47	.Q	V	.	.	.	.
6.483	0.2147	0.47	.Q	V	.	.	.	.
6.500	0.2154	0.47	.Q	V	.	.	.	.
6.517	0.2160	0.47	.Q	V	.	.	.	.
6.533	0.2167	0.47	.Q	V	.	.	.	.
6.550	0.2173	0.47	.Q	V	.	.	.	.
6.567	0.2180	0.47	.Q	V	.	.	.	.
6.583	0.2186	0.47	.Q	V	.	.	.	.
6.600	0.2193	0.47	.Q	V	.	.	.	.
6.617	0.2199	0.47	.Q	V	.	.	.	.

6.633	0.2206	0.48	.Q	V	.	.	.	.
6.650	0.2213	0.48	.Q	V	.	.	.	.
6.667	0.2219	0.48	.Q	V	.	.	.	.
6.683	0.2226	0.48	.Q	V	.	.	.	.
6.700	0.2232	0.48	.Q	V	.	.	.	.
6.717	0.2239	0.48	.Q	V	.	.	.	.
6.733	0.2245	0.48	.Q	V	.	.	.	.
6.750	0.2252	0.48	.Q	V	.	.	.	.
6.767	0.2259	0.48	.Q	V	.	.	.	.
6.783	0.2265	0.48	.Q	V	.	.	.	.
6.800	0.2272	0.48	.Q	V	.	.	.	.
6.817	0.2279	0.48	.Q	V	.	.	.	.
6.833	0.2285	0.48	.Q	V	.	.	.	.
6.850	0.2292	0.48	.Q	V	.	.	.	.
6.867	0.2298	0.48	.Q	V	.	.	.	.
6.883	0.2305	0.48	.Q	V	.	.	.	.
6.900	0.2312	0.48	.Q	V	.	.	.	.
6.917	0.2318	0.48	.Q	V	.	.	.	.
6.933	0.2325	0.48	.Q	V	.	.	.	.
6.950	0.2332	0.48	.Q	V	.	.	.	.
6.967	0.2338	0.48	.Q	V	.	.	.	.
6.983	0.2345	0.48	.Q	V	.	.	.	.
7.000	0.2352	0.48	.Q	V	.	.	.	.
7.017	0.2358	0.48	.Q	V	.	.	.	.
7.033	0.2365	0.49	.Q	V	.	.	.	.
7.050	0.2372	0.49	.Q	V	.	.	.	.
7.067	0.2378	0.49	.Q	V	.	.	.	.
7.083	0.2385	0.49	.Q	V	.	.	.	.
7.100	0.2392	0.49	.Q	V	.	.	.	.
7.117	0.2399	0.49	.Q	V	.	.	.	.
7.133	0.2405	0.49	.Q	V	.	.	.	.
7.150	0.2412	0.49	.Q	V	.	.	.	.
7.167	0.2419	0.49	.Q	V	.	.	.	.
7.183	0.2426	0.49	.Q	V	.	.	.	.
7.200	0.2432	0.49	.Q	V	.	.	.	.
7.217	0.2439	0.49	.Q	V	.	.	.	.
7.233	0.2446	0.49	.Q	V	.	.	.	.
7.250	0.2453	0.49	.Q	V	.	.	.	.
7.267	0.2459	0.49	.Q	V	.	.	.	.
7.283	0.2466	0.49	.Q	V	.	.	.	.
7.300	0.2473	0.49	.Q	V	.	.	.	.
7.317	0.2480	0.49	.Q	V	.	.	.	.
7.333	0.2487	0.49	.Q	V	.	.	.	.
7.350	0.2493	0.49	.Q	V	.	.	.	.
7.367	0.2500	0.49	.Q	V	.	.	.	.
7.383	0.2507	0.49	.Q	V	.	.	.	.
7.400	0.2514	0.50	.Q	V	.	.	.	.
7.417	0.2521	0.50	.Q	V	.	.	.	.
7.433	0.2528	0.50	.Q	V	.	.	.	.
7.450	0.2534	0.50	.Q	V	.	.	.	.
7.467	0.2541	0.50	.Q	V	.	.	.	.
7.483	0.2548	0.50	.Q	V	.	.	.	.
7.500	0.2555	0.50	.Q	V	.	.	.	.
7.517	0.2562	0.50	.Q	V	.	.	.	.
7.533	0.2569	0.50	.Q	V	.	.	.	.
7.550	0.2576	0.50	.Q	V	.	.	.	.
7.567	0.2583	0.50	.Q	V	.	.	.	.
7.583	0.2589	0.50	.Q	V	.	.	.	.
7.600	0.2596	0.50	.Q	V	.	.	.	.
7.617	0.2603	0.50	.Q	V	.	.	.	.
7.633	0.2610	0.50	.Q	V	.	.	.	.
7.650	0.2617	0.50	.Q	V	.	.	.	.
7.667	0.2624	0.50	.Q	V	.	.	.	.
7.683	0.2631	0.50	.Q	V	.	.	.	.
7.700	0.2638	0.51	.Q	V	.	.	.	.
7.717	0.2645	0.51	.Q	V	.	.	.	.
7.733	0.2652	0.51	.Q	V	.	.	.	.
7.750	0.2659	0.51	.Q	V	.	.	.	.
7.767	0.2666	0.51	.Q	V	.	.	.	.
7.783	0.2673	0.51	.Q	V	.	.	.	.
7.800	0.2680	0.51	.Q	V	.	.	.	.
7.817	0.2687	0.51	.Q	V	.	.	.	.
7.833	0.2694	0.51	.Q	V	.	.	.	.
7.850	0.2701	0.51	.Q	V	.	.	.	.
7.867	0.2708	0.51	.Q	V	.	.	.	.
7.883	0.2715	0.51	.Q	V	.	.	.	.
7.900	0.2722	0.51	.Q	V	.	.	.	.
7.917	0.2729	0.51	.Q	V	.	.	.	.
7.933	0.2736	0.51	.Q	V	.	.	.	.
7.950	0.2743	0.51	.Q	V	.	.	.	.
7.967	0.2750	0.51	.Q	V	.	.	.	.
7.983	0.2757	0.51	.Q	V	.	.	.	.
8.000	0.2764	0.51	.Q	V	.	.	.	.
8.017	0.2771	0.52	.Q	V	.	.	.	.
8.033	0.2779	0.52	.Q	V	.	.	.	.
8.050	0.2786	0.52	.Q	V	.	.	.	.
8.067	0.2793	0.52	.Q	V	.	.	.	.
8.083	0.2800	0.52	.Q	V	.	.	.	.
8.100	0.2807	0.52	.Q	V	.	.	.	.
8.117	0.2814	0.52	.Q	V	.	.	.	.
8.133	0.2821	0.52	.Q	V	.	.	.	.
8.150	0.2828	0.52	.Q	V	.	.	.	.
8.167	0.2836	0.52	.Q	V	.	.	.	.
8.183	0.2843	0.52	.Q	V	.	.	.	.
8.200	0.2850	0.52	.Q	V	.	.	.	.
8.217	0.2857	0.52	.Q	V	.	.	.	.
8.233	0.2864	0.52	.Q	V	.	.	.	.
8.250	0.2871	0.52	.Q	V	.	.	.	.
8.267	0.2879	0.52	.Q	V	.	.	.	.
8.283	0.2886	0.52	.Q	V	.	.	.	.
8.300	0.2893	0.52	.Q	V	.	.	.	.
8.317	0.2900	0.52	.Q	V	.	.	.	.
8.333	0.2907	0.52	.Q	V	.	.	.	.
8.350	0.2915	0.53	.Q	V	.	.	.	.
8.367	0.2922	0.53	.Q	V	.	.	.	.
8.383	0.2929	0.53	.Q	V	.	.	.	.
8.400	0.2936	0.53	.Q	V	.	.	.	.
8.417	0.2944	0.53	.Q	V	.	.	.	.
8.433	0.2951	0.53	.Q	V	.	.	.	.
8.450	0.2958	0.53	.Q	V	.	.	.	.
8.467	0.2966	0.53	.Q	V	.	.	.	.
8.483	0.2973	0.53	.Q	V	.	.	.	.
8.500	0.2980	0.53	.Q	V	.	.	.	.
8.517	0.2988	0.53	.Q	V	.	.	.	.
8.533	0.2995	0.53	.Q	V	.	.	.	.
8.550	0.3002	0.53	.Q	V	.	.	.	.
8.567	0.3010	0.53	.Q	V	.	.	.	.
8.583	0.3017	0.53	.Q	V	.	.	.	.

8.600	0.3024	0.53	.Q	V	.	.	.	.
8.617	0.3032	0.53	.Q	V	.	.	.	.
8.633	0.3039	0.53	.Q	V	.	.	.	.
8.650	0.3046	0.54	.Q	V	.	.	.	.
8.667	0.3054	0.54	.Q	V	.	.	.	.
8.683	0.3061	0.54	.Q	V	.	.	.	.
8.700	0.3069	0.54	.Q	V	.	.	.	.
8.717	0.3076	0.54	.Q	V	.	.	.	.
8.733	0.3083	0.54	.Q	V	.	.	.	.
8.750	0.3091	0.54	.Q	V	.	.	.	.
8.767	0.3098	0.54	.Q	V	.	.	.	.
8.783	0.3106	0.54	.Q	V	.	.	.	.
8.800	0.3113	0.54	.Q	V	.	.	.	.
8.817	0.3121	0.54	.Q	V	.	.	.	.
8.833	0.3128	0.54	.Q	V	.	.	.	.
8.850	0.3136	0.54	.Q	V	.	.	.	.
8.867	0.3143	0.54	. Q	V	.	.	.	.
8.883	0.3151	0.55	. Q	V	.	.	.	.
8.900	0.3158	0.55	. Q	V	.	.	.	.
8.917	0.3166	0.55	. Q	V	.	.	.	.
8.933	0.3173	0.55	. Q	V	.	.	.	.
8.950	0.3181	0.55	. Q	V	.	.	.	.
8.967	0.3188	0.55	. Q	V	.	.	.	.
8.983	0.3196	0.55	. Q	V	.	.	.	.
9.000	0.3204	0.55	. Q	V	.	.	.	.
9.017	0.3211	0.55	. Q	V	.	.	.	.
9.033	0.3219	0.55	. Q	V	.	.	.	.
9.050	0.3226	0.55	. Q	V	.	.	.	.
9.067	0.3234	0.55	. Q	V	.	.	.	.
9.083	0.3241	0.55	. Q	V	.	.	.	.
9.100	0.3249	0.55	. Q	V	.	.	.	.
9.117	0.3257	0.55	. Q	V	.	.	.	.
9.133	0.3264	0.55	. Q	V	.	.	.	.
9.150	0.3272	0.55	. Q	V	.	.	.	.
9.167	0.3280	0.55	. Q	V	.	.	.	.
9.183	0.3287	0.56	. Q	V	.	.	.	.
9.200	0.3295	0.56	. Q	V	.	.	.	.
9.217	0.3303	0.56	. Q	V	.	.	.	.
9.233	0.3310	0.56	. Q	V	.	.	.	.
9.250	0.3318	0.56	. Q	V	.	.	.	.
9.267	0.3326	0.56	. Q	V	.	.	.	.
9.283	0.3333	0.56	. Q	V	.	.	.	.
9.300	0.3341	0.56	. Q	V	.	.	.	.
9.317	0.3349	0.56	. Q	V	.	.	.	.
9.333	0.3357	0.56	. Q	V	.	.	.	.
9.350	0.3364	0.56	. Q	V	.	.	.	.
9.367	0.3372	0.56	. Q	V	.	.	.	.
9.383	0.3380	0.57	. Q	V	.	.	.	.
9.400	0.3388	0.57	. Q	V	.	.	.	.
9.417	0.3396	0.57	. Q	V	.	.	.	.
9.433	0.3403	0.57	. Q	V	.	.	.	.
9.450	0.3411	0.57	. Q	V	.	.	.	.
9.467	0.3419	0.57	. Q	V	.	.	.	.
9.483	0.3427	0.57	. Q	V	.	.	.	.
9.500	0.3435	0.57	. Q	V	.	.	.	.
9.517	0.3443	0.57	. Q	V	.	.	.	.
9.533	0.3450	0.57	. Q	V	.	.	.	.
9.550	0.3458	0.57	. Q	V	.	.	.	.
9.567	0.3466	0.57	. Q	V	.	.	.	.
9.583	0.3474	0.57	. Q	V	.	.	.	.
9.600	0.3482	0.57	. Q	V	.	.	.	.
9.617	0.3490	0.57	. Q	V	.	.	.	.
9.633	0.3498	0.58	. Q	V	.	.	.	.
9.650	0.3506	0.58	. Q	V	.	.	.	.
9.667	0.3514	0.58	. Q	V	.	.	.	.
9.683	0.3522	0.58	. Q	V	.	.	.	.
9.700	0.3530	0.58	. Q	V	.	.	.	.
9.717	0.3538	0.58	. Q	V	.	.	.	.
9.733	0.3546	0.58	. Q	V	.	.	.	.
9.750	0.3554	0.58	. Q	V	.	.	.	.
9.767	0.3562	0.58	. Q	V	.	.	.	.
9.783	0.3570	0.58	. Q	V	.	.	.	.
9.800	0.3578	0.58	. Q	V	.	.	.	.
9.817	0.3586	0.58	. Q	V	.	.	.	.
9.833	0.3594	0.59	. Q	V	.	.	.	.
9.850	0.3602	0.59	. Q	V	.	.	.	.
9.867	0.3610	0.59	. Q	V	.	.	.	.
9.883	0.3618	0.59	. Q	V	.	.	.	.
9.900	0.3626	0.59	. Q	V	.	.	.	.
9.917	0.3634	0.59	. Q	V	.	.	.	.
9.933	0.3642	0.59	. Q	V	.	.	.	.
9.950	0.3650	0.59	. Q	V	.	.	.	.
9.967	0.3659	0.59	. Q	V	.	.	.	.
9.983	0.3667	0.59	. Q	V	.	.	.	.
10.000	0.3675	0.59	. Q	V	.	.	.	.
10.017	0.3683	0.59	. Q	V	.	.	.	.
10.033	0.3691	0.59	. Q	V	.	.	.	.
10.050	0.3699	0.59	. Q	V	.	.	.	.
10.067	0.3708	0.60	. Q	V	.	.	.	.
10.083	0.3716	0.60	. Q	V	.	.	.	.
10.100	0.3724	0.60	. Q	V	.	.	.	.
10.117	0.3732	0.60	. Q	V	.	.	.	.
10.133	0.3740	0.60	. Q	V	.	.	.	.
10.150	0.3749	0.60	. Q	V	.	.	.	.
10.167	0.3757	0.60	. Q	V	.	.	.	.
10.183	0.3765	0.60	. Q	V	.	.	.	.
10.200	0.3774	0.60	. Q	V	.	.	.	.
10.217	0.3782	0.60	. Q	V	.	.	.	.
10.233	0.3790	0.61	. Q	V	.	.	.	.
10.250	0.3799	0.61	. Q	V	.	.	.	.
10.267	0.3807	0.61	. Q	V	.	.	.	.
10.283	0.3815	0.61	. Q	V	.	.	.	.
10.300	0.3824	0.61	. Q	V	.	.	.	.
10.317	0.3832	0.61	. Q	V	.	.	.	.
10.333	0.3841	0.61	. Q	V	.	.	.	.
10.350	0.3849	0.61	. Q	V	.	.	.	.
10.367	0.3857	0.61	. Q	V	.	.	.	.
10.383	0.3866	0.61	. Q	V	.	.	.	.
10.400	0.3874	0.61	. Q	V	.	.	.	.
10.417	0.3883	0.61	. Q	V	.	.	.	.
10.433	0.3891	0.61	. Q	V	.	.	.	.
10.450	0.3899	0.61	. Q	V	.	.	.	.
10.467	0.3908	0.62	. Q	V	.	.	.	.
10.483	0.3916	0.62	. Q	V	.	.	.	.
10.500	0.3925	0.62	. Q	V	.	.	.	.
10.517	0.3933	0.62	. Q	V	.	.	.	.
10.533	0.3942	0.62	. Q	V	.	.	.	.
10.550	0.3951	0.62	. Q	V	.	.	.	.

10.567	0.3959	0.62	. Q	V	.	.	.
10.583	0.3968	0.62	. Q	V	.	.	.
10.600	0.3976	0.63	. Q	V	.	.	.
10.617	0.3985	0.63	. Q	V	.	.	.
10.633	0.3994	0.63	. Q	V	.	.	.
10.650	0.4002	0.63	. Q	V	.	.	.
10.667	0.4011	0.63	. Q	V	.	.	.
10.683	0.4020	0.63	. Q	V	.	.	.
10.700	0.4028	0.63	. Q	V	.	.	.
10.717	0.4037	0.63	. Q	V	.	.	.
10.733	0.4046	0.63	. Q	V	.	.	.
10.750	0.4054	0.63	. Q	V	.	.	.
10.767	0.4063	0.63	. Q	V	.	.	.
10.783	0.4072	0.63	. Q	V	.	.	.
10.800	0.4081	0.63	. Q	V	.	.	.
10.817	0.4089	0.63	. Q	V	.	.	.
10.833	0.4098	0.64	. Q	V	.	.	.
10.850	0.4107	0.64	. Q	V	.	.	.
10.867	0.4116	0.64	. Q	V	.	.	.
10.883	0.4124	0.64	. Q	V	.	.	.
10.900	0.4133	0.64	. Q	V	.	.	.
10.917	0.4142	0.64	. Q	V	.	.	.
10.933	0.4151	0.64	. Q	V	.	.	.
10.950	0.4160	0.64	. Q	V	.	.	.
10.967	0.4169	0.65	. Q	V	.	.	.
10.983	0.4178	0.65	. Q	V	.	.	.
11.000	0.4187	0.65	. Q	V	.	.	.
11.017	0.4196	0.65	. Q	V	.	.	.
11.033	0.4205	0.65	. Q	V	.	.	.
11.050	0.4214	0.65	. Q	V	.	.	.
11.067	0.4223	0.65	. Q	V	.	.	.
11.083	0.4232	0.65	. Q	V	.	.	.
11.100	0.4241	0.66	. Q	.V	.	.	.
11.117	0.4250	0.66	. Q	.V	.	.	.
11.133	0.4259	0.66	. Q	.V	.	.	.
11.150	0.4268	0.66	. Q	.V	.	.	.
11.167	0.4277	0.66	. Q	.V	.	.	.
11.183	0.4286	0.66	. Q	.V	.	.	.
11.200	0.4295	0.66	. Q	.V	.	.	.
11.217	0.4304	0.66	. Q	.V	.	.	.
11.233	0.4313	0.66	. Q	.V	.	.	.
11.250	0.4322	0.66	. Q	.V	.	.	.
11.267	0.4331	0.66	. Q	.V	.	.	.
11.283	0.4341	0.66	. Q	.V	.	.	.
11.300	0.4350	0.67	. Q	.V	.	.	.
11.317	0.4359	0.67	. Q	.V	.	.	.
11.333	0.4368	0.67	. Q	.V	.	.	.
11.350	0.4377	0.67	. Q	.V	.	.	.
11.367	0.4387	0.67	. Q	.V	.	.	.
11.383	0.4396	0.67	. Q	.V	.	.	.
11.400	0.4405	0.68	. Q	.V	.	.	.
11.417	0.4415	0.68	. Q	.V	.	.	.
11.433	0.4424	0.68	. Q	.V	.	.	.
11.450	0.4433	0.68	. Q	.V	.	.	.
11.467	0.4443	0.68	. Q	.V	.	.	.
11.483	0.4452	0.68	. Q	.V	.	.	.
11.500	0.4461	0.68	. Q	.V	.	.	.
11.517	0.4471	0.69	. Q	.V	.	.	.
11.533	0.4480	0.69	. Q	.V	.	.	.
11.550	0.4490	0.69	. Q	.V	.	.	.
11.567	0.4499	0.69	. Q	.V	.	.	.
11.583	0.4509	0.69	. Q	.V	.	.	.
11.600	0.4518	0.69	. Q	.V	.	.	.
11.617	0.4528	0.69	. Q	.V	.	.	.
11.633	0.4537	0.69	. Q	.V	.	.	.
11.650	0.4547	0.69	. Q	.V	.	.	.
11.667	0.4556	0.69	. Q	.V	.	.	.
11.683	0.4566	0.69	. Q	.V	.	.	.
11.700	0.4575	0.69	. Q	.V	.	.	.
11.717	0.4585	0.70	. Q	.V	.	.	.
11.733	0.4595	0.70	. Q	.V	.	.	.
11.750	0.4604	0.70	. Q	.V	.	.	.
11.767	0.4614	0.70	. Q	.V	.	.	.
11.783	0.4624	0.70	. Q	. V	.	.	.
11.800	0.4633	0.70	. Q	. V	.	.	.
11.817	0.4643	0.71	. Q	. V	.	.	.
11.833	0.4653	0.71	. Q	. V	.	.	.
11.850	0.4663	0.71	. Q	. V	.	.	.
11.867	0.4672	0.71	. Q	. V	.	.	.
11.883	0.4682	0.71	. Q	. V	.	.	.
11.900	0.4692	0.72	. Q	. V	.	.	.
11.917	0.4702	0.72	. Q	. V	.	.	.
11.933	0.4712	0.72	. Q	. V	.	.	.
11.950	0.4722	0.72	. Q	. V	.	.	.
11.967	0.4732	0.72	. Q	. V	.	.	.
11.983	0.4742	0.72	. Q	. V	.	.	.
12.000	0.4752	0.72	. Q	. V	.	.	.
12.017	0.4762	0.72	. Q	. V	.	.	.
12.033	0.4772	0.72	. Q	. V	.	.	.
12.050	0.4782	0.73	. Q	. V	.	.	.
12.067	0.4792	0.73	. Q	. V	.	.	.
12.083	0.4802	0.73	. Q	. V	.	.	.
12.100	0.4812	0.73	. Q	. V	.	.	.
12.117	0.4822	0.73	. Q	. V	.	.	.
12.133	0.4832	0.73	. Q	. V	.	.	.
12.150	0.4842	0.73	. Q	. V	.	.	.
12.167	0.4852	0.73	. Q	. V	.	.	.
12.183	0.4862	0.73	. Q	. V	.	.	.
12.200	0.4872	0.73	. Q	. V	.	.	.
12.217	0.4882	0.73	. Q	. V	.	.	.
12.233	0.4892	0.73	. Q	. V	.	.	.
12.250	0.4902	0.73	. Q	. V	.	.	.
12.267	0.4912	0.73	. Q	. V	.	.	.
12.283	0.4922	0.73	. Q	. V	.	.	.
12.300	0.4932	0.73	. Q	. V	.	.	.
12.317	0.4942	0.73	. Q	. V	.	.	.
12.333	0.4952	0.73	. Q	. V	.	.	.
12.350	0.4963	0.73	. Q	. V	.	.	.
12.367	0.4973	0.73	. Q	. V	.	.	.
12.383	0.4983	0.73	. Q	. V	.	.	.
12.400	0.4993	0.73	. Q	. V	.	.	.
12.417	0.5003	0.73	. Q	. V	.	.	.
12.433	0.5013	0.74	. Q	. V	.	.	.
12.450	0.5023	0.74	. Q	. V	.	.	.
12.467	0.5033	0.74	. Q	. V	.	.	.
12.483	0.5043	0.74	. Q	. V	.	.	.
12.500	0.5054	0.74	. Q	. V	.	.	.
12.517	0.5064	0.74	. Q	. V	.	.	.

12.533	0.5074	0.74	. Q	. V	.	.	.	
12.550	0.5084	0.74	. Q	. V	.	.	.	
12.567	0.5095	0.74	. Q	. V	.	.	.	
12.583	0.5105	0.75	. Q	. V	.	.	.	
12.600	0.5115	0.75	. Q	. V	.	.	.	
12.617	0.5126	0.75	. Q	. V	.	.	.	
12.633	0.5136	0.75	. Q	. V	.	.	.	
12.650	0.5146	0.76	. Q	. V	.	.	.	
12.667	0.5157	0.76	. Q	. V	.	.	.	
12.683	0.5167	0.76	. Q	. V	.	.	.	
12.700	0.5178	0.76	. Q	. V	.	.	.	
12.717	0.5188	0.77	. Q	. V	.	.	.	
12.733	0.5199	0.77	. Q	. V	.	.	.	
12.750	0.5210	0.77	. Q	. V	.	.	.	
12.767	0.5220	0.77	. Q	. V	.	.	.	
12.783	0.5231	0.78	. Q	. V	.	.	.	
12.800	0.5242	0.78	. Q	. V	.	.	.	
12.817	0.5253	0.78	. Q	. V	.	.	.	
12.833	0.5263	0.78	. Q	. V	.	.	.	
12.850	0.5274	0.78	. Q	. V	.	.	.	
12.867	0.5285	0.78	. Q	. V	.	.	.	
12.883	0.5296	0.79	. Q	. V	.	.	.	
12.900	0.5307	0.79	. Q	. V	.	.	.	
12.917	0.5317	0.79	. Q	. V	.	.	.	
12.933	0.5328	0.79	. Q	. V	.	.	.	
12.950	0.5339	0.79	. Q	. V	.	.	.	
12.967	0.5350	0.79	. Q	. V	.	.	.	
12.983	0.5361	0.79	. Q	. V	.	.	.	
13.000	0.5372	0.80	. Q	. V	.	.	.	
13.017	0.5383	0.80	. Q	. V	.	.	.	
13.033	0.5394	0.80	. Q	. V	.	.	.	
13.050	0.5405	0.80	. Q	. V	.	.	.	
13.067	0.5416	0.81	. Q	. V	.	.	.	
13.083	0.5427	0.81	. Q	. V	.	.	.	
13.100	0.5439	0.81	. Q	. V	.	.	.	
13.117	0.5450	0.82	. Q	. V	.	.	.	
13.133	0.5461	0.82	. Q	. V	.	.	.	
13.150	0.5472	0.82	. Q	. V	.	.	.	
13.167	0.5484	0.83	. Q	. V	.	.	.	
13.183	0.5495	0.83	. Q	. V	.	.	.	
13.200	0.5507	0.83	. Q	. V	.	.	.	
13.217	0.5518	0.84	. Q	. V	.	.	.	
13.233	0.5530	0.84	. Q	. V	.	.	.	
13.250	0.5541	0.84	. Q	. V	.	.	.	
13.267	0.5553	0.84	. Q	. V	.	.	.	
13.283	0.5565	0.84	. Q	. V	.	.	.	
13.300	0.5576	0.84	. Q	. V	.	.	.	
13.317	0.5588	0.85	. Q	. V	.	.	.	
13.333	0.5599	0.85	. Q	. V	.	.	.	
13.350	0.5611	0.85	. Q	. V	.	.	.	
13.367	0.5623	0.85	. Q	. V	.	.	.	
13.383	0.5635	0.85	. Q	. V	.	.	.	
13.400	0.5646	0.85	. Q	. V	.	.	.	
13.417	0.5658	0.86	. Q	. V	.	.	.	
13.433	0.5670	0.86	. Q	. V	.	.	.	
13.450	0.5682	0.86	. Q	. V	.	.	.	
13.467	0.5694	0.87	. Q	. V	.	.	.	
13.483	0.5706	0.87	. Q	. V	.	.	.	
13.500	0.5718	0.87	. Q	. V	.	.	.	
13.517	0.5730	0.88	. Q	. V	.	.	.	
13.533	0.5742	0.88	. Q	. V	.	.	.	
13.550	0.5754	0.89	. Q	. V	.	.	.	
13.567	0.5767	0.89	. Q	. V	.	.	.	
13.583	0.5779	0.89	. Q	. V	.	.	.	
13.600	0.5791	0.90	. Q	. V	.	.	.	
13.617	0.5804	0.90	. Q	. V	.	.	.	
13.633	0.5816	0.91	. Q	. V	.	.	.	
13.650	0.5829	0.91	. Q	. V	.	.	.	
13.667	0.5841	0.91	. Q	. V	.	.	.	
13.683	0.5854	0.91	. Q	. V	.	.	.	
13.700	0.5866	0.91	. Q	. V	.	.	.	
13.717	0.5879	0.92	. Q	. V	.	.	.	
13.733	0.5892	0.92	. Q	. V	.	.	.	
13.750	0.5904	0.92	. Q	. V	.	.	.	
13.767	0.5917	0.92	. Q	. V	.	.	.	
13.783	0.5930	0.93	. Q	. V	.	.	.	
13.800	0.5943	0.93	. Q	. V	.	.	.	
13.817	0.5955	0.93	. Q	. V	.	.	.	
13.833	0.5968	0.93	. Q	. V	.	.	.	
13.850	0.5981	0.93	. Q	. V	.	.	.	
13.867	0.5994	0.94	. Q	. V	.	.	.	
13.883	0.6007	0.94	. Q	. V	.	.	.	
13.900	0.6020	0.95	. Q	. V	.	.	.	
13.917	0.6033	0.95	. Q	. V	.	.	.	
13.933	0.6046	0.96	. Q	. V	.	.	.	
13.950	0.6060	0.96	. Q	. V	.	.	.	
13.967	0.6073	0.97	. Q	. V	.	.	.	
13.983	0.6086	0.97	. Q	. V	.	.	.	
14.000	0.6100	0.98	. Q	. V	.	.	.	
14.017	0.6114	0.98	. Q	. V	.	.	.	
14.033	0.6127	0.99	. Q	. V	.	.	.	
14.050	0.6141	0.99	. Q	. V	.	.	.	
14.067	0.6155	1.00	. Q	. V	.	.	.	
14.083	0.6168	1.00	. Q	. V	.	.	.	
14.100	0.6182	1.00	. Q	. V	.	.	.	
14.117	0.6196	1.00	. Q	. V	.	.	.	
14.133	0.6210	0.99	. Q	. V	.	.	.	
14.150	0.6223	0.99	. Q	. V	.	.	.	
14.167	0.6237	0.99	. Q	. V	.	.	.	
14.183	0.6250	0.99	. Q	. V	.	.	.	
14.200	0.6264	0.99	. Q	. V	.	.	.	
14.217	0.6278	0.98	. Q	. V	.	.	.	
14.233	0.6291	0.98	. Q	. V	.	.	.	
14.250	0.6305	0.98	. Q	. V	.	.	.	
14.267	0.6318	0.98	. Q	. V	.	.	.	
14.283	0.6331	0.97	. Q	. V	.	.	.	
14.300	0.6345	0.98	. Q	. V	.	.	.	
14.317	0.6358	0.99	. Q	. V	.	.	.	
14.333	0.6372	0.99	. Q	. V	.	.	.	
14.350	0.6386	1.00	. Q	. V	.	.	.	
14.367	0.6400	1.01	. Q	. V	.	.	.	
14.383	0.6414	1.01	. Q	. V	.	.	.	
14.400	0.6428	1.02	. Q	. V	.	.	.	
14.417	0.6442	1.03	. Q	. V	.	.	.	
14.433	0.6456	1.03	. Q	. V	.	.	.	
14.450	0.6470	1.04	. Q	. V	.	.	.	
14.467	0.6485	1.05	. Q	. V	.	.	.	
14.483	0.6499	1.05	. Q	. V	.	.	.	

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14.500      0.6514      1.06  .  Q     .    V  .        .        .
14.517      0.6529      1.06  .  Q     .    V  .        .        .
14.533      0.6543      1.07  .  Q     .    V  .        .        .
14.550      0.6558      1.07  .  Q     .     V .        .        .
14.567      0.6573      1.08  .  Q     .     V .        .        .
14.583      0.6588      1.08  .  Q     .     V .        .        .
14.600      0.6603      1.09  .  Q     .     V .        .        .
14.617      0.6618      1.09  .   Q    .     V .        .        .
14.633      0.6633      1.09  .   Q    .     V .        .        .
14.650      0.6648      1.10  .   Q    .     V .        .        .
14.667      0.6663      1.10  .   Q    .     V .        .        .
14.683      0.6678      1.11  .   Q    .     V .        .        .
14.700      0.6694      1.11  .   Q    .     V .        .        .
14.717      0.6709      1.12  .   Q    .     V .        .        .
14.733      0.6725      1.13  .   Q    .     V .        .        .
14.750      0.6740      1.14  .   Q    .     V .        .        .
14.767      0.6756      1.15  .   Q    .     V .        .        .
14.783      0.6772      1.16  .   Q    .     V .        .        .
14.800      0.6788      1.17  .   Q    .     V .        .        .
14.817      0.6805      1.18  .   Q    .     V .        .        .
14.833      0.6821      1.19  .   Q    .     V .        .        .
14.850      0.6837      1.20  .   Q    .     V .        .        .
14.867      0.6854      1.21  .   Q    .     V .        .        .
14.883      0.6871      1.22  .   Q    .     V .        .        .
14.900      0.6888      1.23  .   Q    .     V .        .        .
14.917      0.6905      1.25  .   Q    .     V .        .        .
14.933      0.6923      1.26  .   Q    .     V .        .        .
14.950      0.6940      1.26  .   Q    .      V .       .        .
14.967      0.6957      1.27  .   Q    .      V .       .        .
14.983      0.6975      1.28  .   Q    .      V .       .        .
15.000      0.6993      1.28  .   Q    .      V .       .        .
15.017      0.7010      1.29  .   Q    .      V .       .        .
15.033      0.7028      1.30  .   Q    .      V .       .        .
15.050      0.7046      1.31  .   Q    .      V .       .        .
15.067      0.7064      1.31  .   Q    .      V .       .        .
15.083      0.7083      1.32  .   Q    .      V .       .        .
15.100      0.7101      1.33  .   Q    .      V .       .        .
15.117      0.7119      1.33  .   Q    .      V .       .        .
15.133      0.7138      1.34  .   Q    .      V .       .        .
15.150      0.7156      1.35  .   Q    .      V .       .        .
15.167      0.7175      1.37  .    Q   .      V .       .        .
15.183      0.7194      1.39  .    Q   .      V .       .        .
15.200      0.7214      1.41  .    Q   .      V .       .        .
15.217      0.7233      1.43  .    Q   .      V .       .        .
15.233      0.7253      1.45  .    Q   .      V .       .        .
15.250      0.7274      1.47  .    Q   .      V .       .        .
15.267      0.7294      1.49  .    Q   .      V .       .        .
15.283      0.7315      1.51  .    Q   .      V .       .        .
15.300      0.7336      1.53  .    Q   .       V.       .        .
15.317      0.7357      1.55  .    Q   .       V.       .        .
15.333      0.7379      1.57  .    Q   .       V.       .        .
15.350      0.7401      1.59  .    Q   .       V.       .        .
15.367      0.7423      1.61  .    Q   .       V.       .        .
15.383      0.7446      1.67  .     Q  .       V.       .        .
15.400      0.7469      1.72  .     Q  .       V.       .        .
15.417      0.7494      1.77  .     Q  .       V.       .        .
15.433      0.7519      1.82  .     Q  .       V.       .        .
15.450      0.7545      1.87  .     Q  .       V.       .        .
15.467      0.7571      1.92  .      Q .       V.       .        .
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15.483      0.7598      1.98  .     Q  .       V.       .        .
15.500      0.7626      2.03  .     Q  .       V.       .        .
15.517      0.7655      2.08  .     Q  .       V.       .        .
15.533      0.7684      2.13  .     Q  .       V.       .        .
15.550      0.7714      2.18  .      Q .        V       .        .
15.567      0.7745      2.23  .      Q .        V       .        .
15.583      0.7777      2.29  .      Q .        V       .        .
15.600      0.7809      2.35  .      Q .        V       .        .
15.617      0.7842      2.41  .      Q .        V       .        .
15.633      0.7876      2.47  .       Q.        V       .        .
15.650      0.7911      2.53  .       Q.        V       .        .
15.667      0.7947      2.59  .       Q.        V       .        .
15.683      0.7983      2.65  .       Q.        V       .        .
15.700      0.8020      2.71  .       Q.        V       .        .
15.717      0.8058      2.76  .        Q        V       .        .
15.733      0.8097      2.82  .        Q        .V      .        .
15.750      0.8137      2.88  .        Q        .V      .        .
15.767      0.8178      2.94  .        Q        .V      .        .
15.783      0.8219      3.00  .        .Q       .V      .        .
15.800      0.8261      3.06  .        .Q       .V      .        .
15.817      0.8304      3.12  .        .Q       .V      .        .
15.833      0.8348      3.18  .        .Q       .V      .        .
15.850      0.8392      3.24  .        .Q       .V      .        .
15.867      0.8438      3.29  .        . Q      .V      .        .
15.883      0.8484      3.35  .        . Q      . V     .        .
15.900      0.8531      3.41  .        . Q      . V     .        .
15.917      0.8579      3.47  .        . Q      . V     .        .
15.933      0.8627      3.53  .        . Q      . V     .        .
15.950      0.8677      3.58  .        .  Q     . V     .        .
15.967      0.8727      3.64  .        .  Q     . V     .        .
15.983      0.8778      3.70  .        .  Q     . V     .        .
16.000      0.8830      3.76  .        .  Q     . V     .        .
16.017      0.8886      4.06  .        .   Q    .  V    .        .
16.033      0.8949      4.61  .        .    Q   .  V    .        .
16.050      0.9020      5.16  .        .     Q  .  V    .        .
16.067      0.9099      5.71  .        .      Q  V    .        .
16.083      0.9185      6.26  .        .      .  Q    .        .
16.100      0.9279      6.81  .        .      .   VQ  .        .
16.117      0.9380      7.36  .        .      .   V  Q .        .
16.133      0.9489      7.91  .        .      .   V   Q.       .
16.150      0.9606      8.46  .        .      .   V    .Q      .
16.167      0.9730      9.01  .        .      .    V   .  Q    .
16.183      0.9862      9.56  .        .      .    V   .   Q   .
16.200      1.0001     10.11  .        .      .    V   .    Q  .
16.217      1.0151     10.89  .        .      .     V  .     Q
16.233      1.0296     10.52  .        .      .     V  .      Q .
16.250      1.0432      9.89  .        .      .      V .    Q  .
16.267      1.0560      9.26  .        .      .      V .   Q   .
16.283      1.0679      8.63  .        .      .      V .Q      .
16.300      1.0789      8.01  .        .      .       VQ.      .
16.317      1.0891      7.38  .        .      .      QV .      .
16.333      1.0984      6.75  .        .      .   Q   V .      .
16.350      1.1068      6.12  .        .      . Q     V .      .
16.367      1.1144      5.49  .        .      Q       V .      .
16.383      1.1211      4.87  .        .     Q  .      V.      .
16.400      1.1269      4.24  .        .    Q   .      V.      .
16.417      1.1319      3.61  .        .  Q     .      V.      .
16.433      1.1360      2.99  .        Q        .      V.      .
16.450      1.1397      2.71  .       Q.        .      V.      .
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16.467	1.1433	2.61	.	Q.	.	V.	.		
16.483	1.1468	2.51	.	Q.	.	V.	.		
16.500	1.1501	2.40	.	Q	.	V.	.		
16.517	1.1533	2.30	.	Q	.	V.	.		
16.533	1.1563	2.20	.	Q	.	V	.		
16.550	1.1592	2.10	.	Q	.	V	.		
16.567	1.1619	1.99	.	Q	.	V	.		
16.583	1.1645	1.89	.	Q	.	V	.		
16.600	1.1670	1.79	.	Q	.	V	.		
16.617	1.1693	1.69	.	Q	.	V	.		
16.633	1.1715	1.58	.	Q	.	V	.		
16.650	1.1736	1.49	.	Q	.	V	.		
16.667	1.1755	1.44	.	Q	.	V	.		
16.683	1.1775	1.42	.	Q	.	V	.		
16.700	1.1794	1.40	.	Q	.	V	.		
16.717	1.1813	1.38	.	Q	.	V	.		
16.733	1.1832	1.36	.	Q	.	V	.		
16.750	1.1850	1.33	.	Q	.	V	.		
16.767	1.1868	1.31	.	Q	.	V	.		
16.783	1.1886	1.29	.	Q	.	V	.		
16.800	1.1904	1.27	.	Q	.	V	.		
16.817	1.1921	1.25	.	Q	.	V	.		
16.833	1.1938	1.23	.	Q	.	.V	.		
16.850	1.1954	1.20	.	Q	.	.V	.		
16.867	1.1971	1.18	.	Q	.	.V	.		
16.883	1.1987	1.17	.	Q	.	.V	.		
16.900	1.2003	1.16	.	Q	.	.V	.		
16.917	1.2018	1.14	.	Q	.	.V	.		
16.933	1.2034	1.13	.	Q	.	.V	.		
16.950	1.2049	1.12	.	Q	.	.V	.		
16.967	1.2065	1.10	.	Q	.	.V	.		
16.983	1.2080	1.09	.	Q	.	.V	.		
17.000	1.2094	1.08	.	Q	.	.V	.		
17.017	1.2109	1.07	.	Q	.	.V	.		
17.033	1.2124	1.05	.	Q	.	.V	.		
17.050	1.2138	1.04	.	Q	.	.V	.		
17.067	1.2152	1.03	.	Q	.	.V	.		
17.083	1.2166	1.01	.	Q	.	.V	.		
17.100	1.2180	1.01	.	Q	.	.V	.		
17.117	1.2194	1.01	.	Q	.	.V	.		
17.133	1.2208	1.00	.	Q	.	.V	.		
17.150	1.2221	1.00	.	Q	.	.V	.		
17.167	1.2235	1.00	.	Q	.	.V	.		
17.183	1.2249	0.99	.	Q	.	.V	.		
17.200	1.2262	0.99	.	Q	.	.V	.		
17.217	1.2276	0.98	.	Q	.	.V	.		
17.233	1.2289	0.98	.	Q	.	.V	.		
17.250	1.2303	0.98	.	Q	.	.V	.		
17.267	1.2316	0.97	.	Q	.	.V	.		
17.283	1.2330	0.97	.	Q	.	. V	.		
17.300	1.2343	0.97	.	Q	.	. V	.		
17.317	1.2356	0.96	.	Q	.	. V	.		
17.333	1.2369	0.95	.	Q	.	. V	.		
17.350	1.2382	0.95	.	Q	.	. V	.		
17.367	1.2395	0.94	.	Q	.	. V	.		
17.383	1.2408	0.93	.	Q	.	. V	.		
17.400	1.2421	0.93	.	Q	.	. V	.		
17.417	1.2434	0.92	.	Q	.	. V	.		
17.433	1.2446	0.91	.	Q	.	. V	.		
17.450	1.2459	0.91	.	Q	.	.	. V	.	
17.467	1.2471	0.90	.	Q	.	.	. V	.	
17.483	1.2483	0.89	.	Q	.	.	. V	.	
17.500	1.2496	0.89	.	Q	.	.	. V	.	
17.517	1.2508	0.88	.	Q	.	.	. V	.	
17.533	1.2520	0.88	.	Q	.	.	. V	.	
17.550	1.2532	0.87	.	Q	.	.	. V	.	
17.567	1.2544	0.86	.	Q	.	.	. V	.	
17.583	1.2555	0.86	.	Q	.	.	. V	.	
17.600	1.2567	0.85	.	Q	.	.	. V	.	
17.617	1.2579	0.85	.	Q	.	.	. V	.	
17.633	1.2591	0.84	.	Q	.	.	. V	.	
17.650	1.2602	0.84	.	Q	.	.	. V	.	
17.667	1.2614	0.83	.	Q	.	.	. V	.	
17.683	1.2625	0.83	.	Q	.	.	. V	.	
17.700	1.2636	0.82	.	Q	.	.	. V	.	
17.717	1.2648	0.82	.	Q	.	.	. V	.	
17.733	1.2659	0.81	.	Q	.	.	. V	.	
17.750	1.2670	0.81	.	Q	.	.	. V	.	
17.767	1.2681	0.80	.	Q	.	.	. V	.	
17.783	1.2692	0.80	.	Q	.	.	. V	.	
17.800	1.2703	0.80	.	Q	.	.	. V	.	
17.817	1.2714	0.79	.	Q	.	.	. V	.	
17.833	1.2725	0.79	.	Q	.	.	. V	.	
17.850	1.2736	0.78	.	Q	.	.	. V	.	
17.867	1.2746	0.78	.	Q	.	.	. V	.	
17.883	1.2757	0.78	.	Q	.	.	. V	.	
17.900	1.2768	0.77	.	Q	.	.	. V	.	
17.917	1.2778	0.77	.	Q	.	.	. V	.	
17.933	1.2789	0.76	.	Q	.	.	. V	.	
17.950	1.2799	0.76	.	Q	.	.	. V	.	
17.967	1.2810	0.76	.	Q	.	.	. V	.	
17.983	1.2820	0.75	.	Q	.	.	. V	.	
18.000	1.2830	0.75	.	Q	.	.	. V	.	
18.017	1.2841	0.75	.	Q	.	.	. V	.	
18.033	1.2851	0.74	.	Q	.	.	. V	.	
18.050	1.2861	0.74	.	Q	.	.	. V	.	
18.067	1.2871	0.74	.	Q	.	.	. V	.	
18.083	1.2881	0.73	.	Q	.	.	. V	.	
18.100	1.2891	0.73	.	Q	.	.	. V	.	
18.117	1.2901	0.73	.	Q	.	.	. V	.	
18.133	1.2911	0.72	.	Q	.	.	. V	.	
18.150	1.2921	0.72	.	Q	.	.	. V	.	
18.167	1.2931	0.72	.	Q	.	.	. V	.	
18.183	1.2941	0.72	.	Q	.	.	. V	.	
18.200	1.2951	0.72	.	Q	.	.	. V	.	
18.217	1.2961	0.72	.	Q	.	.	. V	.	
18.233	1.2971	0.71	.	Q	.	.	. V	.	
18.250	1.2980	0.71	.	Q	.	.	. V	.	
18.267	1.2990	0.71	.	Q	.	.	. V	.	
18.283	1.3000	0.71	.	Q	.	.	. V	.	
18.300	1.3010	0.71	.	Q	.	.	. V	.	
18.317	1.3019	0.71	.	Q	.	.	. V	.	
18.333	1.3029	0.71	.	Q	.	.	. V	.	
18.350	1.3039	0.71	.	Q	.	.	. V	.	
18.367	1.3049	0.71	.	Q	.	.	. V	.	
18.383	1.3058	0.70	.	Q	.	.	. V	.	
18.400	1.3068	0.70	.	Q	.	.	. V	.	
18.417	1.3078	0.70	.	Q	.	.	. V	.	

18.433	1.3087	0.70	.	Q	.	.	.	V	.			
18.450	1.3097	0.69	.	Q	.	.	.	V	.			
18.467	1.3106	0.69	.	Q	.	.	.	V	.			
18.483	1.3116	0.69	.	Q	.	.	.	V	.			
18.500	1.3125	0.69	.	Q	.	.	.	V	.			
18.517	1.3135	0.68	.	Q	.	.	.	V	.			
18.533	1.3144	0.68	.	Q	.	.	.	V	.			
18.550	1.3154	0.68	.	Q	.	.	.	V	.			
18.567	1.3163	0.68	.	Q	.	.	.	V	.			
18.583	1.3172	0.67	.	Q	.	.	.	V	.			
18.600	1.3181	0.67	.	Q	.	.	.	V	.			
18.617	1.3191	0.67	.	Q	.	.	.	V	.			
18.633	1.3200	0.67	.	Q	.	.	.	V	.			
18.650	1.3209	0.67	.	Q	.	.	.	V	.			
18.667	1.3218	0.66	.	Q	.	.	.	V	.			
18.683	1.3227	0.66	.	Q	.	.	.	V	.			
18.700	1.3236	0.66	.	Q	.	.	.	V	.			
18.717	1.3245	0.66	.	Q	.	.	.	V	.			
18.733	1.3254	0.65	.	Q	.	.	.	V	.			
18.750	1.3263	0.65	.	Q	.	.	.	V	.			
18.767	1.3272	0.65	.	Q	.	.	.	V	.			
18.783	1.3281	0.65	.	Q	.	.	.	V	.			
18.800	1.3290	0.65	.	Q	.	.	.	V	.			
18.817	1.3299	0.64	.	Q	.	.	.	V	.			
18.833	1.3308	0.64	.	Q	.	.	.	V	.			
18.850	1.3317	0.64	.	Q	.	.	.	V	.			
18.867	1.3325	0.64	.	Q	.	.	.	V	.			
18.883	1.3334	0.64	.	Q	.	.	.	V	.			
18.900	1.3343	0.63	.	Q	.	.	.	V	.			
18.917	1.3352	0.63	.	Q	.	.	.	V	.			
18.933	1.3360	0.63	.	Q	.	.	.	V	.			
18.950	1.3369	0.63	.	Q	.	.	.	V	.			
18.967	1.3378	0.63	.	Q	.	.	.	V	.			
18.983	1.3386	0.62	.	Q	.	.	.	V	.			
19.000	1.3395	0.62	.	Q	.	.	.	V	.			
19.017	1.3403	0.62	.	Q	.	.	.	V	.			
19.033	1.3412	0.62	.	Q	.	.	.	V	.			
19.050	1.3420	0.62	.	Q	.	.	.	V	.			
19.067	1.3429	0.61	.	Q	.	.	.	V	.			
19.083	1.3437	0.61	.	Q	.	.	.	V	.			
19.100	1.3446	0.61	.	Q	.	.	.	V	.			
19.117	1.3454	0.61	.	Q	.	.	.	V	.			
19.133	1.3462	0.61	.	Q	.	.	.	V	.			
19.150	1.3471	0.61	.	Q	.	.	.	V	.			
19.167	1.3479	0.60	.	Q	.	.	.	V	.			
19.183	1.3487	0.60	.	Q	.	.	.	V	.			
19.200	1.3496	0.60	.	Q	.	.	.	V	.			
19.217	1.3504	0.60	.	Q	.	.	.	V	.			
19.233	1.3512	0.60	.	Q	.	.	.	V	.			
19.250	1.3520	0.60	.	Q	.	.	.	V	.			
19.267	1.3528	0.59	.	Q	.	.	.	V	.			
19.283	1.3537	0.59	.	Q	.	.	.	V	.			
19.300	1.3545	0.59	.	Q	.	.	.	V	.			
19.317	1.3553	0.59	.	Q	.	.	.	V	.			
19.333	1.3561	0.59	.	Q	.	.	.	V	.			
19.350	1.3569	0.59	.	Q	.	.	.	V	.			
19.367	1.3577	0.58	.	Q	.	.	.	V	.			
19.383	1.3585	0.58	.	Q	.	.	.	V	.			
19.400	1.3593	0.58	.	Q	.	.	.	V	.			
19.417	1.3601	0.58	.	Q	.	.	.	V	.			
19.433	1.3609	0.58	.	Q	.	.	.	V	.			
19.450	1.3617	0.58	.	Q	.	.	.	V	.			
19.467	1.3625	0.58	.	Q	.	.	.	V	.			
19.483	1.3633	0.57	.	Q	.	.	.	V	.			
19.500	1.3641	0.57	.	Q	.	.	.	V	.			
19.517	1.3649	0.57	.	Q	.	.	.	V	.			
19.533	1.3656	0.57	.	Q	.	.	.	V	.			
19.550	1.3664	0.57	.	Q	.	.	.	V	.			
19.567	1.3672	0.57	.	Q	.	.	.	V	.			
19.583	1.3680	0.57	.	Q	.	.	.	V	.			
19.600	1.3688	0.56	.	Q	.	.	.	V	.			
19.617	1.3695	0.56	.	Q	.	.	.	V	.			
19.633	1.3703	0.56	.	Q	.	.	.	V	.			
19.650	1.3711	0.56	.	Q	.	.	.	V	.			
19.667	1.3718	0.56	.	Q	.	.	.	V	.			
19.683	1.3726	0.56	.	Q	.	.	.	V	.			
19.700	1.3734	0.56	.	Q	.	.	.	V	.			
19.717	1.3741	0.55	.	Q	.	.	.	V	.			
19.733	1.3749	0.55	.	Q	.	.	.	V	.			
19.750	1.3757	0.55	.	Q	.	.	.	V	.			
19.767	1.3764	0.55	.	Q	.	.	.	V	.			
19.783	1.3772	0.55	.	Q	.	.	.	V	.			
19.800	1.3779	0.55	.	Q	.	.	.	V	.			
19.817	1.3787	0.55	.	Q	.	.	.	V	.			
19.833	1.3794	0.55	.	Q	.	.	.	V	.			
19.850	1.3802	0.54	.	Q	.	.	.	V	.			
19.867	1.3809	0.54	.	Q	.	.	.	V	.			
19.883	1.3817	0.54	.	Q	.	.	.	V	.			
19.900	1.3824	0.54	.	Q	.	.	.	V	.			
19.917	1.3832	0.54	.	Q	.	.	.	V	.			
19.933	1.3839	0.54	.	Q	.	.	.	V	.			
19.950	1.3846	0.54	.	Q	.	.	.	V	.			
19.967	1.3854	0.54	.	Q	.	.	.	V	.			
19.983	1.3861	0.53	.	Q	.	.	.	V	.			
20.000	1.3869	0.53	.	Q	.	.	.	V	.			
20.017	1.3876	0.53	.	Q	.	.	.	V	.			
20.033	1.3883	0.53	.	Q	.	.	.	V	.			
20.050	1.3890	0.53	.	Q	.	.	.	V	.			
20.067	1.3898	0.53	.	Q	.	.	.	V	.			
20.083	1.3905	0.53	.	Q	.	.	.	V	.			
20.100	1.3912	0.53	.	Q	.	.	.	V	.			
20.117	1.3919	0.52	.	Q	.	.	.	V	.			
20.133	1.3927	0.52	.	Q	.	.	.	V	.			
20.150	1.3934	0.52	.	Q	.	.	.	V	.			
20.167	1.3941	0.52	.	Q	.	.	.	V	.			
20.183	1.3948	0.52	.	Q	.	.	.	V	.			
20.200	1.3955	0.52	.	Q	.	.	.	V	.			
20.217	1.3963	0.52	.	Q	.	.	.	V	.			
20.233	1.3970	0.52	.	Q	.	.	.	V	.			
20.250	1.3977	0.52	.	Q	.	.	.	V	.			
20.267	1.3984	0.52	.	Q	.	.	.	V	.			
20.283	1.3991	0.51	.	Q	.	.	.	V	.			
20.300	1.3998	0.51	.	Q	.	.	.	V	.			
20.317	1.4005	0.51	.	Q	.	.	.	V	.			
20.333	1.4012	0.51	.	Q	.	.	.	V	.			
20.350	1.4019	0.51	.	Q	.	.	.	V	.			
20.367	1.4026	0.51	.	Q	.	.	.	V	.			
20.383	1.4033	0.51	.	Q	.	.	.	V	.			

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20.400    1.4040    0.51  .Q      .       .       .    V  .
20.417    1.4047    0.51  .Q      .       .       .    V  .
20.433    1.4054    0.50  .Q      .       .       .    V  .
20.450    1.4061    0.50  .Q      .       .       .    V  .
20.467    1.4068    0.50  .Q      .       .       .    V  .
20.483    1.4075    0.50  .Q      .       .       .    V  .
20.500    1.4082    0.50  .Q      .       .       .    V  .
20.517    1.4089    0.50  .Q      .       .       .    V  .
20.533    1.4095    0.50  .Q      .       .       .    V  .
20.550    1.4102    0.50  .Q      .       .       .    V  .
20.567    1.4109    0.50  .Q      .       .       .    V  .
20.583    1.4116    0.50  .Q      .       .       .    V  .
20.600    1.4123    0.50  .Q      .       .       .    V  .
20.617    1.4130    0.49  .Q      .       .       .    V  .
20.633    1.4136    0.49  .Q      .       .       .    V  .
20.650    1.4143    0.49  .Q      .       .       .    V  .
20.667    1.4150    0.49  .Q      .       .       .    V  .
20.683    1.4157    0.49  .Q      .       .       .    V  .
20.700    1.4163    0.49  .Q      .       .       .    V  .
20.717    1.4170    0.49  .Q      .       .       .    V  .
20.733    1.4177    0.49  .Q      .       .       .    V  .
20.750    1.4184    0.49  .Q      .       .       .    V  .
20.767    1.4190    0.49  .Q      .       .       .    V  .
20.783    1.4197    0.48  .Q      .       .       .    V  .
20.800    1.4204    0.48  .Q      .       .       .    V  .
20.817    1.4210    0.48  .Q      .       .       .    V  .
20.833    1.4217    0.48  .Q      .       .       .    V  .
20.850    1.4224    0.48  .Q      .       .       .    V  .
20.867    1.4230    0.48  .Q      .       .       .    V  .
20.883    1.4237    0.48  .Q      .       .       .    V  .
20.900    1.4243    0.48  .Q      .       .       .    V  .
20.917    1.4250    0.48  .Q      .       .       .     V .
20.933    1.4257    0.48  .Q      .       .       .     V .
20.950    1.4263    0.48  .Q      .       .       .     V .
20.967    1.4270    0.48  .Q      .       .       .     V .
20.983    1.4276    0.47  .Q      .       .       .     V .
21.000    1.4283    0.47  .Q      .       .       .     V .
21.017    1.4289    0.47  .Q      .       .       .     V .
21.033    1.4296    0.47  .Q      .       .       .     V .
21.050    1.4302    0.47  .Q      .       .       .     V .
21.067    1.4309    0.47  .Q      .       .       .     V .
21.083    1.4315    0.47  .Q      .       .       .     V .
21.100    1.4322    0.47  .Q      .       .       .     V .
21.117    1.4328    0.47  .Q      .       .       .     V .
21.133    1.4335    0.47  .Q      .       .       .     V .
21.150    1.4341    0.47  .Q      .       .       .     V .
21.167    1.4347    0.47  .Q      .       .       .     V .
21.183    1.4354    0.46  .Q      .       .       .     V .
21.200    1.4360    0.46  .Q      .       .       .     V .
21.217    1.4367    0.46  .Q      .       .       .     V .
21.233    1.4373    0.46  .Q      .       .       .     V .
21.250    1.4379    0.46  .Q      .       .       .     V .
21.267    1.4386    0.46  .Q      .       .       .     V .
21.283    1.4392    0.46  .Q      .       .       .     V .
21.300    1.4398    0.46  .Q      .       .       .     V .
21.317    1.4405    0.46  .Q      .       .       .     V .
21.333    1.4411    0.46  .Q      .       .       .     V .
21.350    1.4417    0.46  .Q      .       .       .     V .
21.367    1.4424    0.46  .Q      .       .       .     V .
21.383    1.4430    0.46  .Q      .       .       .     V .
21.400    1.4436    0.45  .Q      .       .       .     V .
21.417    1.4442    0.45  .Q      .       .       .     V .
21.433    1.4449    0.45  .Q      .       .       .     V .
21.450    1.4455    0.45  .Q      .       .       .     V .
21.467    1.4461    0.45  .Q      .       .       .     V .
21.483    1.4467    0.45  .Q      .       .       .     V .
21.500    1.4473    0.45  .Q      .       .       .     V .
21.517    1.4480    0.45  .Q      .       .       .     V .
21.533    1.4486    0.45  .Q      .       .       .     V .
21.550    1.4492    0.45  .Q      .       .       .     V .
21.567    1.4498    0.45  .Q      .       .       .     V .
21.583    1.4504    0.45  .Q      .       .       .     V .
21.600    1.4510    0.45  .Q      .       .       .     V .
21.617    1.4517    0.45  .Q      .       .       .     V .
21.633    1.4523    0.44  .Q      .       .       .     V .
21.650    1.4529    0.44  .Q      .       .       .     V .
21.667    1.4535    0.44  .Q      .       .       .     V .
21.683    1.4541    0.44  .Q      .       .       .     V .
21.700    1.4547    0.44  .Q      .       .       .     V .
21.717    1.4553    0.44  .Q      .       .       .     V .
21.733    1.4559    0.44  .Q      .       .       .     V .
21.750    1.4565    0.44  .Q      .       .       .     V .
21.767    1.4571    0.44  .Q      .       .       .     V .
21.783    1.4578    0.44  .Q      .       .       .     V .
21.800    1.4584    0.44  .Q      .       .       .     V .
21.817    1.4590    0.44  .Q      .       .       .     V .
21.833    1.4596    0.44  .Q      .       .       .     V .
21.850    1.4602    0.44  .Q      .       .       .     V .
21.867    1.4608    0.44  .Q      .       .       .     V .
21.883    1.4614    0.44  .Q      .       .       .     V .
21.900    1.4620    0.43  .Q      .       .       .     V .
21.917    1.4626    0.43  .Q      .       .       .     V .
21.933    1.4632    0.43  .Q      .       .       .      V.
21.950    1.4637    0.43  .Q      .       .       .      V.
21.967    1.4643    0.43  .Q      .       .       .      V.
21.983    1.4649    0.43  .Q      .       .       .      V.
22.000    1.4655    0.43  .Q      .       .       .      V.
22.017    1.4661    0.43  .Q      .       .       .      V.
22.033    1.4667    0.43  .Q      .       .       .      V.
22.050    1.4673    0.43  .Q      .       .       .      V.
22.067    1.4679    0.43  .Q      .       .       .      V.
22.083    1.4685    0.43  .Q      .       .       .      V.
22.100    1.4691    0.43  .Q      .       .       .      V.
22.117    1.4697    0.43  .Q      .       .       .      V.
22.133    1.4702    0.43  .Q      .       .       .      V.
22.150    1.4708    0.43  .Q      .       .       .      V.
22.167    1.4714    0.42  .Q      .       .       .      V.
22.183    1.4720    0.42  .Q      .       .       .      V.
22.200    1.4726    0.42  .Q      .       .       .      V.
22.217    1.4732    0.42  .Q      .       .       .      V.
22.233    1.4737    0.42  .Q      .       .       .      V.
22.250    1.4743    0.42  .Q      .       .       .      V.
22.267    1.4749    0.42  .Q      .       .       .      V.
22.283    1.4755    0.42  .Q      .       .       .      V.
22.300    1.4761    0.42  .Q      .       .       .      V.
22.317    1.4766    0.42  .Q      .       .       .      V.
22.333    1.4772    0.42  .Q      .       .       .      V.
22.350    1.4778    0.42  .Q      .       .       .      V.
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22.367	1.4784	0.42	.Q	.	.	.	V .
22.383	1.4789	0.42	.Q	.	.	.	V .
22.400	1.4795	0.42	.Q	.	.	.	V .
22.417	1.4801	0.42	.Q	.	.	.	V .
22.433	1.4807	0.42	.Q	.	.	.	V .
22.450	1.4812	0.41	.Q	.	.	.	V .
22.467	1.4818	0.41	.Q	.	.	.	V .
22.483	1.4824	0.41	.Q	.	.	.	V .
22.500	1.4829	0.41	.Q	.	.	.	V .
22.517	1.4835	0.41	.Q	.	.	.	V .
22.533	1.4841	0.41	.Q	.	.	.	V .
22.550	1.4846	0.41	.Q	.	.	.	V .
22.567	1.4852	0.41	.Q	.	.	.	V .
22.583	1.4858	0.41	.Q	.	.	.	V .
22.600	1.4863	0.41	.Q	.	.	.	V .
22.617	1.4869	0.41	.Q	.	.	.	V .
22.633	1.4875	0.41	.Q	.	.	.	V .
22.650	1.4880	0.41	.Q	.	.	.	V .
22.667	1.4886	0.41	.Q	.	.	.	V .
22.683	1.4891	0.41	.Q	.	.	.	V .
22.700	1.4897	0.41	.Q	.	.	.	V .
22.717	1.4903	0.41	.Q	.	.	.	V .
22.733	1.4908	0.41	.Q	.	.	.	V .
22.750	1.4914	0.40	.Q	.	.	.	V .
22.767	1.4919	0.40	.Q	.	.	.	V .
22.783	1.4925	0.40	.Q	.	.	.	V .
22.800	1.4930	0.40	.Q	.	.	.	V .
22.817	1.4936	0.40	.Q	.	.	.	V .
22.833	1.4942	0.40	.Q	.	.	.	V .
22.850	1.4947	0.40	.Q	.	.	.	V .
22.867	1.4953	0.40	.Q	.	.	.	V .
22.883	1.4958	0.40	.Q	.	.	.	V .
22.900	1.4964	0.40	.Q	.	.	.	V .
22.917	1.4969	0.40	.Q	.	.	.	V .
22.933	1.4975	0.40	.Q	.	.	.	V .
22.950	1.4980	0.40	.Q	.	.	.	V .
22.967	1.4986	0.40	.Q	.	.	.	V .
22.983	1.4991	0.40	.Q	.	.	.	V .
23.000	1.4997	0.40	.Q	.	.	.	V .
23.017	1.5002	0.40	.Q	.	.	.	V .
23.033	1.5008	0.40	.Q	.	.	.	V .
23.050	1.5013	0.40	.Q	.	.	.	V .
23.067	1.5018	0.40	.Q	.	.	.	V.
23.083	1.5024	0.39	.Q	.	.	.	V.
23.100	1.5029	0.39	.Q	.	.	.	V.
23.117	1.5035	0.39	.Q	.	.	.	V.
23.133	1.5040	0.39	.Q	.	.	.	V.
23.150	1.5046	0.39	.Q	.	.	.	V.
23.167	1.5051	0.39	.Q	.	.	.	V.
23.183	1.5056	0.39	.Q	.	.	.	V.
23.200	1.5062	0.39	.Q	.	.	.	V.
23.217	1.5067	0.39	.Q	.	.	.	V.
23.233	1.5073	0.39	.Q	.	.	.	V.
23.250	1.5078	0.39	.Q	.	.	.	V.
23.267	1.5083	0.39	.Q	.	.	.	V.
23.283	1.5089	0.39	.Q	.	.	.	V.
23.300	1.5094	0.39	.Q	.	.	.	V.
23.317	1.5099	0.39	.Q	.	.	.	V.
23.333	1.5105	0.39	.Q	.	.	.	V.
23.350	1.5110	0.39	.Q	.	.	.	V.
23.367	1.5115	0.39	.Q	.	.	.	V.
23.383	1.5121	0.39	.Q	.	.	.	V.
23.400	1.5126	0.39	.Q	.	.	.	V.
23.417	1.5131	0.39	.Q	.	.	.	V.
23.433	1.5137	0.39	.Q	.	.	.	V.
23.450	1.5142	0.38	.Q	.	.	.	V.
23.467	1.5147	0.38	.Q	.	.	.	V.
23.483	1.5152	0.38	.Q	.	.	.	V.
23.500	1.5158	0.38	.Q	.	.	.	V.
23.517	1.5163	0.38	.Q	.	.	.	V.
23.533	1.5168	0.38	.Q	.	.	.	V.
23.550	1.5174	0.38	.Q	.	.	.	V.
23.567	1.5179	0.38	.Q	.	.	.	V.
23.583	1.5184	0.38	.Q	.	.	.	V.
23.600	1.5189	0.38	.Q	.	.	.	V.
23.617	1.5195	0.38	.Q	.	.	.	V.
23.633	1.5200	0.38	.Q	.	.	.	V.
23.650	1.5205	0.38	.Q	.	.	.	V.
23.667	1.5210	0.38	.Q	.	.	.	V.
23.683	1.5215	0.38	.Q	.	.	.	V.
23.700	1.5221	0.38	.Q	.	.	.	V.
23.717	1.5226	0.38	.Q	.	.	.	V.
23.733	1.5231	0.38	.Q	.	.	.	V.
23.750	1.5236	0.38	.Q	.	.	.	V.
23.767	1.5241	0.38	.Q	.	.	.	V.
23.783	1.5247	0.38	.Q	.	.	.	V.
23.800	1.5252	0.38	.Q	.	.	.	V.
23.817	1.5257	0.38	.Q	.	.	.	V.
23.833	1.5262	0.37	.Q	.	.	.	V.
23.850	1.5267	0.37	.Q	.	.	.	V.
23.867	1.5272	0.37	.Q	.	.	.	V.
23.883	1.5278	0.37	.Q	.	.	.	V.
23.900	1.5283	0.37	.Q	.	.	.	V.
23.917	1.5288	0.37	.Q	.	.	.	V.
23.933	1.5293	0.37	.Q	.	.	.	V.
23.950	1.5298	0.37	.Q	.	.	.	V.
23.967	1.5303	0.37	.Q	.	.	.	V.
23.983	1.5308	0.37	.Q	.	.	.	V.
24.000	1.5313	0.37	.Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1441.0
10%	715.0
20%	300.0
30%	170.0
40%	110.0
50%	95.0
60%	75.0
70%	55.0
80%	35.0
90%	20.0

```
****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

           STREAM HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
       (Notes: Time indicated is at END of Each Unit Intervals.
               Peak 5-minute rainfall intensity is modeled as
               a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        5.0      10.0      15.0      20.0
----------------------------------------------------------------------------
   0.017      0.0000      0.00  Q        .         .         .         .
   0.033      0.0000      0.00  Q        .         .         .         .
   0.050      0.0000      0.00  Q        .         .         .         .
   0.067      0.0000      0.00  Q        .         .         .         .
   0.083      0.0000      0.00  Q        .         .         .         .
   0.100      0.0000      0.02  Q        .         .         .         .
   0.117      0.0001      0.05  Q        .         .         .         .
   0.133      0.0002      0.08  Q        .         .         .         .
   0.150      0.0004      0.11  Q        .         .         .         .
   0.167      0.0006      0.14  Q        .         .         .         .
   0.183      0.0008      0.17  Q        .         .         .         .
   0.200      0.0011      0.19  Q        .         .         .         .
   0.217      0.0014      0.22  Q        .         .         .         .
   0.233      0.0017      0.25  Q        .         .         .         .
   0.250      0.0021      0.28  Q        .         .         .         .
   0.267      0.0025      0.31  Q        .         .         .         .
   0.283      0.0030      0.34  Q        .         .         .         .
   0.300      0.0035      0.36  Q        .         .         .         .
   0.317      0.0040      0.37  Q        .         .         .         .
   0.333      0.0045      0.37  Q        .         .         .         .
   0.350      0.0050      0.37  Q        .         .         .         .
   0.367      0.0055      0.37  Q        .         .         .         .
   0.383      0.0060      0.37  Q        .         .         .         .
   0.400      0.0065      0.37  Q        .         .         .         .
   0.417      0.0070      0.37  Q        .         .         .         .
   0.433      0.0076      0.37  Q        .         .         .         .
   0.450      0.0081      0.37  Q        .         .         .         .
   0.467      0.0086      0.37  Q        .         .         .         .
   0.483      0.0091      0.37  Q        .         .         .         .
   0.500      0.0096      0.37  Q        .         .         .         .
   0.517      0.0101      0.37  Q        .         .         .         .
   0.533      0.0106      0.37  Q        .         .         .         .
   0.550      0.0111      0.37  Q        .         .         .         .
   0.567      0.0116      0.37  Q        .         .         .         .
   0.583      0.0121      0.37  Q        .         .         .         .
   0.600      0.0126      0.37  Q        .         .         .         .
   0.617      0.0132      0.37  Q        .         .         .         .
   0.633      0.0137      0.37  Q        .         .         .         .
   0.650      0.0142      0.37  Q        .         .         .         .
   0.667      0.0147      0.37  Q        .         .         .         .
   0.683      0.0152      0.37  Q        .         .         .         .
   0.700      0.0157      0.37  Q        .         .         .         .
   0.717      0.0162      0.37  Q        .         .         .         .
   0.733      0.0167      0.37  Q        .         .         .         .
   0.750      0.0173      0.37  Q        .         .         .         .
   0.767      0.0178      0.37  Q        .         .         .         .
   0.783      0.0183      0.37  Q        .         .         .         .
   0.800      0.0188      0.37  Q        .         .         .         .
   0.817      0.0193      0.37  Q        .         .         .         .
   0.833      0.0198      0.37  Q        .         .         .         .
   0.850      0.0204      0.37  Q        .         .         .         .
   0.867      0.0209      0.37  Q        .         .         .         .
   0.883      0.0214      0.37  Q        .         .         .         .
   0.900      0.0219      0.37  Q        .         .         .         .
   0.917      0.0224      0.37  Q        .         .         .         .
   0.933      0.0229      0.37  Q        .         .         .         .
   0.950      0.0234      0.37  Q        .         .         .         .
   0.967      0.0240      0.38  Q        .         .         .         .
   0.983      0.0245      0.38  Q        .         .         .         .
   1.000      0.0250      0.38  Q        .         .         .         .
   1.017      0.0255      0.38  Q        .         .         .         .
   1.033      0.0260      0.38  Q        .         .         .         .
   1.050      0.0266      0.38  Q        .         .         .         .
   1.067      0.0271      0.38  Q        .         .         .         .
   1.083      0.0276      0.38  Q        .         .         .         .
   1.100      0.0281      0.38  Q        .         .         .         .
   1.117      0.0286      0.38  Q        .         .         .         .
   1.133      0.0292      0.38  Q        .         .         .         .
   1.150      0.0297      0.38  Q        .         .         .         .
   1.167      0.0302      0.38  Q        .         .         .         .
   1.183      0.0307      0.38  Q        .         .         .         .
   1.200      0.0312      0.38  Q        .         .         .         .
   1.217      0.0318      0.38  Q        .         .         .         .
   1.233      0.0323      0.38  Q        .         .         .         .
   1.250      0.0328      0.38  Q        .         .         .         .
   1.267      0.0333      0.38  Q        .         .         .         .
   1.283      0.0339      0.38  Q        .         .         .         .
   1.300      0.0344      0.38  Q        .         .         .         .
   1.317      0.0349      0.38  Q        .         .         .         .
   1.333      0.0354      0.38  Q        .         .         .         .
   1.350      0.0359      0.38  Q        .         .         .         .
   1.367      0.0365      0.38  Q        .         .         .         .
   1.383      0.0370      0.38  Q        .         .         .         .
   1.400      0.0375      0.38  Q        .         .         .         .
   1.417      0.0380      0.38  Q        .         .         .         .
   1.433      0.0386      0.38  QV       .         .         .         .
   1.450      0.0391      0.38  QV       .         .         .         .
   1.467      0.0396      0.38  QV       .         .         .         .
   1.483      0.0401      0.38  QV       .         .         .         .
   1.500      0.0407      0.38  QV       .         .         .         .
   1.517      0.0412      0.38  QV       .         .         .         .
   1.533      0.0417      0.38  QV       .         .         .         .
   1.550      0.0423      0.38  QV       .         .         .         .
   1.567      0.0428      0.38  QV       .         .         .         .
   1.583      0.0433      0.38  QV       .         .         .         .
   1.600      0.0438      0.38  QV       .         .         .         .
   1.617      0.0444      0.38  QV       .         .         .         .
   1.633      0.0449      0.38  QV       .         .         .         .
   1.650      0.0454      0.38  QV       .         .         .         .
   1.667      0.0460      0.38  QV       .         .         .         .
   1.683      0.0465      0.38  QV       .         .         .         .
   1.700      0.0470      0.39  QV       .         .         .         .
   1.717      0.0476      0.39  QV       .         .         .         .
   1.733      0.0481      0.39  QV       .         .         .         .
```

1.750	0.0486	0.39	QV	.	.	.	.
1.767	0.0491	0.39	QV	.	.	.	.
1.783	0.0497	0.39	QV	.	.	.	.
1.800	0.0502	0.39	QV	.	.	.	.
1.817	0.0507	0.39	QV	.	.	.	.
1.833	0.0513	0.39	QV	.	.	.	.
1.850	0.0518	0.39	QV	.	.	.	.
1.867	0.0523	0.39	QV	.	.	.	.
1.883	0.0529	0.39	QV	.	.	.	.
1.900	0.0534	0.39	QV	.	.	.	.
1.917	0.0539	0.39	QV	.	.	.	.
1.933	0.0545	0.39	QV	.	.	.	.
1.950	0.0550	0.39	QV	.	.	.	.
1.967	0.0556	0.39	QV	.	.	.	.
1.983	0.0561	0.39	QV	.	.	.	.
2.000	0.0566	0.39	QV	.	.	.	.
2.017	0.0572	0.39	QV	.	.	.	.
2.033	0.0577	0.39	QV	.	.	.	.
2.050	0.0582	0.39	QV	.	.	.	.
2.067	0.0588	0.39	QV	.	.	.	.
2.083	0.0593	0.39	QV	.	.	.	.
2.100	0.0599	0.39	QV	.	.	.	.
2.117	0.0604	0.39	QV	.	.	.	.
2.133	0.0609	0.39	QV	.	.	.	.
2.150	0.0615	0.39	QV	.	.	.	.
2.167	0.0620	0.39	QV	.	.	.	.
2.183	0.0625	0.39	QV	.	.	.	.
2.200	0.0631	0.39	QV	.	.	.	.
2.217	0.0636	0.39	QV	.	.	.	.
2.233	0.0642	0.39	QV	.	.	.	.
2.250	0.0647	0.39	QV	.	.	.	.
2.267	0.0652	0.39	QV	.	.	.	.
2.283	0.0658	0.39	QV	.	.	.	.
2.300	0.0663	0.39	QV	.	.	.	.
2.317	0.0669	0.39	QV	.	.	.	.
2.333	0.0674	0.39	QV	.	.	.	.
2.350	0.0680	0.39	QV	.	.	.	.
2.367	0.0685	0.39	QV	.	.	.	.
2.383	0.0690	0.39	QV	.	.	.	.
2.400	0.0696	0.40	QV	.	.	.	.
2.417	0.0701	0.40	QV	.	.	.	.
2.433	0.0707	0.40	QV	.	.	.	.
2.450	0.0712	0.40	QV	.	.	.	.
2.467	0.0718	0.40	QV	.	.	.	.
2.483	0.0723	0.40	QV	.	.	.	.
2.500	0.0729	0.40	QV	.	.	.	.
2.517	0.0734	0.40	QV	.	.	.	.
2.533	0.0740	0.40	QV	.	.	.	.
2.550	0.0745	0.40	QV	.	.	.	.
2.567	0.0750	0.40	QV	.	.	.	.
2.583	0.0756	0.40	QV	.	.	.	.
2.600	0.0761	0.40	QV	.	.	.	.
2.617	0.0767	0.40	QV	.	.	.	.
2.633	0.0772	0.40	Q V	.	.	.	.
2.650	0.0778	0.40	Q V	.	.	.	.
2.667	0.0783	0.40	Q V	.	.	.	.
2.683	0.0789	0.40	Q V	.	.	.	.
2.700	0.0794	0.40	Q V	.	.	.	.
2.717	0.0800	0.40	Q V	.	.	.	.
2.733	0.0805	0.40	Q V	.	.	.	.
2.750	0.0811	0.40	Q V	.	.	.	.
2.767	0.0816	0.40	Q V	.	.	.	.
2.783	0.0822	0.40	Q V	.	.	.	.
2.800	0.0827	0.40	Q V	.	.	.	.
2.817	0.0833	0.40	Q V	.	.	.	.
2.833	0.0838	0.40	Q V	.	.	.	.
2.850	0.0844	0.40	Q V	.	.	.	.
2.867	0.0850	0.40	Q V	.	.	.	.
2.883	0.0855	0.40	Q V	.	.	.	.
2.900	0.0861	0.40	Q V	.	.	.	.
2.917	0.0866	0.40	Q V	.	.	.	.
2.933	0.0872	0.40	Q V	.	.	.	.
2.950	0.0877	0.40	Q V	.	.	.	.
2.967	0.0883	0.40	Q V	.	.	.	.
2.983	0.0888	0.40	Q V	.	.	.	.
3.000	0.0894	0.40	Q V	.	.	.	.
3.017	0.0900	0.40	Q V	.	.	.	.
3.033	0.0905	0.40	Q V	.	.	.	.
3.050	0.0911	0.40	Q V	.	.	.	.
3.067	0.0916	0.40	Q V	.	.	.	.
3.083	0.0922	0.40	Q V	.	.	.	.
3.100	0.0927	0.40	Q V	.	.	.	.
3.117	0.0933	0.41	Q V	.	.	.	.
3.133	0.0939	0.41	Q V	.	.	.	.
3.150	0.0944	0.41	Q V	.	.	.	.
3.167	0.0950	0.41	Q V	.	.	.	.
3.183	0.0955	0.41	Q V	.	.	.	.
3.200	0.0961	0.41	Q V	.	.	.	.
3.217	0.0967	0.41	Q V	.	.	.	.
3.233	0.0972	0.41	Q V	.	.	.	.
3.250	0.0978	0.41	Q V	.	.	.	.
3.267	0.0983	0.41	Q V	.	.	.	.
3.283	0.0989	0.41	Q V	.	.	.	.
3.300	0.0995	0.41	Q V	.	.	.	.
3.317	0.1000	0.41	Q V	.	.	.	.
3.333	0.1006	0.41	Q V	.	.	.	.
3.350	0.1012	0.41	Q V	.	.	.	.
3.367	0.1017	0.41	Q V	.	.	.	.
3.383	0.1023	0.41	Q V	.	.	.	.
3.400	0.1029	0.41	Q V	.	.	.	.
3.417	0.1034	0.41	Q V	.	.	.	.
3.433	0.1040	0.41	Q V	.	.	.	.
3.450	0.1046	0.41	Q V	.	.	.	.
3.467	0.1051	0.41	Q V	.	.	.	.
3.483	0.1057	0.41	Q V	.	.	.	.
3.500	0.1063	0.41	Q V	.	.	.	.
3.517	0.1068	0.41	Q V	.	.	.	.
3.533	0.1074	0.41	Q V	.	.	.	.
3.550	0.1080	0.41	Q V	.	.	.	.
3.567	0.1085	0.41	Q V	.	.	.	.
3.583	0.1091	0.41	Q V	.	.	.	.
3.600	0.1097	0.41	Q V	.	.	.	.
3.617	0.1102	0.41	Q V	.	.	.	.
3.633	0.1108	0.41	Q V	.	.	.	.
3.650	0.1114	0.41	Q V	.	.	.	.
3.667	0.1119	0.41	Q V	.	.	.	.
3.683	0.1125	0.42	Q V	.	.	.	.
3.700	0.1131	0.42	Q V	.	.	.	.

3.717	0.1137	0.42	Q	V	.	.	.	.
3.733	0.1142	0.42	Q	V	.	.	.	.
3.750	0.1148	0.42	Q	V	.	.	.	.
3.767	0.1154	0.42	Q	V	.	.	.	.
3.783	0.1160	0.42	Q	V	.	.	.	.
3.800	0.1165	0.42	Q	V	.	.	.	.
3.817	0.1171	0.42	Q	V	.	.	.	.
3.833	0.1177	0.42	Q	V	.	.	.	.
3.850	0.1183	0.42	Q	V	.	.	.	.
3.867	0.1188	0.42	Q	V	.	.	.	.
3.883	0.1194	0.42	Q	V	.	.	.	.
3.900	0.1200	0.42	Q	V	.	.	.	.
3.917	0.1206	0.42	Q	V	.	.	.	.
3.933	0.1211	0.42	Q	V	.	.	.	.
3.950	0.1217	0.42	Q	V	.	.	.	.
3.967	0.1223	0.42	Q	V	.	.	.	.
3.983	0.1229	0.42	Q	V	.	.	.	.
4.000	0.1235	0.42	Q	V	.	.	.	.
4.017	0.1240	0.42	Q	V	.	.	.	.
4.033	0.1246	0.42	Q	V	.	.	.	.
4.050	0.1252	0.42	Q	V	.	.	.	.
4.067	0.1258	0.42	Q	V	.	.	.	.
4.083	0.1264	0.42	Q	V	.	.	.	.
4.100	0.1269	0.42	Q	V	.	.	.	.
4.117	0.1275	0.42	Q	V	.	.	.	.
4.133	0.1281	0.42	Q	V	.	.	.	.
4.150	0.1287	0.42	Q	V	.	.	.	.
4.167	0.1293	0.42	Q	V	.	.	.	.
4.183	0.1299	0.42	Q	V	.	.	.	.
4.200	0.1304	0.42	Q	V	.	.	.	.
4.217	0.1310	0.42	Q	V	.	.	.	.
4.233	0.1316	0.42	Q	V	.	.	.	.
4.250	0.1322	0.42	Q	V	.	.	.	.
4.267	0.1328	0.43	Q	V	.	.	.	.
4.283	0.1334	0.43	Q	V	.	.	.	.
4.300	0.1340	0.43	Q	V	.	.	.	.
4.317	0.1345	0.43	Q	V	.	.	.	.
4.333	0.1351	0.43	Q	V	.	.	.	.
4.350	0.1357	0.43	Q	V	.	.	.	.
4.367	0.1363	0.43	Q	V	.	.	.	.
4.383	0.1369	0.43	Q	V	.	.	.	.
4.400	0.1375	0.43	Q	V	.	.	.	.
4.417	0.1381	0.43	Q	V	.	.	.	.
4.433	0.1387	0.43	Q	V	.	.	.	.
4.450	0.1392	0.43	Q	V	.	.	.	.
4.467	0.1398	0.43	Q	V	.	.	.	.
4.483	0.1404	0.43	Q	V	.	.	.	.
4.500	0.1410	0.43	Q	V	.	.	.	.
4.517	0.1416	0.43	Q	V	.	.	.	.
4.533	0.1422	0.43	Q	V	.	.	.	.
4.550	0.1428	0.43	Q	V	.	.	.	.
4.567	0.1434	0.43	Q	V	.	.	.	.
4.583	0.1440	0.43	Q	V	.	.	.	.
4.600	0.1446	0.43	Q	V	.	.	.	.
4.617	0.1452	0.43	Q	V	.	.	.	.
4.633	0.1458	0.43	Q	V	.	.	.	.
4.650	0.1464	0.43	Q	V	.	.	.	.
4.667	0.1470	0.43	Q	V	.	.	.	.
4.683	0.1476	0.43	Q	V	.	.	.	.
4.700	0.1481	0.43	Q	V	.	.	.	.
4.717	0.1487	0.43	Q	V	.	.	.	.
4.733	0.1493	0.43	Q	V	.	.	.	.
4.750	0.1499	0.43	Q	V	.	.	.	.
4.767	0.1505	0.43	Q	V	.	.	.	.
4.783	0.1511	0.43	Q	V	.	.	.	.
4.800	0.1517	0.43	Q	V	.	.	.	.
4.817	0.1523	0.43	Q	V	.	.	.	.
4.833	0.1529	0.44	Q	V	.	.	.	.
4.850	0.1535	0.44	Q	V	.	.	.	.
4.867	0.1541	0.44	Q	V	.	.	.	.
4.883	0.1547	0.44	Q	V	.	.	.	.
4.900	0.1553	0.44	Q	V	.	.	.	.
4.917	0.1559	0.44	Q	V	.	.	.	.
4.933	0.1565	0.44	Q	V	.	.	.	.
4.950	0.1571	0.44	Q	V	.	.	.	.
4.967	0.1577	0.44	Q	V	.	.	.	.
4.983	0.1584	0.44	Q	V	.	.	.	.
5.000	0.1590	0.44	Q	V	.	.	.	.
5.017	0.1596	0.44	Q	V	.	.	.	.
5.033	0.1602	0.44	Q	V	.	.	.	.
5.050	0.1608	0.44	Q	V	.	.	.	.
5.067	0.1614	0.44	Q	V	.	.	.	.
5.083	0.1620	0.44	Q	V	.	.	.	.
5.100	0.1626	0.44	Q	V	.	.	.	.
5.117	0.1632	0.44	Q	V	.	.	.	.
5.133	0.1638	0.44	Q	V	.	.	.	.
5.150	0.1644	0.44	Q	V	.	.	.	.
5.167	0.1650	0.44	Q	V	.	.	.	.
5.183	0.1656	0.44	Q	V	.	.	.	.
5.200	0.1663	0.44	Q	V	.	.	.	.
5.217	0.1669	0.44	Q	V	.	.	.	.
5.233	0.1675	0.44	Q	V	.	.	.	.
5.250	0.1681	0.44	Q	V	.	.	.	.
5.267	0.1687	0.44	Q	V	.	.	.	.
5.283	0.1693	0.44	Q	V	.	.	.	.
5.300	0.1699	0.44	Q	V	.	.	.	.
5.317	0.1705	0.45	Q	V	.	.	.	.
5.333	0.1711	0.45	Q	V	.	.	.	.
5.350	0.1718	0.45	Q	V	.	.	.	.
5.367	0.1724	0.45	Q	V	.	.	.	.
5.383	0.1730	0.45	Q	V	.	.	.	.
5.400	0.1736	0.45	Q	V	.	.	.	.
5.417	0.1742	0.45	Q	V	.	.	.	.
5.433	0.1748	0.45	Q	V	.	.	.	.
5.450	0.1755	0.45	Q	V	.	.	.	.
5.467	0.1761	0.45	Q	V	.	.	.	.
5.483	0.1767	0.45	Q	V	.	.	.	.
5.500	0.1773	0.45	Q	V	.	.	.	.
5.517	0.1779	0.45	Q	V	.	.	.	.
5.533	0.1786	0.45	Q	V	.	.	.	.
5.550	0.1792	0.45	Q	V	.	.	.	.
5.567	0.1798	0.45	Q	V	.	.	.	.
5.583	0.1804	0.45	Q	V	.	.	.	.
5.600	0.1810	0.45	Q	V	.	.	.	.
5.617	0.1817	0.45	Q	V	.	.	.	.
5.633	0.1823	0.45	Q	V	.	.	.	.
5.650	0.1829	0.45	Q	V	.	.	.	.
5.667	0.1835	0.45	Q	V	.	.	.	.

5.683	0.1842	0.45	Q	V	.	.	.	.
5.700	0.1848	0.45	Q	V	.	.	.	.
5.717	0.1854	0.45	Q	V	.	.	.	.
5.733	0.1860	0.45	Q	V	.	.	.	.
5.750	0.1867	0.45	Q	V	.	.	.	.
5.767	0.1873	0.45	Q	V	.	.	.	.
5.783	0.1879	0.46	Q	V	.	.	.	.
5.800	0.1885	0.46	Q	V	.	.	.	.
5.817	0.1892	0.46	Q	V	.	.	.	.
5.833	0.1898	0.46	Q	V	.	.	.	.
5.850	0.1904	0.46	Q	V	.	.	.	.
5.867	0.1911	0.46	Q	V	.	.	.	.
5.883	0.1917	0.46	Q	V	.	.	.	.
5.900	0.1923	0.46	Q	V	.	.	.	.
5.917	0.1930	0.46	Q	V	.	.	.	.
5.933	0.1936	0.46	Q	V	.	.	.	.
5.950	0.1942	0.46	Q	V	.	.	.	.
5.967	0.1948	0.46	Q	V	.	.	.	.
5.983	0.1955	0.46	Q	V	.	.	.	.
6.000	0.1961	0.46	Q	V	.	.	.	.
6.017	0.1968	0.46	Q	V	.	.	.	.
6.033	0.1974	0.46	Q	V	.	.	.	.
6.050	0.1980	0.46	Q	V	.	.	.	.
6.067	0.1987	0.46	Q	V	.	.	.	.
6.083	0.1993	0.46	Q	V	.	.	.	.
6.100	0.1999	0.46	Q	V	.	.	.	.
6.117	0.2006	0.46	Q	V	.	.	.	.
6.133	0.2012	0.46	Q	V	.	.	.	.
6.150	0.2018	0.46	Q	V	.	.	.	.
6.167	0.2025	0.46	Q	V	.	.	.	.
6.183	0.2031	0.46	Q	V	.	.	.	.
6.200	0.2038	0.46	Q	V	.	.	.	.
6.217	0.2044	0.47	Q	V	.	.	.	.
6.233	0.2050	0.47	Q	V	.	.	.	.
6.250	0.2057	0.47	Q	V	.	.	.	.
6.267	0.2063	0.47	Q	V	.	.	.	.
6.283	0.2070	0.47	Q	V	.	.	.	.
6.300	0.2076	0.47	Q	V	.	.	.	.
6.317	0.2083	0.47	Q	V	.	.	.	.
6.333	0.2089	0.47	Q	V	.	.	.	.
6.350	0.2096	0.47	Q	V	.	.	.	.
6.367	0.2102	0.47	Q	V	.	.	.	.
6.383	0.2108	0.47	Q	V	.	.	.	.
6.400	0.2115	0.47	Q	V	.	.	.	.
6.417	0.2121	0.47	Q	V	.	.	.	.
6.433	0.2128	0.47	Q	V	.	.	.	.
6.450	0.2134	0.47	Q	V	.	.	.	.
6.467	0.2141	0.47	Q	V	.	.	.	.
6.483	0.2147	0.47	Q	V	.	.	.	.
6.500	0.2154	0.47	Q	V	.	.	.	.
6.517	0.2160	0.47	Q	V	.	.	.	.
6.533	0.2167	0.47	Q	V	.	.	.	.
6.550	0.2173	0.47	Q	V	.	.	.	.
6.567	0.2180	0.47	Q	V	.	.	.	.
6.583	0.2186	0.47	Q	V	.	.	.	.
6.600	0.2193	0.47	Q	V	.	.	.	.
6.617	0.2199	0.47	Q	V	.	.	.	.
6.633	0.2206	0.48	Q	V	.	.	.	.
6.650	0.2213	0.48	Q	V	.	.	.	.
6.667	0.2219	0.48	Q	V	.	.	.	.
6.683	0.2226	0.48	Q	V	.	.	.	.
6.700	0.2232	0.48	Q	V	.	.	.	.
6.717	0.2239	0.48	Q	V	.	.	.	.
6.733	0.2245	0.48	Q	V	.	.	.	.
6.750	0.2252	0.48	Q	V	.	.	.	.
6.767	0.2259	0.48	Q	V	.	.	.	.
6.783	0.2265	0.48	Q	V	.	.	.	.
6.800	0.2272	0.48	Q	V	.	.	.	.
6.817	0.2279	0.48	Q	V	.	.	.	.
6.833	0.2285	0.48	Q	V	.	.	.	.
6.850	0.2292	0.48	Q	V	.	.	.	.
6.867	0.2298	0.48	Q	V	.	.	.	.
6.883	0.2305	0.48	Q	V	.	.	.	.
6.900	0.2312	0.48	Q	V	.	.	.	.
6.917	0.2318	0.48	Q	V	.	.	.	.
6.933	0.2325	0.48	Q	V	.	.	.	.
6.950	0.2332	0.48	Q	V	.	.	.	.
6.967	0.2338	0.48	Q	V	.	.	.	.
6.983	0.2345	0.48	Q	V	.	.	.	.
7.000	0.2352	0.48	Q	V	.	.	.	.
7.017	0.2358	0.48	Q	V	.	.	.	.
7.033	0.2365	0.49	Q	V	.	.	.	.
7.050	0.2372	0.49	Q	V	.	.	.	.
7.067	0.2378	0.49	Q	V	.	.	.	.
7.083	0.2385	0.49	Q	V	.	.	.	.
7.100	0.2392	0.49	Q	V	.	.	.	.
7.117	0.2399	0.49	Q	V	.	.	.	.
7.133	0.2405	0.49	Q	V	.	.	.	.
7.150	0.2412	0.49	Q	V	.	.	.	.
7.167	0.2419	0.49	Q	V	.	.	.	.
7.183	0.2426	0.49	Q	V	.	.	.	.
7.200	0.2432	0.49	Q	V	.	.	.	.
7.217	0.2439	0.49	Q	V	.	.	.	.
7.233	0.2446	0.49	Q	V	.	.	.	.
7.250	0.2453	0.49	Q	V	.	.	.	.
7.267	0.2459	0.49	Q	V	.	.	.	.
7.283	0.2466	0.49	Q	V	.	.	.	.
7.300	0.2473	0.49	Q	V	.	.	.	.
7.317	0.2480	0.49	Q	V	.	.	.	.
7.333	0.2487	0.49	Q	V	.	.	.	.
7.350	0.2493	0.49	Q	V	.	.	.	.
7.367	0.2500	0.49	Q	V	.	.	.	.
7.383	0.2507	0.49	Q	V	.	.	.	.
7.400	0.2514	0.50	Q	V	.	.	.	.
7.417	0.2521	0.50	Q	V	.	.	.	.
7.433	0.2528	0.50	Q	V	.	.	.	.
7.450	0.2534	0.50	Q	V	.	.	.	.
7.467	0.2541	0.50	Q	V	.	.	.	.
7.483	0.2548	0.50	Q	V	.	.	.	.
7.500	0.2555	0.50	Q	V	.	.	.	.
7.517	0.2562	0.50	Q	V	.	.	.	.
7.533	0.2569	0.50	.Q	V	.	.	.	.
7.550	0.2576	0.50	.Q	V	.	.	.	.
7.567	0.2583	0.50	.Q	V	.	.	.	.
7.583	0.2589	0.50	.Q	V	.	.	.	.
7.600	0.2596	0.50	.Q	V	.	.	.	.
7.617	0.2603	0.50	.Q	V	.	.	.	.
7.633	0.2610	0.50	.Q	V	.	.	.	.

7.650	0.2617	0.50	.Q	V	.	.	.	.
7.667	0.2624	0.50	.Q	V	.	.	.	.
7.683	0.2631	0.50	.Q	V	.	.	.	.
7.700	0.2638	0.51	.Q	V	.	.	.	.
7.717	0.2645	0.51	.Q	V	.	.	.	.
7.733	0.2652	0.51	.Q	V	.	.	.	.
7.750	0.2659	0.51	.Q	V	.	.	.	.
7.767	0.2666	0.51	.Q	V	.	.	.	.
7.783	0.2673	0.51	.Q	V	.	.	.	.
7.800	0.2680	0.51	.Q	V	.	.	.	.
7.817	0.2687	0.51	.Q	V	.	.	.	.
7.833	0.2694	0.51	.Q	V	.	.	.	.
7.850	0.2701	0.51	.Q	V	.	.	.	.
7.867	0.2708	0.51	.Q	V	.	.	.	.
7.883	0.2715	0.51	.Q	V	.	.	.	.
7.900	0.2722	0.51	.Q	V	.	.	.	.
7.917	0.2729	0.51	.Q	V	.	.	.	.
7.933	0.2736	0.51	.Q	V	.	.	.	.
7.950	0.2743	0.51	.Q	V	.	.	.	.
7.967	0.2750	0.51	.Q	V	.	.	.	.
7.983	0.2757	0.51	.Q	V	.	.	.	.
8.000	0.2764	0.51	.Q	V	.	.	.	.
8.017	0.2771	0.52	.Q	V	.	.	.	.
8.033	0.2779	0.52	.Q	V	.	.	.	.
8.050	0.2786	0.52	.Q	V	.	.	.	.
8.067	0.2793	0.52	.Q	V	.	.	.	.
8.083	0.2800	0.52	.Q	V	.	.	.	.
8.100	0.2807	0.52	.Q	V	.	.	.	.
8.117	0.2814	0.52	.Q	V	.	.	.	.
8.133	0.2821	0.52	.Q	V	.	.	.	.
8.150	0.2828	0.52	.Q	V	.	.	.	.
8.167	0.2836	0.52	.Q	V	.	.	.	.
8.183	0.2843	0.52	.Q	V	.	.	.	.
8.200	0.2850	0.52	.Q	V	.	.	.	.
8.217	0.2857	0.52	.Q	V	.	.	.	.
8.233	0.2864	0.52	.Q	V	.	.	.	.
8.250	0.2871	0.52	.Q	V	.	.	.	.
8.267	0.2879	0.52	.Q	V	.	.	.	.
8.283	0.2886	0.52	.Q	V	.	.	.	.
8.300	0.2893	0.52	.Q	V	.	.	.	.
8.317	0.2900	0.52	.Q	V	.	.	.	.
8.333	0.2907	0.52	.Q	V	.	.	.	.
8.350	0.2915	0.53	.Q	V	.	.	.	.
8.367	0.2922	0.53	.Q	V	.	.	.	.
8.383	0.2929	0.53	.Q	V	.	.	.	.
8.400	0.2936	0.53	.Q	V	.	.	.	.
8.417	0.2944	0.53	.Q	V	.	.	.	.
8.433	0.2951	0.53	.Q	V	.	.	.	.
8.450	0.2958	0.53	.Q	V	.	.	.	.
8.467	0.2966	0.53	.Q	V	.	.	.	.
8.483	0.2973	0.53	.Q	V	.	.	.	.
8.500	0.2980	0.53	.Q	V	.	.	.	.
8.517	0.2988	0.53	.Q	V	.	.	.	.
8.533	0.2995	0.53	.Q	V	.	.	.	.
8.550	0.3002	0.53	.Q	V	.	.	.	.
8.567	0.3010	0.53	.Q	V	.	.	.	.
8.583	0.3017	0.53	.Q	V	.	.	.	.
8.600	0.3024	0.53	.Q	V	.	.	.	.
8.617	0.3032	0.53	.Q	V	.	.	.	.
8.633	0.3039	0.53	.Q	V	.	.	.	.
8.650	0.3046	0.54	.Q	V	.	.	.	.
8.667	0.3054	0.54	.Q	V	.	.	.	.
8.683	0.3061	0.54	.Q	V	.	.	.	.
8.700	0.3069	0.54	.Q	V	.	.	.	.
8.717	0.3076	0.54	.Q	V	.	.	.	.
8.733	0.3083	0.54	.Q	V	.	.	.	.
8.750	0.3091	0.54	.Q	V	.	.	.	.
8.767	0.3098	0.54	.Q	V	.	.	.	.
8.783	0.3106	0.54	.Q	V	.	.	.	.
8.800	0.3113	0.54	.Q	V	.	.	.	.
8.817	0.3121	0.54	.Q	V	.	.	.	.
8.833	0.3128	0.54	.Q	V	.	.	.	.
8.850	0.3136	0.54	.Q	V	.	.	.	.
8.867	0.3143	0.54	.Q	V	.	.	.	.
8.883	0.3151	0.55	.Q	V	.	.	.	.
8.900	0.3158	0.55	.Q	V	.	.	.	.
8.917	0.3166	0.55	.Q	V	.	.	.	.
8.933	0.3173	0.55	.Q	V	.	.	.	.
8.950	0.3181	0.55	.Q	V	.	.	.	.
8.967	0.3188	0.55	.Q	V	.	.	.	.
8.983	0.3196	0.55	.Q	V	.	.	.	.
9.000	0.3204	0.55	.Q	V	.	.	.	.
9.017	0.3211	0.55	.Q	V	.	.	.	.
9.033	0.3219	0.55	.Q	V	.	.	.	.
9.050	0.3226	0.55	.Q	V	.	.	.	.
9.067	0.3234	0.55	.Q	V	.	.	.	.
9.083	0.3241	0.55	.Q	V	.	.	.	.
9.100	0.3249	0.55	.Q	V	.	.	.	.
9.117	0.3257	0.55	.Q	V	.	.	.	.
9.133	0.3264	0.55	.Q	V	.	.	.	.
9.150	0.3272	0.55	.Q	V	.	.	.	.
9.167	0.3280	0.55	.Q	V	.	.	.	.
9.183	0.3287	0.56	.Q	V	.	.	.	.
9.200	0.3295	0.56	.Q	V	.	.	.	.
9.217	0.3303	0.56	.Q	V	.	.	.	.
9.233	0.3310	0.56	.Q	V	.	.	.	.
9.250	0.3318	0.56	.Q	V	.	.	.	.
9.267	0.3326	0.56	.Q	V	.	.	.	.
9.283	0.3333	0.56	.Q	V	.	.	.	.
9.300	0.3341	0.56	.Q	V	.	.	.	.
9.317	0.3349	0.56	.Q	V	.	.	.	.
9.333	0.3357	0.56	.Q	V	.	.	.	.
9.350	0.3364	0.56	.Q	V	.	.	.	.
9.367	0.3372	0.56	.Q	V	.	.	.	.
9.383	0.3380	0.57	.Q	V	.	.	.	.
9.400	0.3388	0.57	.Q	V	.	.	.	.
9.417	0.3396	0.57	.Q	V	.	.	.	.
9.433	0.3403	0.57	.Q	V	.	.	.	.
9.450	0.3411	0.57	.Q	V	.	.	.	.
9.467	0.3419	0.57	.Q	V	.	.	.	.
9.483	0.3427	0.57	.Q	V	.	.	.	.
9.500	0.3435	0.57	.Q	V	.	.	.	.
9.517	0.3443	0.57	.Q	V	.	.	.	.
9.533	0.3450	0.57	.Q	V	.	.	.	.
9.550	0.3458	0.57	.Q	V	.	.	.	.
9.567	0.3466	0.57	.Q	V.		.	.	.
9.583	0.3474	0.57	.Q	V.		.	.	.
9.600	0.3482	0.57	.Q	V.		.	.	.

9.617	0.3490	0.57	.Q	V.	.	.	.
9.633	0.3498	0.58	.Q	V.	.	.	.
9.650	0.3506	0.58	.Q	V.	.	.	.
9.667	0.3514	0.58	.Q	V.	.	.	.
9.683	0.3522	0.58	.Q	V.	.	.	.
9.700	0.3530	0.58	.Q	V.	.	.	.
9.717	0.3538	0.58	.Q	V.	.	.	.
9.733	0.3546	0.58	.Q	V.	.	.	.
9.750	0.3554	0.58	.Q	V.	.	.	.
9.767	0.3562	0.58	.Q	V.	.	.	.
9.783	0.3570	0.58	.Q	V.	.	.	.
9.800	0.3578	0.58	.Q	V.	.	.	.
9.817	0.3586	0.58	.Q	V.	.	.	.
9.833	0.3594	0.59	.Q	V.	.	.	.
9.850	0.3602	0.59	.Q	V.	.	.	.
9.867	0.3610	0.59	.Q	V.	.	.	.
9.883	0.3618	0.59	.Q	V.	.	.	.
9.900	0.3626	0.59	.Q	V.	.	.	.
9.917	0.3634	0.59	.Q	V.	.	.	.
9.933	0.3642	0.59	.Q	V.	.	.	.
9.950	0.3650	0.59	.Q	V.	.	.	.
9.967	0.3659	0.59	.Q	V.	.	.	.
9.983	0.3667	0.59	.Q	V.	.	.	.
10.000	0.3675	0.59	.Q	V.	.	.	.
10.017	0.3683	0.59	.Q	V.	.	.	.
10.033	0.3691	0.59	.Q	V.	.	.	.
10.050	0.3699	0.59	.Q	V.	.	.	.
10.067	0.3708	0.60	.Q	V.	.	.	.
10.083	0.3716	0.60	.Q	V.	.	.	.
10.100	0.3724	0.60	.Q	V.	.	.	.
10.117	0.3732	0.60	.Q	V.	.	.	.
10.133	0.3740	0.60	.Q	V.	.	.	.
10.150	0.3749	0.60	.Q	V.	.	.	.
10.167	0.3757	0.60	.Q	V.	.	.	.
10.183	0.3765	0.60	.Q	V.	.	.	.
10.200	0.3774	0.60	.Q	V.	.	.	.
10.217	0.3782	0.60	.Q	V.	.	.	.
10.233	0.3790	0.61	.Q	V.	.	.	.
10.250	0.3799	0.61	.Q	V.	.	.	.
10.267	0.3807	0.61	.Q	V.	.	.	.
10.283	0.3815	0.61	.Q	V.	.	.	.
10.300	0.3824	0.61	.Q	V.	.	.	.
10.317	0.3832	0.61	.Q	V.	.	.	.
10.333	0.3841	0.61	.Q	V.	.	.	.
10.350	0.3849	0.61	.Q	V.	.	.	.
10.367	0.3857	0.61	.Q	V	.	.	.
10.383	0.3866	0.61	.Q	V	.	.	.
10.400	0.3874	0.61	.Q	V	.	.	.
10.417	0.3883	0.61	.Q	V	.	.	.
10.433	0.3891	0.61	.Q	V	.	.	.
10.450	0.3899	0.61	.Q	V	.	.	.
10.467	0.3908	0.62	.Q	V	.	.	.
10.483	0.3916	0.62	.Q	V	.	.	.
10.500	0.3925	0.62	.Q	V	.	.	.
10.517	0.3933	0.62	.Q	V	.	.	.
10.533	0.3942	0.62	.Q	V	.	.	.
10.550	0.3951	0.62	.Q	V	.	.	.
10.567	0.3959	0.62	.Q	V	.	.	.
10.583	0.3968	0.62	.Q	V	.	.	.
10.600	0.3976	0.63	.Q	V	.	.	.
10.617	0.3985	0.63	.Q	V	.	.	.
10.633	0.3994	0.63	.Q	V	.	.	.
10.650	0.4002	0.63	.Q	V	.	.	.
10.667	0.4011	0.63	.Q	V	.	.	.
10.683	0.4020	0.63	.Q	V	.	.	.
10.700	0.4028	0.63	.Q	V	.	.	.
10.717	0.4037	0.63	.Q	V	.	.	.
10.733	0.4046	0.63	.Q	V	.	.	.
10.750	0.4054	0.63	.Q	V	.	.	.
10.767	0.4063	0.63	.Q	V	.	.	.
10.783	0.4072	0.63	.Q	V	.	.	.
10.800	0.4081	0.63	.Q	V	.	.	.
10.817	0.4089	0.63	.Q	V	.	.	.
10.833	0.4098	0.64	.Q	V	.	.	.
10.850	0.4107	0.64	.Q	V	.	.	.
10.867	0.4116	0.64	.Q	V	.	.	.
10.883	0.4124	0.64	.Q	V	.	.	.
10.900	0.4133	0.64	.Q	V	.	.	.
10.917	0.4142	0.64	.Q	V	.	.	.
10.933	0.4151	0.64	.Q	V	.	.	.
10.950	0.4160	0.64	.Q	V	.	.	.
10.967	0.4169	0.65	.Q	V	.	.	.
10.983	0.4178	0.65	.Q	V	.	.	.
11.000	0.4187	0.65	.Q	V	.	.	.
11.017	0.4196	0.65	.Q	V	.	.	.
11.033	0.4205	0.65	.Q	V	.	.	.
11.050	0.4214	0.65	.Q	V	.	.	.
11.067	0.4223	0.65	.Q	V	.	.	.
11.083	0.4232	0.65	.Q	V	.	.	.
11.100	0.4241	0.66	.Q	.V	.	.	.
11.117	0.4250	0.66	.Q	.V	.	.	.
11.133	0.4259	0.66	.Q	.V	.	.	.
11.150	0.4268	0.66	.Q	.V	.	.	.
11.167	0.4277	0.66	.Q	.V	.	.	.
11.183	0.4286	0.66	.Q	.V	.	.	.
11.200	0.4295	0.66	.Q	.V	.	.	.
11.217	0.4304	0.66	.Q	.V	.	.	.
11.233	0.4313	0.66	.Q	.V	.	.	.
11.250	0.4322	0.66	.Q	.V	.	.	.
11.267	0.4331	0.66	.Q	.V	.	.	.
11.283	0.4341	0.66	.Q	.V	.	.	.
11.300	0.4350	0.67	.Q	.V	.	.	.
11.317	0.4359	0.67	.Q	.V	.	.	.
11.333	0.4368	0.67	.Q	.V	.	.	.
11.350	0.4377	0.67	.Q	.V	.	.	.
11.367	0.4387	0.67	.Q	.V	.	.	.
11.383	0.4396	0.67	.Q	.V	.	.	.
11.400	0.4405	0.68	.Q	.V	.	.	.
11.417	0.4415	0.68	.Q	.V	.	.	.
11.433	0.4424	0.68	.Q	.V	.	.	.
11.450	0.4433	0.68	.Q	.V	.	.	.
11.467	0.4443	0.68	.Q	.V	.	.	.
11.483	0.4452	0.68	.Q	.V	.	.	.
11.500	0.4461	0.68	.Q	.V	.	.	.
11.517	0.4471	0.69	.Q	.V	.	.	.
11.533	0.4480	0.69	.Q	.V	.	.	.
11.550	0.4490	0.69	.Q	.V	.	.	.
11.567	0.4499	0.69	.Q	.V	.	.	.

11.583	0.4509	0.69	.Q	.V	.	.	.
11.600	0.4518	0.69	.Q	.V	.	.	.
11.617	0.4528	0.69	.Q	.V	.	.	.
11.633	0.4537	0.69	.Q	.V	.	.	.
11.650	0.4547	0.69	.Q	.V	.	.	.
11.667	0.4556	0.69	.Q	.V	.	.	.
11.683	0.4566	0.69	.Q	.V	.	.	.
11.700	0.4575	0.69	.Q	.V	.	.	.
11.717	0.4585	0.70	.Q	.V	.	.	.
11.733	0.4595	0.70	.Q	.V	.	.	.
11.750	0.4604	0.70	.Q	.V	.	.	.
11.767	0.4614	0.70	.Q	.V	.	.	.
11.783	0.4624	0.70	.Q	. V	.	.	.
11.800	0.4633	0.70	.Q	. V	.	.	.
11.817	0.4643	0.71	.Q	. V	.	.	.
11.833	0.4653	0.71	.Q	. V	.	.	.
11.850	0.4663	0.71	.Q	. V	.	.	.
11.867	0.4672	0.71	.Q	. V	.	.	.
11.883	0.4682	0.71	.Q	. V	.	.	.
11.900	0.4692	0.72	.Q	. V	.	.	.
11.917	0.4702	0.72	.Q	. V	.	.	.
11.933	0.4712	0.72	.Q	. V	.	.	.
11.950	0.4722	0.72	.Q	. V	.	.	.
11.967	0.4732	0.72	.Q	. V	.	.	.
11.983	0.4742	0.72	.Q	. V	.	.	.
12.000	0.4752	0.72	.Q	. V	.	.	.
12.017	0.4762	0.72	.Q	. V	.	.	.
12.033	0.4772	0.72	.Q	. V	.	.	.
12.050	0.4782	0.73	.Q	. V	.	.	.
12.067	0.4792	0.73	.Q	. V	.	.	.
12.083	0.4802	0.73	.Q	. V	.	.	.
12.100	0.4812	0.73	.Q	. V	.	.	.
12.117	0.4822	0.73	.Q	. V	.	.	.
12.133	0.4832	0.73	.Q	. V	.	.	.
12.150	0.4842	0.73	.Q	. V	.	.	.
12.167	0.4852	0.73	.Q	. V	.	.	.
12.183	0.4862	0.73	.Q	. V	.	.	.
12.200	0.4872	0.73	.Q	. V	.	.	.
12.217	0.4882	0.73	.Q	. V	.	.	.
12.233	0.4892	0.73	.Q	. V	.	.	.
12.250	0.4902	0.73	.Q	. V	.	.	.
12.267	0.4912	0.73	.Q	. V	.	.	.
12.283	0.4922	0.73	.Q	. V	.	.	.
12.300	0.4932	0.73	.Q	. V	.	.	.
12.317	0.4942	0.73	.Q	. V	.	.	.
12.333	0.4952	0.73	.Q	. V	.	.	.
12.350	0.4963	0.73	.Q	. V	.	.	.
12.367	0.4973	0.73	.Q	. V	.	.	.
12.383	0.4983	0.73	.Q	. V	.	.	.
12.400	0.4993	0.73	.Q	. V	.	.	.
12.417	0.5003	0.73	.Q	. V	.	.	.
12.433	0.5013	0.74	.Q	. V	.	.	.
12.450	0.5023	0.74	.Q	. V	.	.	.
12.467	0.5033	0.74	.Q	. V	.	.	.
12.483	0.5043	0.74	.Q	. V	.	.	.
12.500	0.5054	0.74	.Q	. V	.	.	.
12.517	0.5064	0.74	.Q	. V	.	.	.
12.533	0.5074	0.74	.Q	. V	.	.	.
12.550	0.5084	0.74	.Q	. V	.	.	.
12.567	0.5095	0.74	.Q	. V	.	.	.
12.583	0.5105	0.75	.Q	. V	.	.	.
12.600	0.5115	0.75	.Q	. V	.	.	.
12.617	0.5126	0.75	.Q	. V	.	.	.
12.633	0.5136	0.75	.Q	. V	.	.	.
12.650	0.5146	0.76	.Q	. V	.	.	.
12.667	0.5157	0.76	.Q	. V	.	.	.
12.683	0.5167	0.76	.Q	. V	.	.	.
12.700	0.5178	0.76	.Q	. V	.	.	.
12.717	0.5188	0.77	.Q	. V	.	.	.
12.733	0.5199	0.77	.Q	. V	.	.	.
12.750	0.5210	0.77	.Q	. V	.	.	.
12.767	0.5220	0.77	.Q	. V	.	.	.
12.783	0.5231	0.78	.Q	. V	.	.	.
12.800	0.5242	0.78	.Q	. V	.	.	.
12.817	0.5253	0.78	.Q	. V	.	.	.
12.833	0.5263	0.78	.Q	. V	.	.	.
12.850	0.5274	0.78	.Q	. V	.	.	.
12.867	0.5285	0.78	.Q	. V	.	.	.
12.883	0.5296	0.79	.Q	. V	.	.	.
12.900	0.5307	0.79	.Q	. V	.	.	.
12.917	0.5317	0.79	.Q	. V	.	.	.
12.933	0.5328	0.79	.Q	. V	.	.	.
12.950	0.5339	0.79	.Q	. V	.	.	.
12.967	0.5350	0.79	.Q	. V	.	.	.
12.983	0.5361	0.79	.Q	. V	.	.	.
13.000	0.5372	0.80	.Q	. V	.	.	.
13.017	0.5383	0.80	.Q	. V	.	.	.
13.033	0.5394	0.80	.Q	. V	.	.	.
13.050	0.5405	0.80	.Q	. V	.	.	.
13.067	0.5416	0.81	.Q	. V	.	.	.
13.083	0.5427	0.81	.Q	. V	.	.	.
13.100	0.5439	0.81	.Q	. V	.	.	.
13.117	0.5450	0.82	.Q	. V	.	.	.
13.133	0.5461	0.82	.Q	. V	.	.	.
13.150	0.5472	0.82	.Q	. V	.	.	.
13.167	0.5484	0.83	.Q	. V	.	.	.
13.183	0.5495	0.83	.Q	. V	.	.	.
13.200	0.5507	0.83	.Q	. V	.	.	.
13.217	0.5518	0.84	.Q	. V	.	.	.
13.233	0.5530	0.84	.Q	. V	.	.	.
13.250	0.5541	0.84	.Q	. V	.	.	.
13.267	0.5553	0.84	.Q	. V	.	.	.
13.283	0.5565	0.84	.Q	. V	.	.	.
13.300	0.5576	0.84	.Q	. V	.	.	.
13.317	0.5588	0.85	.Q	. V	.	.	.
13.333	0.5599	0.85	.Q	. V	.	.	.
13.350	0.5611	0.85	.Q	. V	.	.	.
13.367	0.5623	0.85	.Q	. V	.	.	.
13.383	0.5635	0.85	.Q	. V	.	.	.
13.400	0.5646	0.85	.Q	. V	.	.	.
13.417	0.5658	0.86	.Q	. V	.	.	.
13.433	0.5670	0.86	.Q	. V	.	.	.
13.450	0.5682	0.86	.Q	. V	.	.	.
13.467	0.5694	0.87	.Q	. V	.	.	.
13.483	0.5706	0.87	.Q	. V	.	.	.
13.500	0.5718	0.87	.Q	. V	.	.	.
13.517	0.5730	0.88	.Q	. V	.	.	.
13.533	0.5742	0.88	.Q	. V	.	.	.

13.550	0.5754	0.89	.Q	.	V	.	.	.
13.567	0.5767	0.89	.Q	.	V	.	.	.
13.583	0.5779	0.89	.Q	.	V	.	.	.
13.600	0.5791	0.90	.Q	.	V	.	.	.
13.617	0.5804	0.90	.Q	.	V	.	.	.
13.633	0.5816	0.91	.Q	.	V	.	.	.
13.650	0.5829	0.91	.Q	.	V	.	.	.
13.667	0.5841	0.91	.Q	.	V	.	.	.
13.683	0.5854	0.91	.Q	.	V	.	.	.
13.700	0.5866	0.91	.Q	.	V	.	.	.
13.717	0.5879	0.92	.Q	.	V	.	.	.
13.733	0.5892	0.92	.Q	.	V	.	.	.
13.750	0.5904	0.92	.Q	.	V	.	.	.
13.767	0.5917	0.92	.Q	.	V	.	.	.
13.783	0.5930	0.93	.Q	.	V	.	.	.
13.800	0.5943	0.93	.Q	.	V	.	.	.
13.817	0.5955	0.93	.Q	.	V	.	.	.
13.833	0.5968	0.93	.Q	.	V	.	.	.
13.850	0.5981	0.93	.Q	.	V	.	.	.
13.867	0.5994	0.94	.Q	.	V	.	.	.
13.883	0.6007	0.94	.Q	.	V	.	.	.
13.900	0.6020	0.95	.Q	.	V	.	.	.
13.917	0.6033	0.95	.Q	.	V	.	.	.
13.933	0.6046	0.96	.Q	.	V	.	.	.
13.950	0.6060	0.96	.Q	.	V	.	.	.
13.967	0.6073	0.97	.Q	.	V	.	.	.
13.983	0.6086	0.97	.Q	.	V	.	.	.
14.000	0.6100	0.98	.Q	.	V	.	.	.
14.017	0.6114	0.98	.Q	.	V	.	.	.
14.033	0.6127	0.99	.Q	.	V	.	.	.
14.050	0.6141	0.99	.Q	.	V	.	.	.
14.067	0.6155	1.00	.Q	.	V	.	.	.
14.083	0.6168	1.00	.Q	.	V	.	.	.
14.100	0.6182	1.00	.Q	.	V	.	.	.
14.117	0.6196	1.00	.Q	.	V	.	.	.
14.133	0.6210	0.99	.Q	.	V	.	.	.
14.150	0.6223	0.99	.Q	.	V	.	.	.
14.167	0.6237	0.99	.Q	.	V	.	.	.
14.183	0.6250	0.99	.Q	.	V	.	.	.
14.200	0.6264	0.99	.Q	.	V	.	.	.
14.217	0.6278	0.98	.Q	.	V	.	.	.
14.233	0.6291	0.98	.Q	.	V	.	.	.
14.250	0.6305	0.98	.Q	.	V	.	.	.
14.267	0.6318	0.98	.Q	.	V	.	.	.
14.283	0.6331	0.97	.Q	.	V	.	.	.
14.300	0.6345	0.98	.Q	.	V	.	.	.
14.317	0.6358	0.99	.Q	.	V	.	.	.
14.333	0.6372	0.99	.Q	.	V	.	.	.
14.350	0.6386	1.00	.Q	.	V	.	.	.
14.367	0.6400	1.01	. Q	.	V	.	.	.
14.383	0.6414	1.01	. Q	.	V	.	.	.
14.400	0.6428	1.02	. Q	.	V	.	.	.
14.417	0.6442	1.03	. Q	.	V	.	.	.
14.433	0.6456	1.03	. Q	.	V	.	.	.
14.450	0.6470	1.04	. Q	.	V	.	.	.
14.467	0.6485	1.05	. Q	.	V	.	.	.
14.483	0.6499	1.05	. Q	.	V	.	.	.
14.500	0.6514	1.06	. Q	.	V	.	.	.
14.517	0.6529	1.06	. Q	.	V	.	.	.
14.533	0.6543	1.07	. Q	.	V	.	.	.
14.550	0.6558	1.07	. Q	.	V	.	.	.
14.567	0.6573	1.08	. Q	.	V	.	.	.
14.583	0.6588	1.08	. Q	.	V	.	.	.
14.600	0.6603	1.09	. Q	.	V	.	.	.
14.617	0.6618	1.09	. Q	.	V	.	.	.
14.633	0.6633	1.09	. Q	.	V	.	.	.
14.650	0.6648	1.10	. Q	.	V	.	.	.
14.667	0.6663	1.10	. Q	.	V	.	.	.
14.683	0.6678	1.11	. Q	.	V	.	.	.
14.700	0.6694	1.11	. Q	.	V	.	.	.
14.717	0.6709	1.12	. Q	.	V	.	.	.
14.733	0.6725	1.13	. Q	.	V	.	.	.
14.750	0.6740	1.14	. Q	.	V	.	.	.
14.767	0.6756	1.15	. Q	.	V	.	.	.
14.783	0.6772	1.16	. Q	.	V	.	.	.
14.800	0.6788	1.17	. Q	.	V	.	.	.
14.817	0.6805	1.18	. Q	.	V	.	.	.
14.833	0.6821	1.19	. Q	.	V	.	.	.
14.850	0.6837	1.20	. Q	.	V	.	.	.
14.867	0.6854	1.21	. Q	.	V	.	.	.
14.883	0.6871	1.22	. Q	.	V	.	.	.
14.900	0.6888	1.23	. Q	.	V	.	.	.
14.917	0.6905	1.25	. Q	.	V	.	.	.
14.933	0.6923	1.26	. Q	.	V	.	.	.
14.950	0.6940	1.26	. Q	.	V	.	.	.
14.967	0.6957	1.27	. Q	.	V	.	.	.
14.983	0.6975	1.28	. Q	.	V	.	.	.
15.000	0.6993	1.28	. Q	.	V	.	.	.
15.017	0.7010	1.29	. Q	.	V	.	.	.
15.033	0.7028	1.30	. Q	.	V	.	.	.
15.050	0.7046	1.31	. Q	.	V	.	.	.
15.067	0.7064	1.31	. Q	.	V	.	.	.
15.083	0.7083	1.32	. Q	.	V	.	.	.
15.100	0.7101	1.33	. Q	.	V	.	.	.
15.117	0.7119	1.33	. Q	.	V	.	.	.
15.133	0.7138	1.34	. Q	.	V	.	.	.
15.150	0.7156	1.35	. Q	.	V	.	.	.
15.167	0.7175	1.37	. Q	.	V	.	.	.
15.183	0.7194	1.39	. Q	.	V	.	.	.
15.200	0.7214	1.41	. Q	.	V	.	.	.
15.217	0.7233	1.43	. Q	.	V	.	.	.
15.233	0.7253	1.45	. Q	.	V	.	.	.
15.250	0.7274	1.47	. Q	.	V	.	.	.
15.267	0.7294	1.49	. Q	.	V	.	.	.
15.283	0.7315	1.51	. Q	.	V	.	.	.
15.300	0.7336	1.53	. Q	.	V.	.	.	.
15.317	0.7357	1.55	. Q	.	V.	.	.	.
15.333	0.7379	1.57	. Q	.	V.	.	.	.
15.350	0.7401	1.59	. Q	.	V.	.	.	.
15.367	0.7423	1.61	. Q	.	V.	.	.	.
15.383	0.7446	1.67	. Q	.	V.	.	.	.
15.400	0.7469	1.72	. Q	.	V.	.	.	.
15.417	0.7494	1.77	. Q	.	V.	.	.	.
15.433	0.7519	1.82	. Q	.	V.	.	.	.
15.450	0.7545	1.87	. Q	.	V.	.	.	.
15.467	0.7571	1.92	. Q	.	V.	.	.	.
15.483	0.7598	1.98	. Q	.	V.	.	.	.
15.500	0.7626	2.03	. Q	.	V.	.	.	.

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15.517      0.7655      2.08  .   Q     .        V.         .         .
15.533      0.7684      2.13  .   Q     .        V.         .         .
15.550      0.7714      2.18  .   Q     .         V         .         .
15.567      0.7745      2.23  .   Q     .         V         .         .
15.583      0.7777      2.29  .   Q     .         V         .         .
15.600      0.7809      2.35  .   Q     .         V         .         .
15.617      0.7842      2.41  .   Q     .         V         .         .
15.633      0.7876      2.47  .   Q     .         V         .         .
15.650      0.7911      2.53  .    Q    .         V         .         .
15.667      0.7947      2.59  .    Q    .         V         .         .
15.683      0.7983      2.65  .    Q    .         V         .         .
15.700      0.8020      2.71  .    Q    .         V         .         .
15.717      0.8058      2.76  .    Q    .         V         .         .
15.733      0.8097      2.82  .    Q    .         .V        .         .
15.750      0.8137      2.88  .    Q    .         .V        .         .
15.767      0.8178      2.94  .    Q    .         .V        .         .
15.783      0.8219      3.00  .     Q   .         .V        .         .
15.800      0.8261      3.06  .     Q   .         .V        .         .
15.817      0.8304      3.12  .     Q   .         .V        .         .
15.833      0.8348      3.18  .     Q   .         .V        .         .
15.850      0.8392      3.24  .     Q   .         .V        .         .
15.867      0.8438      3.29  .     Q   .         .V        .         .
15.883      0.8484      3.35  .     Q   .         . V       .         .
15.900      0.8531      3.41  .     Q   .         . V       .         .
15.917      0.8579      3.47  .     Q   .         . V       .         .
15.933      0.8627      3.53  .      Q  .         . V       .         .
15.950      0.8677      3.58  .      Q  .         . V       .         .
15.967      0.8727      3.64  .      Q  .         . V       .         .
15.983      0.8778      3.70  .      Q  .         . V       .         .
16.000      0.8830      3.76  .      Q  .         . V       .         .
16.017      0.8886      4.06  .       Q .         .  V      .         .
16.033      0.8949      4.61  .        Q.         .  V      .         .
16.050      0.9020      5.16  .         Q        .  V      .         .
16.067      0.9099      5.71  .        .Q        .  V      .         .
16.083      0.9185      6.26  .        . Q       .  V      .         .
16.100      0.9279      6.81  .        .  Q      .   V     .         .
16.117      0.9380      7.36  .        .   Q     .   V     .         .
16.133      0.9489      7.91  .        .    Q    .   V     .         .
16.150      0.9606      8.46  .        .     Q   .   V     .         .
16.167      0.9730      9.01  .        .      Q .    V    .         .
16.183      0.9862      9.56  .        .       Q.    V    .         .
16.200      1.0001     10.11  .        .        Q    V    .         .
16.217      1.0151     10.89  .        .         .Q   V    .         .
16.233      1.0296     10.52  .        .         .Q   V    .         .
16.250      1.0432      9.89  .        .       Q.     V    .         .
16.267      1.0560      9.26  .        .      Q .     V    .         .
16.283      1.0679      8.63  .        .     Q  .     V    .         .
16.300      1.0789      8.01  .        .    Q   .      V .         .
16.317      1.0891      7.38  .        .   Q    .      V .         .
16.333      1.0984      6.75  .        .  Q     .      V .         .
16.350      1.1068      6.12  .        . Q      .      V .         .
16.367      1.1144      5.49  .        Q        .      V .         .
16.383      1.1211      4.87  .       Q.        .       V.         .
16.400      1.1269      4.24  .      Q .        .       V.         .
16.417      1.1319      3.61  .     Q  .        .       V.         .
16.433      1.1360      2.99  .    Q   .        .       V.         .
16.450      1.1397      2.71  .    Q   .        .       V.         .
16.467      1.1433      2.61  .    Q   .        .       V.         .
16.483      1.1468      2.51  .    Q   .        .       V.         .
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16.500      1.1501      2.40  .   Q     .        .        V.         .
16.517      1.1533      2.30  .   Q     .        .        V.         .
16.533      1.1563      2.20  .   Q     .        .         V         .
16.550      1.1592      2.10  .   Q     .        .         V         .
16.567      1.1619      1.99  .  Q      .        .         V         .
16.583      1.1645      1.89  .  Q      .        .         V         .
16.600      1.1670      1.79  .  Q      .        .         V         .
16.617      1.1693      1.69  .  Q      .        .         V         .
16.633      1.1715      1.58  .  Q      .        .         V         .
16.650      1.1736      1.49  . Q       .        .         V         .
16.667      1.1755      1.44  . Q       .        .         V         .
16.683      1.1775      1.42  . Q       .        .         V         .
16.700      1.1794      1.40  . Q       .        .         V         .
16.717      1.1813      1.38  . Q       .        .         V         .
16.733      1.1832      1.36  . Q       .        .         V         .
16.750      1.1850      1.33  . Q       .        .         V         .
16.767      1.1868      1.31  . Q       .        .         V         .
16.783      1.1886      1.29  . Q       .        .         V         .
16.800      1.1904      1.27  . Q       .        .         V         .
16.817      1.1921      1.25  . Q       .        .         V         .
16.833      1.1938      1.23  . Q       .        .         .V        .
16.850      1.1954      1.20  . Q       .        .         .V        .
16.867      1.1971      1.18  . Q       .        .         .V        .
16.883      1.1987      1.17  . Q       .        .         .V        .
16.900      1.2003      1.16  . Q       .        .         .V        .
16.917      1.2018      1.14  . Q       .        .         .V        .
16.933      1.2034      1.13  . Q       .        .         .V        .
16.950      1.2049      1.12  . Q       .        .         .V        .
16.967      1.2065      1.10  . Q       .        .         .V        .
16.983      1.2080      1.09  . Q       .        .         .V        .
17.000      1.2094      1.08  . Q       .        .         .V        .
17.017      1.2109      1.07  . Q       .        .         .V        .
17.033      1.2124      1.05  . Q       .        .         .V        .
17.050      1.2138      1.04  . Q       .        .         .V        .
17.067      1.2152      1.03  . Q       .        .         .V        .
17.083      1.2166      1.01  . Q       .        .         .V        .
17.100      1.2180      1.01  . Q       .        .         .V        .
17.117      1.2194      1.01  . Q       .        .         .V        .
17.133      1.2208      1.00  . Q       .        .         .V        .
17.150      1.2221      1.00  .Q        .        .         .V        .
17.167      1.2235      1.00  .Q        .        .         .V        .
17.183      1.2249      0.99  .Q        .        .         .V        .
17.200      1.2262      0.99  .Q        .        .         .V        .
17.217      1.2276      0.98  .Q        .        .         .V        .
17.233      1.2289      0.98  .Q        .        .         .V        .
17.250      1.2303      0.98  .Q        .        .         .V        .
17.267      1.2316      0.97  .Q        .        .         .V        .
17.283      1.2330      0.97  .Q        .        .         . V       .
17.300      1.2343      0.97  .Q        .        .         . V       .
17.317      1.2356      0.96  .Q        .        .         . V       .
17.333      1.2369      0.95  .Q        .        .         . V       .
17.350      1.2382      0.95  .Q        .        .         . V       .
17.367      1.2395      0.94  .Q        .        .         . V       .
17.383      1.2408      0.93  .Q        .        .         . V       .
17.400      1.2421      0.93  .Q        .        .         . V       .
17.417      1.2434      0.92  .Q        .        .         . V       .
17.433      1.2446      0.91  .Q        .        .         . V       .
17.450      1.2459      0.91  .Q        .        .         . V       .
17.467      1.2471      0.90  .Q        .        .         . V       .
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17.483	1.2483	0.89	.Q	.	.	.	V	.
17.500	1.2496	0.89	.Q	.	.	.	V	.
17.517	1.2508	0.88	.Q	.	.	.	V	.
17.533	1.2520	0.88	.Q	.	.	.	V	.
17.550	1.2532	0.87	.Q	.	.	.	V	.
17.567	1.2544	0.86	.Q	.	.	.	V	.
17.583	1.2555	0.86	.Q	.	.	.	V	.
17.600	1.2567	0.85	.Q	.	.	.	V	.
17.617	1.2579	0.85	.Q	.	.	.	V	.
17.633	1.2591	0.84	.Q	.	.	.	V	.
17.650	1.2602	0.84	.Q	.	.	.	V	.
17.667	1.2614	0.83	.Q	.	.	.	V	.
17.683	1.2625	0.83	.Q	.	.	.	V	.
17.700	1.2636	0.82	.Q	.	.	.	V	.
17.717	1.2648	0.82	.Q	.	.	.	V	.
17.733	1.2659	0.81	.Q	.	.	.	V	.
17.750	1.2670	0.81	.Q	.	.	.	V	.
17.767	1.2681	0.80	.Q	.	.	.	V	.
17.783	1.2692	0.80	.Q	.	.	.	V	.
17.800	1.2703	0.80	.Q	.	.	.	V	.
17.817	1.2714	0.79	.Q	.	.	.	V	.
17.833	1.2725	0.79	.Q	.	.	.	V	.
17.850	1.2736	0.78	.Q	.	.	.	V	.
17.867	1.2746	0.78	.Q	.	.	.	V	.
17.883	1.2757	0.78	.Q	.	.	.	V	.
17.900	1.2768	0.77	.Q	.	.	.	V	.
17.917	1.2778	0.77	.Q	.	.	.	V	.
17.933	1.2789	0.76	.Q	.	.	.	V	.
17.950	1.2799	0.76	.Q	.	.	.	V	.
17.967	1.2810	0.76	.Q	.	.	.	V	.
17.983	1.2820	0.75	.Q	.	.	.	V	.
18.000	1.2830	0.75	.Q	.	.	.	V	.
18.017	1.2841	0.75	.Q	.	.	.	V	.
18.033	1.2851	0.74	.Q	.	.	.	V	.
18.050	1.2861	0.74	.Q	.	.	.	V	.
18.067	1.2871	0.74	.Q	.	.	.	V	.
18.083	1.2881	0.73	.Q	.	.	.	V	.
18.100	1.2891	0.73	.Q	.	.	.	V	.
18.117	1.2901	0.73	.Q	.	.	.	V	.
18.133	1.2911	0.72	.Q	.	.	.	V	.
18.150	1.2921	0.72	.Q	.	.	.	V	.
18.167	1.2931	0.72	.Q	.	.	.	V	.
18.183	1.2941	0.72	.Q	.	.	.	V	.
18.200	1.2951	0.72	.Q	.	.	.	V	.
18.217	1.2961	0.72	.Q	.	.	.	V	.
18.233	1.2971	0.71	.Q	.	.	.	V	.
18.250	1.2980	0.71	.Q	.	.	.	V	.
18.267	1.2990	0.71	.Q	.	.	.	V	.
18.283	1.3000	0.71	.Q	.	.	.	V	.
18.300	1.3010	0.71	.Q	.	.	.	V	.
18.317	1.3019	0.71	.Q	.	.	.	V	.
18.333	1.3029	0.71	.Q	.	.	.	V	.
18.350	1.3039	0.71	.Q	.	.	.	V	.
18.367	1.3049	0.71	.Q	.	.	.	V	.
18.383	1.3058	0.70	.Q	.	.	.	V	.
18.400	1.3068	0.70	.Q	.	.	.	V	.
18.417	1.3078	0.70	.Q	.	.	.	V	.
18.433	1.3087	0.70	.Q	.	.	.	V	.
18.450	1.3097	0.69	.Q	.	.	.	V	.
18.467	1.3106	0.69	.Q	.	.	.	V	.
18.483	1.3116	0.69	.Q	.	.	.	V	.
18.500	1.3125	0.69	.Q	.	.	.	V	.
18.517	1.3135	0.68	.Q	.	.	.	V	.
18.533	1.3144	0.68	.Q	.	.	.	V	.
18.550	1.3154	0.68	.Q	.	.	.	V	.
18.567	1.3163	0.68	.Q	.	.	.	V	.
18.583	1.3172	0.67	.Q	.	.	.	V	.
18.600	1.3181	0.67	.Q	.	.	.	V	.
18.617	1.3191	0.67	.Q	.	.	.	V	.
18.633	1.3200	0.67	.Q	.	.	.	V	.
18.650	1.3209	0.67	.Q	.	.	.	V	.
18.667	1.3218	0.66	.Q	.	.	.	V	.
18.683	1.3227	0.66	.Q	.	.	.	V	.
18.700	1.3236	0.66	.Q	.	.	.	V	.
18.717	1.3245	0.66	.Q	.	.	.	V	.
18.733	1.3254	0.65	.Q	.	.	.	V	.
18.750	1.3263	0.65	.Q	.	.	.	V	.
18.767	1.3272	0.65	.Q	.	.	.	V	.
18.783	1.3281	0.65	.Q	.	.	.	V	.
18.800	1.3290	0.65	.Q	.	.	.	V	.
18.817	1.3299	0.64	.Q	.	.	.	V	.
18.833	1.3308	0.64	.Q	.	.	.	V	.
18.850	1.3317	0.64	.Q	.	.	.	V	.
18.867	1.3325	0.64	.Q	.	.	.	V	.
18.883	1.3334	0.64	.Q	.	.	.	V	.
18.900	1.3343	0.63	.Q	.	.	.	V	.
18.917	1.3352	0.63	.Q	.	.	.	V	.
18.933	1.3360	0.63	.Q	.	.	.	V	.
18.950	1.3369	0.63	.Q	.	.	.	V	.
18.967	1.3378	0.63	.Q	.	.	.	V	.
18.983	1.3386	0.62	.Q	.	.	.	V	.
19.000	1.3395	0.62	.Q	.	.	.	V	.
19.017	1.3403	0.62	.Q	.	.	.	V	.
19.033	1.3412	0.62	.Q	.	.	.	V	.
19.050	1.3420	0.62	.Q	.	.	.	V	.
19.067	1.3429	0.61	.Q	.	.	.	V	.
19.083	1.3437	0.61	.Q	.	.	.	V	.
19.100	1.3446	0.61	.Q	.	.	.	V	.
19.117	1.3454	0.61	.Q	.	.	.	V	.
19.133	1.3462	0.61	.Q	.	.	.	V	.
19.150	1.3471	0.61	.Q	.	.	.	V	.
19.167	1.3479	0.60	.Q	.	.	.	V	.
19.183	1.3487	0.60	.Q	.	.	.	V	.
19.200	1.3496	0.60	.Q	.	.	.	V	.
19.217	1.3504	0.60	.Q	.	.	.	V	.
19.233	1.3512	0.60	.Q	.	.	.	V	.
19.250	1.3520	0.60	.Q	.	.	.	V	.
19.267	1.3528	0.59	.Q	.	.	.	V	.
19.283	1.3537	0.59	.Q	.	.	.	V	.
19.300	1.3545	0.59	.Q	.	.	.	V	.
19.317	1.3553	0.59	.Q	.	.	.	V	.
19.333	1.3561	0.59	.Q	.	.	.	V	.
19.350	1.3569	0.59	.Q	.	.	.	V	.
19.367	1.3577	0.58	.Q	.	.	.	V	.
19.383	1.3585	0.58	.Q	.	.	.	V	.
19.400	1.3593	0.58	.Q	.	.	.	V	.
19.417	1.3601	0.58	.Q	.	.	.	V	.
19.433	1.3609	0.58	.Q	.	.	.	V	.

19.450	1.3617	0.58	.Q	.	.	.	V	.
19.467	1.3625	0.58	.Q	.	.	.	V	.
19.483	1.3633	0.57	.Q	.	.	.	V	.
19.500	1.3641	0.57	.Q	.	.	.	V	.
19.517	1.3649	0.57	.Q	.	.	.	V	.
19.533	1.3656	0.57	.Q	.	.	.	V	.
19.550	1.3664	0.57	.Q	.	.	.	V	.
19.567	1.3672	0.57	.Q	.	.	.	V	.
19.583	1.3680	0.57	.Q	.	.	.	V	.
19.600	1.3688	0.56	.Q	.	.	.	V	.
19.617	1.3695	0.56	.Q	.	.	.	V	.
19.633	1.3703	0.56	.Q	.	.	.	V	.
19.650	1.3711	0.56	.Q	.	.	.	V	.
19.667	1.3718	0.56	.Q	.	.	.	V	.
19.683	1.3726	0.56	.Q	.	.	.	V	.
19.700	1.3734	0.56	.Q	.	.	.	V	.
19.717	1.3741	0.55	.Q	.	.	.	V	.
19.733	1.3749	0.55	.Q	.	.	.	V	.
19.750	1.3757	0.55	.Q	.	.	.	V	.
19.767	1.3764	0.55	.Q	.	.	.	V	.
19.783	1.3772	0.55	.Q	.	.	.	V	.
19.800	1.3779	0.55	.Q	.	.	.	V	.
19.817	1.3787	0.55	.Q	.	.	.	V	.
19.833	1.3794	0.55	.Q	.	.	.	V	.
19.850	1.3802	0.54	.Q	.	.	.	V	.
19.867	1.3809	0.54	.Q	.	.	.	V	.
19.883	1.3817	0.54	.Q	.	.	.	V	.
19.900	1.3824	0.54	.Q	.	.	.	V	.
19.917	1.3832	0.54	.Q	.	.	.	V	.
19.933	1.3839	0.54	.Q	.	.	.	V	.
19.950	1.3846	0.54	.Q	.	.	.	V	.
19.967	1.3854	0.54	.Q	.	.	.	V	.
19.983	1.3861	0.53	.Q	.	.	.	V	.
20.000	1.3869	0.53	.Q	.	.	.	V	.
20.017	1.3876	0.53	.Q	.	.	.	V	.
20.033	1.3883	0.53	.Q	.	.	.	V	.
20.050	1.3890	0.53	.Q	.	.	.	V	.
20.067	1.3898	0.53	.Q	.	.	.	V	.
20.083	1.3905	0.53	.Q	.	.	.	V	.
20.100	1.3912	0.53	.Q	.	.	.	V	.
20.117	1.3919	0.52	.Q	.	.	.	V	.
20.133	1.3927	0.52	.Q	.	.	.	V	.
20.150	1.3934	0.52	.Q	.	.	.	V	.
20.167	1.3941	0.52	.Q	.	.	.	V	.
20.183	1.3948	0.52	.Q	.	.	.	V	.
20.200	1.3955	0.52	.Q	.	.	.	V	.
20.217	1.3963	0.52	.Q	.	.	.	V	.
20.233	1.3970	0.52	.Q	.	.	.	V	.
20.250	1.3977	0.52	.Q	.	.	.	V	.
20.267	1.3984	0.52	.Q	.	.	.	V	.
20.283	1.3991	0.51	.Q	.	.	.	V	.
20.300	1.3998	0.51	.Q	.	.	.	V	.
20.317	1.4005	0.51	.Q	.	.	.	V	.
20.333	1.4012	0.51	.Q	.	.	.	V	.
20.350	1.4019	0.51	.Q	.	.	.	V	.
20.367	1.4026	0.51	.Q	.	.	.	V	.
20.383	1.4033	0.51	.Q	.	.	.	V	.
20.400	1.4040	0.51	.Q	.	.	.	V	.
20.417	1.4047	0.51	.Q	.	.	.	V	.
20.433	1.4054	0.50	.Q	.	.	.	V	.
20.450	1.4061	0.50	.Q	.	.	.	V	.
20.467	1.4068	0.50	.Q	.	.	.	V	.
20.483	1.4075	0.50	.Q	.	.	.	V	.
20.500	1.4082	0.50	.Q	.	.	.	V	.
20.517	1.4089	0.50	Q	.	.	.	V	.
20.533	1.4095	0.50	Q	.	.	.	V	.
20.550	1.4102	0.50	Q	.	.	.	V	.
20.567	1.4109	0.50	Q	.	.	.	V	.
20.583	1.4116	0.50	Q	.	.	.	V	.
20.600	1.4123	0.50	Q	.	.	.	V	.
20.617	1.4130	0.49	Q	.	.	.	V	.
20.633	1.4136	0.49	Q	.	.	.	V	.
20.650	1.4143	0.49	Q	.	.	.	V	.
20.667	1.4150	0.49	Q	.	.	.	V	.
20.683	1.4157	0.49	Q	.	.	.	V	.
20.700	1.4163	0.49	Q	.	.	.	V	.
20.717	1.4170	0.49	Q	.	.	.	V	.
20.733	1.4177	0.49	Q	.	.	.	V	.
20.750	1.4184	0.49	Q	.	.	.	V	.
20.767	1.4190	0.49	Q	.	.	.	V	.
20.783	1.4197	0.48	Q	.	.	.	V	.
20.800	1.4204	0.48	Q	.	.	.	V	.
20.817	1.4210	0.48	Q	.	.	.	V	.
20.833	1.4217	0.48	Q	.	.	.	V	.
20.850	1.4224	0.48	Q	.	.	.	V	.
20.867	1.4230	0.48	Q	.	.	.	V	.
20.883	1.4237	0.48	Q	.	.	.	V	.
20.900	1.4243	0.48	Q	.	.	.	V	.
20.917	1.4250	0.48	Q	.	.	.	V	.
20.933	1.4257	0.48	Q	.	.	.	V	.
20.950	1.4263	0.48	Q	.	.	.	V	.
20.967	1.4270	0.48	Q	.	.	.	V	.
20.983	1.4276	0.47	Q	.	.	.	V	.
21.000	1.4283	0.47	Q	.	.	.	V	.
21.017	1.4289	0.47	Q	.	.	.	V	.
21.033	1.4296	0.47	Q	.	.	.	V	.
21.050	1.4302	0.47	Q	.	.	.	V	.
21.067	1.4309	0.47	Q	.	.	.	V	.
21.083	1.4315	0.47	Q	.	.	.	V	.
21.100	1.4322	0.47	Q	.	.	.	V	.
21.117	1.4328	0.47	Q	.	.	.	V	.
21.133	1.4335	0.47	Q	.	.	.	V	.
21.150	1.4341	0.47	Q	.	.	.	V	.
21.167	1.4347	0.47	Q	.	.	.	V	.
21.183	1.4354	0.46	Q	.	.	.	V	.
21.200	1.4360	0.46	Q	.	.	.	V	.
21.217	1.4367	0.46	Q	.	.	.	V	.
21.233	1.4373	0.46	Q	.	.	.	V	.
21.250	1.4379	0.46	Q	.	.	.	V	.
21.267	1.4386	0.46	Q	.	.	.	V	.
21.283	1.4392	0.46	Q	.	.	.	V	.
21.300	1.4398	0.46	Q	.	.	.	V	.
21.317	1.4405	0.46	Q	.	.	.	V	.
21.333	1.4411	0.46	Q	.	.	.	V	.
21.350	1.4417	0.46	Q	.	.	.	V	.
21.367	1.4424	0.46	Q	.	.	.	V	.
21.383	1.4430	0.46	Q	.	.	.	V	.
21.400	1.4436	0.45	Q	.	.	.	V	.

21.417	1.4442	0.45	Q	.	.	.	V	.
21.433	1.4449	0.45	Q	.	.	.	V	.
21.450	1.4455	0.45	Q	.	.	.	V	.
21.467	1.4461	0.45	Q	.	.	.	V	.
21.483	1.4467	0.45	Q	.	.	.	V	.
21.500	1.4473	0.45	Q	.	.	.	V	.
21.517	1.4480	0.45	Q	.	.	.	V	.
21.533	1.4486	0.45	Q	.	.	.	V	.
21.550	1.4492	0.45	Q	.	.	.	V	.
21.567	1.4498	0.45	Q	.	.	.	V	.
21.583	1.4504	0.45	Q	.	.	.	V	.
21.600	1.4510	0.45	Q	.	.	.	V	.
21.617	1.4517	0.45	Q	.	.	.	V	.
21.633	1.4523	0.44	Q	.	.	.	V	.
21.650	1.4529	0.44	Q	.	.	.	V	.
21.667	1.4535	0.44	Q	.	.	.	V	.
21.683	1.4541	0.44	Q	.	.	.	V	.
21.700	1.4547	0.44	Q	.	.	.	V	.
21.717	1.4553	0.44	Q	.	.	.	V	.
21.733	1.4559	0.44	Q	.	.	.	V	.
21.750	1.4565	0.44	Q	.	.	.	V	.
21.767	1.4571	0.44	Q	.	.	.	V	.
21.783	1.4578	0.44	Q	.	.	.	V	.
21.800	1.4584	0.44	Q	.	.	.	V	.
21.817	1.4590	0.44	Q	.	.	.	V	.
21.833	1.4596	0.44	Q	.	.	.	V	.
21.850	1.4602	0.44	Q	.	.	.	V	.
21.867	1.4608	0.44	Q	.	.	.	V	.
21.883	1.4614	0.44	Q	.	.	.	V	.
21.900	1.4620	0.43	Q	.	.	.	V	.
21.917	1.4626	0.43	Q	.	.	.	V	.
21.933	1.4632	0.43	Q	.	.	.	V	.
21.950	1.4637	0.43	Q	.	.	.	V	.
21.967	1.4643	0.43	Q	.	.	.	V	.
21.983	1.4649	0.43	Q	.	.	.	V	.
22.000	1.4655	0.43	Q	.	.	.	V	.
22.017	1.4661	0.43	Q	.	.	.	V	.
22.033	1.4667	0.43	Q	.	.	.	V	.
22.050	1.4673	0.43	Q	.	.	.	V	.
22.067	1.4679	0.43	Q	.	.	.	V	.
22.083	1.4685	0.43	Q	.	.	.	V	.
22.100	1.4691	0.43	Q	.	.	.	V	.
22.117	1.4697	0.43	Q	.	.	.	V	.
22.133	1.4702	0.43	Q	.	.	.	V	.
22.150	1.4708	0.43	Q	.	.	.	V	.
22.167	1.4714	0.42	Q	.	.	.	V	.
22.183	1.4720	0.42	Q	.	.	.	V	.
22.200	1.4726	0.42	Q	.	.	.	V	.
22.217	1.4732	0.42	Q	.	.	.	V	.
22.233	1.4737	0.42	Q	.	.	.	V	.
22.250	1.4743	0.42	Q	.	.	.	V	.
22.267	1.4749	0.42	Q	.	.	.	V	.
22.283	1.4755	0.42	Q	.	.	.	V	.
22.300	1.4761	0.42	Q	.	.	.	V	.
22.317	1.4766	0.42	Q	.	.	.	V	.
22.333	1.4772	0.42	Q	.	.	.	V	.
22.350	1.4778	0.42	Q	.	.	.	V	.
22.367	1.4784	0.42	Q	.	.	.	V	.
22.383	1.4789	0.42	Q	.	.	.	V	.
22.400	1.4795	0.42	Q	.	.	.	V	.
22.417	1.4801	0.42	Q	.	.	.	V	.
22.433	1.4807	0.42	Q	.	.	.	V	.
22.450	1.4812	0.41	Q	.	.	.	V	.
22.467	1.4818	0.41	Q	.	.	.	V	.
22.483	1.4824	0.41	Q	.	.	.	V	.
22.500	1.4829	0.41	Q	.	.	.	V	.
22.517	1.4835	0.41	Q	.	.	.	V	.
22.533	1.4841	0.41	Q	.	.	.	V	.
22.550	1.4846	0.41	Q	.	.	.	V	.
22.567	1.4852	0.41	Q	.	.	.	V	.
22.583	1.4858	0.41	Q	.	.	.	V	.
22.600	1.4863	0.41	Q	.	.	.	V	.
22.617	1.4869	0.41	Q	.	.	.	V	.
22.633	1.4875	0.41	Q	.	.	.	V	.
22.650	1.4880	0.41	Q	.	.	.	V	.
22.667	1.4886	0.41	Q	.	.	.	V	.
22.683	1.4891	0.41	Q	.	.	.	V	.
22.700	1.4897	0.41	Q	.	.	.	V	.
22.717	1.4903	0.41	Q	.	.	.	V	.
22.733	1.4908	0.41	Q	.	.	.	V	.
22.750	1.4914	0.40	Q	.	.	.	V	.
22.767	1.4919	0.40	Q	.	.	.	V	.
22.783	1.4925	0.40	Q	.	.	.	V	.
22.800	1.4930	0.40	Q	.	.	.	V	.
22.817	1.4936	0.40	Q	.	.	.	V	.
22.833	1.4942	0.40	Q	.	.	.	V	.
22.850	1.4947	0.40	Q	.	.	.	V	.
22.867	1.4953	0.40	Q	.	.	.	V	.
22.883	1.4958	0.40	Q	.	.	.	V	.
22.900	1.4964	0.40	Q	.	.	.	V	.
22.917	1.4969	0.40	Q	.	.	.	V	.
22.933	1.4975	0.40	Q	.	.	.	V	.
22.950	1.4980	0.40	Q	.	.	.	V	.
22.967	1.4986	0.40	Q	.	.	.	V	.
22.983	1.4991	0.40	Q	.	.	.	V	.
23.000	1.4997	0.40	Q	.	.	.	V	.
23.017	1.5002	0.40	Q	.	.	.	V	.
23.033	1.5008	0.40	Q	.	.	.	V	.
23.050	1.5013	0.40	Q	.	.	.	V	.
23.067	1.5018	0.40	Q	.	.	.	V	.
23.083	1.5024	0.39	Q	.	.	.	V	.
23.100	1.5029	0.39	Q	.	.	.	V	.
23.117	1.5035	0.39	Q	.	.	.	V	.
23.133	1.5040	0.39	Q	.	.	.	V	.
23.150	1.5046	0.39	Q	.	.	.	V	.
23.167	1.5051	0.39	Q	.	.	.	V	.
23.183	1.5056	0.39	Q	.	.	.	V	.
23.200	1.5062	0.39	Q	.	.	.	V	.
23.217	1.5067	0.39	Q	.	.	.	V	.
23.233	1.5073	0.39	Q	.	.	.	V	.
23.250	1.5078	0.39	Q	.	.	.	V	.
23.267	1.5083	0.39	Q	.	.	.	V	.
23.283	1.5089	0.39	Q	.	.	.	V	.
23.300	1.5094	0.39	Q	.	.	.	V	.
23.317	1.5099	0.39	Q	.	.	.	V	.
23.333	1.5105	0.39	Q	.	.	.	V	.
23.350	1.5110	0.39	Q	.	.	.	V	.
23.367	1.5115	0.39	Q	.	.	.	V	.

23.383	1.5121	0.39	Q	.	.	.	V.
23.400	1.5126	0.39	Q	.	.	.	V.
23.417	1.5131	0.39	Q	.	.	.	V.
23.433	1.5137	0.39	Q	.	.	.	V.
23.450	1.5142	0.38	Q	.	.	.	V.
23.467	1.5147	0.38	Q	.	.	.	V.
23.483	1.5152	0.38	Q	.	.	.	V.
23.500	1.5158	0.38	Q	.	.	.	V.
23.517	1.5163	0.38	Q	.	.	.	V.
23.533	1.5168	0.38	Q	.	.	.	V.
23.550	1.5174	0.38	Q	.	.	.	V.
23.567	1.5179	0.38	Q	.	.	.	V.
23.583	1.5184	0.38	Q	.	.	.	V.
23.600	1.5189	0.38	Q	.	.	.	V.
23.617	1.5195	0.38	Q	.	.	.	V.
23.633	1.5200	0.38	Q	.	.	.	V.
23.650	1.5205	0.38	Q	.	.	.	V.
23.667	1.5210	0.38	Q	.	.	.	V.
23.683	1.5215	0.38	Q	.	.	.	V.
23.700	1.5221	0.38	Q	.	.	.	V.
23.717	1.5226	0.38	Q	.	.	.	V.
23.733	1.5231	0.38	Q	.	.	.	V.
23.750	1.5236	0.38	Q	.	.	.	V.
23.767	1.5241	0.38	Q	.	.	.	V.
23.783	1.5247	0.38	Q	.	.	.	V.
23.800	1.5252	0.38	Q	.	.	.	V.
23.817	1.5257	0.38	Q	.	.	.	V.
23.833	1.5262	0.37	Q	.	.	.	V.
23.850	1.5267	0.37	Q	.	.	.	V.
23.867	1.5272	0.37	Q	.	.	.	V.
23.883	1.5278	0.37	Q	.	.	.	V.
23.900	1.5283	0.37	Q	.	.	.	V.
23.917	1.5288	0.37	Q	.	.	.	V.
23.933	1.5293	0.37	Q	.	.	.	V.
23.950	1.5298	0.37	Q	.	.	.	V.
23.967	1.5303	0.37	Q	.	.	.	V.
23.983	1.5308	0.37	Q	.	.	.	V.
24.000	1.5313	0.37	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1441.0
10%	715.0
20%	300.0
30%	170.0
40%	110.0
50%	95.0
60%	75.0
70%	55.0
80%	35.0
90%	20.0

END OF FLOODSCx ROUTING ANALYSIS

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______________________________________________________________________________
******************************************************************************

             F L O O D    R O U T I N G    A N A L Y S I S
             USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
         (c) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1334

                         Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* SP8997 - WILDOMAR CHERRY OUTPOST                                      *
* PROPOSED CONDITION SMALL AREA UNIT HYDROGRAPH                         *
* 100-YEAR STORM EVENT FLOW THROUGH BASIN                               *
 ************************************************************************

  FILE NAME: 100YRPRH.DAT
  TIME/DATE OF STUDY: 15:39 04/30/2024

   The Small Area Unit Hydrograph Procedures in Section J
   of the Hydrology Manual provides estimates of runoff
   hydrograph and runoff volume for watersheds whose time of
   concentration is less than 25 minutes. The PROGRAM User
   should check the applicability of using the small area unit
   hydrograph procedures, and follow the guidelines in
   Sections J and K.5 in complex watershed modeling.


******************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE    110.00 IS CODE = 1.2
------------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
==============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =    5.95
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.227
    LOW LOSS FRACTION = 0.283
    TIME OF CONCENTRATION(MIN.) = 11.18
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    USER SPECIFIED RAINFALL VALUES ARE USED:
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.31
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.85
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.31
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.13
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.96
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.87

------------------------------------------------------------------------------
    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.93
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.98
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------------------------------------------------------------------------------
♠
==============================================================================

                    2 4 - H O U R    S T O R M
                 R U N O F F    H Y D R O G R A P H

==============================================================================
              HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
       (Notes: Time indicated is at END of Each Unit Intervals.
               Peak 5-minute rainfall intensity is modeled as
               a constant value for entire 5-minute period.)
------------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        3.2       6.4       9.6      12.8
------------------------------------------------------------------------------
   0.017      0.0000      0.02  Q         .         .         .         .
   0.033      0.0001      0.07  Q         .         .         .         .
   0.050      0.0003      0.12  Q         .         .         .         .
   0.067      0.0005      0.17  Q         .         .         .         .
   0.083      0.0008      0.22  Q         .         .         .         .
   0.100      0.0012      0.26  Q         .         .         .         .
   0.117      0.0016      0.31  Q         .         .         .         .
   0.133      0.0021      0.36  VQ        .         .         .         .
   0.150      0.0027      0.41  VQ        .         .         .         .
   0.167      0.0033      0.45  VQ        .         .         .         .
   0.183      0.0039      0.46  VQ        .         .         .         .
   0.200      0.0046      0.46  VQ        .         .         .         .
   0.217      0.0052      0.46  VQ        .         .         .         .
   0.233      0.0059      0.47  VQ        .         .         .         .
   0.250      0.0065      0.47  VQ        .         .         .         .
   0.267      0.0071      0.47  VQ        .         .         .         .
   0.283      0.0078      0.47  VQ        .         .         .         .
   0.300      0.0084      0.47  VQ        .         .         .         .
   0.317      0.0091      0.47  VQ        .         .         .         .
   0.333      0.0097      0.47  VQ        .         .         .         .
   0.350      0.0103      0.47  VQ        .         .         .         .
   0.367      0.0110      0.47  VQ        .         .         .         .
   0.383      0.0116      0.47  VQ        .         .         .         .
   0.400      0.0123      0.47  VQ        .         .         .         .
   0.417      0.0129      0.47  VQ        .         .         .         .
   0.433      0.0136      0.47  VQ        .         .         .         .
   0.450      0.0142      0.47  VQ        .         .         .         .
   0.467      0.0149      0.47  VQ        .         .         .         .
   0.483      0.0155      0.47  VQ        .         .         .         .
   0.500      0.0161      0.47  VQ        .         .         .         .
   0.517      0.0168      0.47  VQ        .         .         .         .
   0.533      0.0174      0.47  VQ        .         .         .         .
   0.550      0.0181      0.47  VQ        .         .         .         .
   0.567      0.0187      0.47  VQ        .         .         .         .
   0.583      0.0194      0.47  VQ        .         .         .         .
   0.600      0.0200      0.47  VQ        .         .         .         .
   0.617      0.0207      0.47  VQ        .         .         .         .
   0.633      0.0213      0.47  VQ        .         .         .         .
   0.650      0.0220      0.47  VQ        .         .         .         .
   0.667      0.0226      0.47  VQ        .         .         .         .
   0.683      0.0233      0.47  VQ        .         .         .         .
   0.700      0.0239      0.47  VQ        .         .         .         .
   0.717      0.0246      0.47  VQ        .         .         .         .
```

0.733	0.0252	0.47	VQ	.	.	.	.
0.750	0.0259	0.47	VQ	.	.	.	.
0.767	0.0265	0.47	VQ	.	.	.	.
0.783	0.0272	0.47	VQ	.	.	.	.
0.800	0.0278	0.47	VQ	.	.	.	.
0.817	0.0285	0.47	VQ	.	.	.	.
0.833	0.0291	0.47	VQ	.	.	.	.
0.850	0.0298	0.47	VQ	.	.	.	.
0.867	0.0304	0.47	VQ	.	.	.	.
0.883	0.0311	0.48	VQ	.	.	.	.
0.900	0.0317	0.48	VQ	.	.	.	.
0.917	0.0324	0.48	VQ	.	.	.	.
0.933	0.0331	0.48	VQ	.	.	.	.
0.950	0.0337	0.48	VQ	.	.	.	.
0.967	0.0344	0.48	VQ	.	.	.	.
0.983	0.0350	0.48	VQ	.	.	.	.
1.000	0.0357	0.48	VQ	.	.	.	.
1.017	0.0363	0.48	VQ	.	.	.	.
1.033	0.0370	0.48	VQ	.	.	.	.
1.050	0.0377	0.48	VQ	.	.	.	.
1.067	0.0383	0.48	VQ	.	.	.	.
1.083	0.0390	0.48	VQ	.	.	.	.
1.100	0.0396	0.48	VQ	.	.	.	.
1.117	0.0403	0.48	VQ	.	.	.	.
1.133	0.0409	0.48	VQ	.	.	.	.
1.150	0.0416	0.48	VQ	.	.	.	.
1.167	0.0423	0.48	VQ	.	.	.	.
1.183	0.0429	0.48	VQ	.	.	.	.
1.200	0.0436	0.48	VQ	.	.	.	.
1.217	0.0442	0.48	VQ	.	.	.	.
1.233	0.0449	0.48	VQ	.	.	.	.
1.250	0.0456	0.48	VQ	.	.	.	.
1.267	0.0462	0.48	VQ	.	.	.	.
1.283	0.0469	0.48	VQ	.	.	.	.
1.300	0.0476	0.48	VQ	.	.	.	.
1.317	0.0482	0.48	.Q	.	.	.	.
1.333	0.0489	0.48	.Q	.	.	.	.
1.350	0.0496	0.48	.Q	.	.	.	.
1.367	0.0502	0.48	.Q	.	.	.	.
1.383	0.0509	0.48	.Q	.	.	.	.
1.400	0.0516	0.48	.Q	.	.	.	.
1.417	0.0522	0.48	.Q	.	.	.	.
1.433	0.0529	0.48	.Q	.	.	.	.
1.450	0.0535	0.48	.Q	.	.	.	.
1.467	0.0542	0.48	.Q	.	.	.	.
1.483	0.0549	0.48	.Q	.	.	.	.
1.500	0.0555	0.48	.Q	.	.	.	.
1.517	0.0562	0.48	.Q	.	.	.	.
1.533	0.0569	0.49	.Q	.	.	.	.
1.550	0.0576	0.49	.Q	.	.	.	.
1.567	0.0582	0.49	.Q	.	.	.	.
1.583	0.0589	0.49	.Q	.	.	.	.
1.600	0.0596	0.49	.Q	.	.	.	.
1.617	0.0602	0.49	.Q	.	.	.	.
1.633	0.0609	0.49	.Q	.	.	.	.
1.650	0.0616	0.49	.Q	.	.	.	.
1.667	0.0622	0.49	.Q	.	.	.	.
1.683	0.0629	0.49	.Q	.	.	.	.
1.700	0.0636	0.49	.Q	.	.	.	.
1.717	0.0643	0.49	.Q	.	.	.	.
1.733	0.0649	0.49	.Q	.	.	.	.
1.750	0.0656	0.49	.Q	.	.	.	.
1.767	0.0663	0.49	.Q	.	.	.	.
1.783	0.0670	0.49	.Q	.	.	.	.
1.800	0.0676	0.49	.Q	.	.	.	.
1.817	0.0683	0.49	.Q	.	.	.	.
1.833	0.0690	0.49	.Q	.	.	.	.
1.850	0.0697	0.49	.Q	.	.	.	.
1.867	0.0703	0.49	.Q	.	.	.	.
1.883	0.0710	0.49	.Q	.	.	.	.
1.900	0.0717	0.49	.Q	.	.	.	.
1.917	0.0724	0.49	.Q	.	.	.	.
1.933	0.0730	0.49	.Q	.	.	.	.
1.950	0.0737	0.49	.Q	.	.	.	.
1.967	0.0744	0.49	.Q	.	.	.	.
1.983	0.0751	0.49	.Q	.	.	.	.
2.000	0.0758	0.49	.Q	.	.	.	.
2.017	0.0764	0.49	.Q	.	.	.	.
2.033	0.0771	0.49	.Q	.	.	.	.
2.050	0.0778	0.49	.Q	.	.	.	.
2.067	0.0785	0.49	.Q	.	.	.	.
2.083	0.0792	0.50	.Q	.	.	.	.
2.100	0.0798	0.50	.Q	.	.	.	.
2.117	0.0805	0.50	.Q	.	.	.	.
2.133	0.0812	0.50	.Q	.	.	.	.
2.150	0.0819	0.50	.Q	.	.	.	.
2.167	0.0826	0.50	.Q	.	.	.	.
2.183	0.0833	0.50	.Q	.	.	.	.
2.200	0.0839	0.50	.Q	.	.	.	.
2.217	0.0846	0.50	.Q	.	.	.	.
2.233	0.0853	0.50	.Q	.	.	.	.
2.250	0.0860	0.50	.Q	.	.	.	.
2.267	0.0867	0.50	.Q	.	.	.	.
2.283	0.0874	0.50	.Q	.	.	.	.
2.300	0.0881	0.50	.Q	.	.	.	.
2.317	0.0887	0.50	.Q	.	.	.	.
2.333	0.0894	0.50	.Q	.	.	.	.
2.350	0.0901	0.50	.Q	.	.	.	.
2.367	0.0908	0.50	.Q	.	.	.	.
2.383	0.0915	0.50	.Q	.	.	.	.
2.400	0.0922	0.50	.Q	.	.	.	.
2.417	0.0929	0.50	.Q	.	.	.	.
2.433	0.0936	0.50	.Q	.	.	.	.
2.450	0.0943	0.50	.Q	.	.	.	.
2.467	0.0950	0.50	.Q	.	.	.	.
2.483	0.0956	0.50	.Q	.	.	.	.
2.500	0.0963	0.50	.Q	.	.	.	.
2.517	0.0970	0.50	.QV	.	.	.	.
2.533	0.0977	0.50	.QV	.	.	.	.
2.550	0.0984	0.50	.QV	.	.	.	.
2.567	0.0991	0.50	.QV	.	.	.	.
2.583	0.0998	0.50	.QV	.	.	.	.
2.600	0.1005	0.50	.QV	.	.	.	.
2.617	0.1012	0.50	.QV	.	.	.	.
2.633	0.1019	0.50	.QV	.	.	.	.
2.650	0.1026	0.50	.QV	.	.	.	.
2.667	0.1033	0.51	.QV	.	.	.	.
2.683	0.1040	0.51	.QV	.	.	.	.

2.700	0.1047	0.51	.QV	.	.	.	.
2.717	0.1054	0.51	.QV	.	.	.	.
2.733	0.1061	0.51	.QV	.	.	.	.
2.750	0.1068	0.51	.QV	.	.	.	.
2.767	0.1075	0.51	.QV	.	.	.	.
2.783	0.1082	0.51	.QV	.	.	.	.
2.800	0.1089	0.51	.QV	.	.	.	.
2.817	0.1096	0.51	.QV	.	.	.	.
2.833	0.1103	0.51	.QV	.	.	.	.
2.850	0.1110	0.51	.QV	.	.	.	.
2.867	0.1117	0.51	.QV	.	.	.	.
2.883	0.1124	0.51	.QV	.	.	.	.
2.900	0.1131	0.51	.QV	.	.	.	.
2.917	0.1138	0.51	.QV	.	.	.	.
2.933	0.1145	0.51	.QV	.	.	.	.
2.950	0.1152	0.51	.QV	.	.	.	.
2.967	0.1159	0.51	.QV	.	.	.	.
2.983	0.1166	0.51	.QV	.	.	.	.
3.000	0.1173	0.51	.QV	.	.	.	.
3.017	0.1180	0.51	.QV	.	.	.	.
3.033	0.1187	0.51	.QV	.	.	.	.
3.050	0.1194	0.51	.QV	.	.	.	.
3.067	0.1201	0.51	.QV	.	.	.	.
3.083	0.1208	0.51	.QV	.	.	.	.
3.100	0.1215	0.51	.QV	.	.	.	.
3.117	0.1222	0.51	.QV	.	.	.	.
3.133	0.1230	0.52	.QV	.	.	.	.
3.150	0.1237	0.52	.QV	.	.	.	.
3.167	0.1244	0.52	.QV	.	.	.	.
3.183	0.1251	0.52	.QV	.	.	.	.
3.200	0.1258	0.52	.QV	.	.	.	.
3.217	0.1265	0.52	.QV	.	.	.	.
3.233	0.1272	0.52	.QV	.	.	.	.
3.250	0.1279	0.52	.QV	.	.	.	.
3.267	0.1286	0.52	.QV	.	.	.	.
3.283	0.1294	0.52	.QV	.	.	.	.
3.300	0.1301	0.52	.QV	.	.	.	.
3.317	0.1308	0.52	.QV	.	.	.	.
3.333	0.1315	0.52	.QV	.	.	.	.
3.350	0.1322	0.52	.QV	.	.	.	.
3.367	0.1329	0.52	.QV	.	.	.	.
3.383	0.1336	0.52	.QV	.	.	.	.
3.400	0.1344	0.52	.QV	.	.	.	.
3.417	0.1351	0.52	.QV	.	.	.	.
3.433	0.1358	0.52	.QV	.	.	.	.
3.450	0.1365	0.52	.QV	.	.	.	.
3.467	0.1372	0.52	.QV	.	.	.	.
3.483	0.1380	0.52	.QV	.	.	.	.
3.500	0.1387	0.52	.QV	.	.	.	.
3.517	0.1394	0.52	.QV	.	.	.	.
3.533	0.1401	0.52	.QV	.	.	.	.
3.550	0.1408	0.52	.QV	.	.	.	.
3.567	0.1416	0.52	.QV	.	.	.	.
3.583	0.1423	0.52	.QV	.	.	.	.
3.600	0.1430	0.52	.QV	.	.	.	.
3.617	0.1437	0.52	.QV	.	.	.	.
3.633	0.1444	0.52	.QV	.	.	.	.
3.650	0.1452	0.53	.Q V	.	.	.	.
3.667	0.1459	0.53	.Q V	.	.	.	.
3.683	0.1466	0.53	.Q V	.	.	.	.
3.700	0.1473	0.53	.Q V	.	.	.	.
3.717	0.1481	0.53	.Q V	.	.	.	.
3.733	0.1488	0.53	.Q V	.	.	.	.
3.750	0.1495	0.53	.Q V	.	.	.	.
3.767	0.1502	0.53	.Q V	.	.	.	.
3.783	0.1510	0.53	.Q V	.	.	.	.
3.800	0.1517	0.53	.Q V	.	.	.	.
3.817	0.1524	0.53	.Q V	.	.	.	.
3.833	0.1532	0.53	.Q V	.	.	.	.
3.850	0.1539	0.53	.Q V	.	.	.	.
3.867	0.1546	0.53	.Q V	.	.	.	.
3.883	0.1553	0.53	.Q V	.	.	.	.
3.900	0.1561	0.53	.Q V	.	.	.	.
3.917	0.1568	0.53	.Q V	.	.	.	.
3.933	0.1575	0.53	.Q V	.	.	.	.
3.950	0.1583	0.53	.Q V	.	.	.	.
3.967	0.1590	0.53	.Q V	.	.	.	.
3.983	0.1597	0.53	.Q V	.	.	.	.
4.000	0.1605	0.53	.Q V	.	.	.	.
4.017	0.1612	0.53	.Q V	.	.	.	.
4.033	0.1619	0.53	.Q V	.	.	.	.
4.050	0.1627	0.53	.Q V	.	.	.	.
4.067	0.1634	0.53	.Q V	.	.	.	.
4.083	0.1641	0.53	.Q V	.	.	.	.
4.100	0.1649	0.53	.Q V	.	.	.	.
4.117	0.1656	0.53	.Q V	.	.	.	.
4.133	0.1664	0.54	.Q V	.	.	.	.
4.150	0.1671	0.54	.Q V	.	.	.	.
4.167	0.1678	0.54	.Q V	.	.	.	.
4.183	0.1686	0.54	.Q V	.	.	.	.
4.200	0.1693	0.54	.Q V	.	.	.	.
4.217	0.1701	0.54	.Q V	.	.	.	.
4.233	0.1708	0.54	.Q V	.	.	.	.
4.250	0.1715	0.54	.Q V	.	.	.	.
4.267	0.1723	0.54	.Q V	.	.	.	.
4.283	0.1730	0.54	.Q V	.	.	.	.
4.300	0.1738	0.54	.Q V	.	.	.	.
4.317	0.1745	0.54	.Q V	.	.	.	.
4.333	0.1753	0.54	.Q V	.	.	.	.
4.350	0.1760	0.54	.Q V	.	.	.	.
4.367	0.1768	0.54	.Q V	.	.	.	.
4.383	0.1775	0.54	.Q V	.	.	.	.
4.400	0.1782	0.54	.Q V	.	.	.	.
4.417	0.1790	0.54	.Q V	.	.	.	.
4.433	0.1797	0.54	.Q V	.	.	.	.
4.450	0.1805	0.54	.Q V	.	.	.	.
4.467	0.1812	0.54	.Q V	.	.	.	.
4.483	0.1820	0.54	.Q V	.	.	.	.
4.500	0.1827	0.54	.Q V	.	.	.	.
4.517	0.1835	0.54	.Q V	.	.	.	.
4.533	0.1842	0.54	.Q V	.	.	.	.
4.550	0.1850	0.55	.Q V	.	.	.	.
4.567	0.1857	0.55	.Q V	.	.	.	.
4.583	0.1865	0.55	.Q V	.	.	.	.
4.600	0.1872	0.55	.Q V	.	.	.	.
4.617	0.1880	0.55	.Q V	.	.	.	.
4.633	0.1887	0.55	.Q V	.	.	.	.
4.650	0.1895	0.55	.Q V	.	.	.	.

4.667	0.1903	0.55	.Q	V	.	.	.	.
4.683	0.1910	0.55	.Q	V	.	.	.	.
4.700	0.1918	0.55	.Q	V	.	.	.	.
4.717	0.1925	0.55	.Q	V	.	.	.	.
4.733	0.1933	0.55	.Q	V	.	.	.	.
4.750	0.1940	0.55	.Q	V	.	.	.	.
4.767	0.1948	0.55	.Q	V	.	.	.	.
4.783	0.1956	0.55	.Q	V	.	.	.	.
4.800	0.1963	0.55	.Q	V	.	.	.	.
4.817	0.1971	0.55	.Q	V	.	.	.	.
4.833	0.1978	0.55	.Q	V	.	.	.	.
4.850	0.1986	0.55	.Q	V	.	.	.	.
4.867	0.1994	0.55	.Q	V	.	.	.	.
4.883	0.2001	0.55	.Q	V	.	.	.	.
4.900	0.2009	0.55	.Q	V	.	.	.	.
4.917	0.2017	0.55	.Q	V	.	.	.	.
4.933	0.2024	0.55	.Q	V	.	.	.	.
4.950	0.2032	0.56	.Q	V	.	.	.	.
4.967	0.2039	0.56	.Q	V	.	.	.	.
4.983	0.2047	0.56	.Q	V	.	.	.	.
5.000	0.2055	0.56	.Q	V	.	.	.	.
5.017	0.2062	0.56	.Q	V	.	.	.	.
5.033	0.2070	0.56	.Q	V	.	.	.	.
5.050	0.2078	0.56	.Q	V	.	.	.	.
5.067	0.2086	0.56	.Q	V	.	.	.	.
5.083	0.2093	0.56	.Q	V	.	.	.	.
5.100	0.2101	0.56	.Q	V	.	.	.	.
5.117	0.2109	0.56	.Q	V	.	.	.	.
5.133	0.2116	0.56	.Q	V	.	.	.	.
5.150	0.2124	0.56	.Q	V	.	.	.	.
5.167	0.2132	0.56	.Q	V	.	.	.	.
5.183	0.2140	0.56	.Q	V	.	.	.	.
5.200	0.2147	0.56	.Q	V	.	.	.	.
5.217	0.2155	0.56	.Q	V	.	.	.	.
5.233	0.2163	0.56	.Q	V	.	.	.	.
5.250	0.2170	0.56	.Q	V	.	.	.	.
5.267	0.2178	0.56	.Q	V	.	.	.	.
5.283	0.2186	0.56	.Q	V	.	.	.	.
5.300	0.2194	0.56	.Q	V	.	.	.	.
5.317	0.2202	0.56	.Q	V	.	.	.	.
5.333	0.2209	0.57	.Q	V	.	.	.	.
5.350	0.2217	0.57	.Q	V	.	.	.	.
5.367	0.2225	0.57	.Q	V	.	.	.	.
5.383	0.2233	0.57	.Q	V	.	.	.	.
5.400	0.2241	0.57	.Q	V	.	.	.	.
5.417	0.2248	0.57	.Q	V	.	.	.	.
5.433	0.2256	0.57	.Q	V	.	.	.	.
5.450	0.2264	0.57	.Q	V	.	.	.	.
5.467	0.2272	0.57	.Q	V	.	.	.	.
5.483	0.2280	0.57	.Q	V	.	.	.	.
5.500	0.2288	0.57	.Q	V	.	.	.	.
5.517	0.2295	0.57	.Q	V	.	.	.	.
5.533	0.2303	0.57	.Q	V	.	.	.	.
5.550	0.2311	0.57	.Q	V	.	.	.	.
5.567	0.2319	0.57	.Q	V	.	.	.	.
5.583	0.2327	0.57	.Q	V	.	.	.	.
5.600	0.2335	0.57	.Q	V	.	.	.	.
5.617	0.2343	0.57	.Q	V	.	.	.	.
5.633	0.2350	0.57	.Q	V	.	.	.	.
5.650	0.2358	0.57	.Q	V	.	.	.	.
5.667	0.2366	0.57	.Q	V	.	.	.	.
5.683	0.2374	0.57	.Q	V	.	.	.	.
5.700	0.2382	0.58	.Q	V	.	.	.	.
5.717	0.2390	0.58	.Q	V	.	.	.	.
5.733	0.2398	0.58	.Q	V	.	.	.	.
5.750	0.2406	0.58	.Q	V	.	.	.	.
5.767	0.2414	0.58	.Q	V	.	.	.	.
5.783	0.2422	0.58	.Q	V	.	.	.	.
5.800	0.2430	0.58	.Q	V	.	.	.	.
5.817	0.2438	0.58	.Q	V	.	.	.	.
5.833	0.2446	0.58	.Q	V	.	.	.	.
5.850	0.2454	0.58	.Q	V	.	.	.	.
5.867	0.2462	0.58	.Q	V	.	.	.	.
5.883	0.2470	0.58	.Q	V	.	.	.	.
5.900	0.2478	0.58	.Q	V	.	.	.	.
5.917	0.2486	0.58	.Q	V	.	.	.	.
5.933	0.2494	0.58	.Q	V	.	.	.	.
5.950	0.2502	0.58	.Q	V	.	.	.	.
5.967	0.2510	0.58	.Q	V	.	.	.	.
5.983	0.2518	0.58	.Q	V	.	.	.	.
6.000	0.2526	0.58	.Q	V	.	.	.	.
6.017	0.2534	0.58	.Q	V	.	.	.	.
6.033	0.2542	0.58	.Q	V	.	.	.	.
6.050	0.2550	0.59	.Q	V	.	.	.	.
6.067	0.2558	0.59	.Q	V	.	.	.	.
6.083	0.2566	0.59	.Q	V	.	.	.	.
6.100	0.2574	0.59	.Q	V	.	.	.	.
6.117	0.2582	0.59	.Q	V	.	.	.	.
6.133	0.2590	0.59	.Q	V	.	.	.	.
6.150	0.2598	0.59	.Q	V	.	.	.	.
6.167	0.2607	0.59	.Q	V	.	.	.	.
6.183	0.2615	0.59	.Q	V	.	.	.	.
6.200	0.2623	0.59	.Q	V	.	.	.	.
6.217	0.2631	0.59	.Q	V	.	.	.	.
6.233	0.2639	0.59	.Q	V	.	.	.	.
6.250	0.2647	0.59	.Q	V	.	.	.	.
6.267	0.2655	0.59	.Q	V	.	.	.	.
6.283	0.2664	0.59	.Q	V	.	.	.	.
6.300	0.2672	0.59	.Q	V	.	.	.	.
6.317	0.2680	0.59	.Q	V	.	.	.	.
6.333	0.2688	0.59	.Q	V	.	.	.	.
6.350	0.2696	0.59	.Q	V	.	.	.	.
6.367	0.2704	0.59	.Q	V	.	.	.	.
6.383	0.2713	0.59	.Q	V	.	.	.	.
6.400	0.2721	0.60	.Q	V	.	.	.	.
6.417	0.2729	0.60	.Q	V	.	.	.	.
6.433	0.2737	0.60	.Q	V	.	.	.	.
6.450	0.2745	0.60	.Q	V	.	.	.	.
6.467	0.2754	0.60	.Q	V	.	.	.	.
6.483	0.2762	0.60	.Q	V	.	.	.	.
6.500	0.2770	0.60	.Q	V	.	.	.	.
6.517	0.2778	0.60	.Q	V	.	.	.	.
6.533	0.2787	0.60	.Q	V	.	.	.	.
6.550	0.2795	0.60	.Q	V	.	.	.	.
6.567	0.2803	0.60	.Q	V	.	.	.	.
6.583	0.2812	0.60	.Q	V	.	.	.	.
6.600	0.2820	0.60	.Q	V	.	.	.	.
6.617	0.2828	0.60	.Q	V	.	.	.	.

6.633	0.2836	0.60	.Q	V	.	.	.	.
6.650	0.2845	0.60	.Q	V	.	.	.	.
6.667	0.2853	0.60	.Q	V	.	.	.	.
6.683	0.2861	0.60	.Q	V	.	.	.	.
6.700	0.2870	0.60	.Q	V	.	.	.	.
6.717	0.2878	0.60	.Q	V	.	.	.	.
6.733	0.2886	0.61	.Q	V	.	.	.	.
6.750	0.2895	0.61	.Q	V	.	.	.	.
6.767	0.2903	0.61	.Q	V	.	.	.	.
6.783	0.2911	0.61	.Q	V	.	.	.	.
6.800	0.2920	0.61	.Q	V	.	.	.	.
6.817	0.2928	0.61	.Q	V	.	.	.	.
6.833	0.2937	0.61	.Q	V	.	.	.	.
6.850	0.2945	0.61	.Q	V	.	.	.	.
6.867	0.2953	0.61	.Q	V	.	.	.	.
6.883	0.2962	0.61	.Q	V	.	.	.	.
6.900	0.2970	0.61	.Q	V	.	.	.	.
6.917	0.2979	0.61	.Q	V	.	.	.	.
6.933	0.2987	0.61	.Q	V	.	.	.	.
6.950	0.2996	0.61	.Q	V	.	.	.	.
6.967	0.3004	0.61	.Q	V	.	.	.	.
6.983	0.3013	0.61	.Q	V	.	.	.	.
7.000	0.3021	0.61	.Q	V	.	.	.	.
7.017	0.3029	0.62	.Q	V	.	.	.	.
7.033	0.3038	0.62	.Q	V	.	.	.	.
7.050	0.3046	0.62	.Q	V	.	.	.	.
7.067	0.3055	0.62	.Q	V	.	.	.	.
7.083	0.3063	0.62	.Q	V	.	.	.	.
7.100	0.3072	0.62	.Q	V	.	.	.	.
7.117	0.3080	0.62	.Q	V	.	.	.	.
7.133	0.3089	0.62	.Q	V	.	.	.	.
7.150	0.3098	0.62	.Q	V	.	.	.	.
7.167	0.3106	0.62	.Q	V	.	.	.	.
7.183	0.3115	0.62	.Q	V	.	.	.	.
7.200	0.3123	0.62	.Q	V	.	.	.	.
7.217	0.3132	0.62	.Q	V	.	.	.	.
7.233	0.3140	0.62	.Q	V	.	.	.	.
7.250	0.3149	0.62	.Q	V	.	.	.	.
7.267	0.3158	0.63	.Q	V	.	.	.	.
7.283	0.3166	0.63	.Q	V	.	.	.	.
7.300	0.3175	0.63	.Q	V	.	.	.	.
7.317	0.3183	0.63	.Q	V	.	.	.	.
7.333	0.3192	0.63	.Q	V	.	.	.	.
7.350	0.3201	0.63	.Q	V	.	.	.	.
7.367	0.3209	0.63	.Q	V	.	.	.	.
7.383	0.3218	0.63	.Q	V	.	.	.	.
7.400	0.3227	0.63	.Q	V	.	.	.	.
7.417	0.3235	0.63	.Q	V	.	.	.	.
7.433	0.3244	0.63	.Q	V	.	.	.	.
7.450	0.3253	0.63	.Q	V	.	.	.	.
7.467	0.3261	0.63	.Q	V	.	.	.	.
7.483	0.3270	0.63	.Q	V	.	.	.	.
7.500	0.3279	0.63	.Q	V	.	.	.	.
7.517	0.3287	0.63	.Q	V	.	.	.	.
7.533	0.3296	0.63	.Q	V	.	.	.	.
7.550	0.3305	0.63	.Q	V	.	.	.	.
7.567	0.3314	0.64	.Q	V	.	.	.	.
7.583	0.3322	0.64	.Q	V	.	.	.	.
7.600	0.3331	0.64	.Q	V	.	.	.	.
7.617	0.3340	0.64	.Q	V	.	.	.	.
7.633	0.3349	0.64	.Q	V	.	.	.	.
7.650	0.3358	0.64	.Q	V	.	.	.	.
7.667	0.3366	0.64	.Q	V	.	.	.	.
7.683	0.3375	0.64	. Q	V	.	.	.	.
7.700	0.3384	0.64	. Q	V	.	.	.	.
7.717	0.3393	0.64	. Q	V	.	.	.	.
7.733	0.3402	0.64	. Q	V	.	.	.	.
7.750	0.3411	0.64	. Q	V	.	.	.	.
7.767	0.3419	0.64	. Q	V	.	.	.	.
7.783	0.3428	0.64	. Q	V	.	.	.	.
7.800	0.3437	0.64	. Q	V	.	.	.	.
7.817	0.3446	0.64	. Q	V	.	.	.	.
7.833	0.3455	0.64	. Q	V	.	.	.	.
7.850	0.3464	0.65	. Q	V	.	.	.	.
7.867	0.3473	0.65	. Q	V	.	.	.	.
7.883	0.3482	0.65	. Q	V	.	.	.	.
7.900	0.3491	0.65	. Q	V	.	.	.	.
7.917	0.3499	0.65	. Q	V	.	.	.	.
7.933	0.3508	0.65	. Q	V	.	.	.	.
7.950	0.3517	0.65	. Q	V	.	.	.	.
7.967	0.3526	0.65	. Q	V	.	.	.	.
7.983	0.3535	0.65	. Q	V	.	.	.	.
8.000	0.3544	0.65	. Q	V	.	.	.	.
8.017	0.3553	0.65	. Q	V	.	.	.	.
8.033	0.3562	0.65	. Q	V	.	.	.	.
8.050	0.3571	0.65	. Q	V	.	.	.	.
8.067	0.3580	0.66	. Q	V	.	.	.	.
8.083	0.3589	0.66	. Q	V	.	.	.	.
8.100	0.3598	0.66	. Q	V	.	.	.	.
8.117	0.3607	0.66	. Q	V	.	.	.	.
8.133	0.3617	0.66	. Q	V	.	.	.	.
8.150	0.3626	0.66	. Q	V	.	.	.	.
8.167	0.3635	0.66	. Q	V	.	.	.	.
8.183	0.3644	0.66	. Q	V	.	.	.	.
8.200	0.3653	0.66	. Q	V	.	.	.	.
8.217	0.3662	0.66	. Q	V	.	.	.	.
8.233	0.3671	0.66	. Q	V	.	.	.	.
8.250	0.3680	0.66	. Q	V	.	.	.	.
8.267	0.3689	0.66	. Q	V	.	.	.	.
8.283	0.3698	0.66	. Q	V	.	.	.	.
8.300	0.3708	0.66	. Q	V	.	.	.	.
8.317	0.3717	0.67	. Q	V	.	.	.	.
8.333	0.3726	0.67	. Q	V	.	.	.	.
8.350	0.3735	0.67	. Q	V	.	.	.	.
8.367	0.3744	0.67	. Q	V	.	.	.	.
8.383	0.3754	0.67	. Q	V	.	.	.	.
8.400	0.3763	0.67	. Q	V	.	.	.	.
8.417	0.3772	0.67	. Q	V	.	.	.	.
8.433	0.3781	0.67	. Q	V	.	.	.	.
8.450	0.3790	0.67	. Q	V	.	.	.	.
8.467	0.3800	0.67	. Q	V	.	.	.	.
8.483	0.3809	0.67	. Q	V	.	.	.	.
8.500	0.3818	0.67	. Q	V	.	.	.	.
8.517	0.3828	0.67	. Q	V	.	.	.	.
8.533	0.3837	0.67	. Q	V	.	.	.	.
8.550	0.3846	0.67	. Q	V	.	.	.	.
8.567	0.3855	0.67	. Q	V	.	.	.	.
8.583	0.3865	0.68	. Q	V	.	.	.	.

8.600	0.3874	0.68	.	Q	V	.	.	.
8.617	0.3883	0.68	.	Q	V	.	.	.
8.633	0.3893	0.68	.	Q	V	.	.	.
8.650	0.3902	0.68	.	Q	V	.	.	.
8.667	0.3911	0.68	.	Q	V	.	.	.
8.683	0.3921	0.68	.	Q	V	.	.	.
8.700	0.3930	0.68	.	Q	V	.	.	.
8.717	0.3940	0.68	.	Q	V	.	.	.
8.733	0.3949	0.69	.	Q	V	.	.	.
8.750	0.3959	0.69	.	Q	V	.	.	.
8.767	0.3968	0.69	.	Q	V	.	.	.
8.783	0.3977	0.69	.	Q	V	.	.	.
8.800	0.3987	0.69	.	Q	V	.	.	.
8.817	0.3996	0.69	.	Q	V	.	.	.
8.833	0.4006	0.69	.	Q	V	.	.	.
8.850	0.4015	0.69	.	Q	V	.	.	.
8.867	0.4025	0.69	.	Q	V	.	.	.
8.883	0.4034	0.69	.	Q	V	.	.	.
8.900	0.4044	0.69	.	Q	V	.	.	.
8.917	0.4053	0.69	.	Q	V	.	.	.
8.933	0.4063	0.69	.	Q	V	.	.	.
8.950	0.4073	0.69	.	Q	V	.	.	.
8.967	0.4082	0.69	.	Q	V	.	.	.
8.983	0.4092	0.70	.	Q	V	.	.	.
9.000	0.4101	0.70	.	Q	V	.	.	.
9.017	0.4111	0.70	.	Q	V	.	.	.
9.033	0.4120	0.70	.	Q	V	.	.	.
9.050	0.4130	0.70	.	Q	V	.	.	.
9.067	0.4140	0.70	.	Q	V	.	.	.
9.083	0.4149	0.70	.	Q	V	.	.	.
9.100	0.4159	0.70	.	Q	V	.	.	.
9.117	0.4169	0.70	.	Q	V	.	.	.
9.133	0.4179	0.70	.	Q	V	.	.	.
9.150	0.4188	0.71	.	Q	V	.	.	.
9.167	0.4198	0.71	.	Q	V	.	.	.
9.183	0.4208	0.71	.	Q	V	.	.	.
9.200	0.4217	0.71	.	Q	V	.	.	.
9.217	0.4227	0.71	.	Q	V	.	.	.
9.233	0.4237	0.71	.	Q	V	.	.	.
9.250	0.4247	0.71	.	Q	V	.	.	.
9.267	0.4256	0.71	.	Q	V	.	.	.
9.283	0.4266	0.71	.	Q	V	.	.	.
9.300	0.4276	0.71	.	Q	V	.	.	.
9.317	0.4286	0.71	.	Q	V	.	.	.
9.333	0.4296	0.71	.	Q	V	.	.	.
9.350	0.4305	0.71	.	Q	V	.	.	.
9.367	0.4315	0.71	.	Q	V	.	.	.
9.383	0.4325	0.72	.	Q	V	.	.	.
9.400	0.4335	0.72	.	Q	V	.	.	.
9.417	0.4345	0.72	.	Q	V.	.	.	.
9.433	0.4355	0.72	.	Q	V.	.	.	.
9.450	0.4365	0.72	.	Q	V.	.	.	.
9.467	0.4375	0.72	.	Q	V.	.	.	.
9.483	0.4385	0.72	.	Q	V.	.	.	.
9.500	0.4395	0.72	.	Q	V.	.	.	.
9.517	0.4405	0.72	.	Q	V.	.	.	.
9.533	0.4415	0.73	.	Q	V.	.	.	.
9.550	0.4425	0.73	.	Q	V.	.	.	.
9.567	0.4435	0.73	.	Q	V.	.	.	.
9.583	0.4445	0.73	.	Q	V.	.	.	.
9.600	0.4455	0.73	.	Q	V.	.	.	.
9.617	0.4465	0.73	.	Q	V.	.	.	.
9.633	0.4475	0.73	.	Q	V.	.	.	.
9.650	0.4485	0.73	.	Q	V.	.	.	.
9.667	0.4495	0.73	.	Q	V.	.	.	.
9.683	0.4505	0.73	.	Q	V.	.	.	.
9.700	0.4515	0.73	.	Q	V.	.	.	.
9.717	0.4525	0.73	.	Q	V.	.	.	.
9.733	0.4535	0.74	.	Q	V.	.	.	.
9.750	0.4545	0.74	.	Q	V.	.	.	.
9.767	0.4556	0.74	.	Q	V.	.	.	.
9.783	0.4566	0.74	.	Q	V.	.	.	.
9.800	0.4576	0.74	.	Q	V.	.	.	.
9.817	0.4586	0.74	.	Q	V.	.	.	.
9.833	0.4596	0.74	.	Q	V.	.	.	.
9.850	0.4607	0.74	.	Q	V.	.	.	.
9.867	0.4617	0.75	.	Q	V.	.	.	.
9.883	0.4627	0.75	.	Q	V.	.	.	.
9.900	0.4637	0.75	.	Q	V.	.	.	.
9.917	0.4648	0.75	.	Q	V.	.	.	.
9.933	0.4658	0.75	.	Q	V.	.	.	.
9.950	0.4668	0.75	.	Q	V.	.	.	.
9.967	0.4679	0.75	.	Q	V.	.	.	.
9.983	0.4689	0.75	.	Q	V.	.	.	.
10.000	0.4699	0.75	.	Q	V.	.	.	.
10.017	0.4710	0.75	.	Q	V.	.	.	.
10.033	0.4720	0.75	.	Q	V.	.	.	.
10.050	0.4730	0.75	.	Q	V.	.	.	.
10.067	0.4741	0.75	.	Q	V.	.	.	.
10.083	0.4751	0.76	.	Q	V.	.	.	.
10.100	0.4762	0.76	.	Q	V.	.	.	.
10.117	0.4772	0.76	.	Q	V.	.	.	.
10.133	0.4783	0.76	.	Q	V.	.	.	.
10.150	0.4793	0.76	.	Q	V.	.	.	.
10.167	0.4804	0.76	.	Q	V.	.	.	.
10.183	0.4814	0.76	.	Q	V.	.	.	.
10.200	0.4825	0.77	.	Q	V	.	.	.
10.217	0.4835	0.77	.	Q	V	.	.	.
10.233	0.4846	0.77	.	Q	V	.	.	.
10.250	0.4856	0.77	.	Q	V	.	.	.
10.267	0.4867	0.77	.	Q	V	.	.	.
10.283	0.4878	0.77	.	Q	V	.	.	.
10.300	0.4888	0.77	.	Q	V	.	.	.
10.317	0.4899	0.77	.	Q	V	.	.	.
10.333	0.4910	0.77	.	Q	V	.	.	.
10.350	0.4920	0.77	.	Q	V	.	.	.
10.367	0.4931	0.77	.	Q	V	.	.	.
10.383	0.4942	0.78	.	Q	V	.	.	.
10.400	0.4952	0.78	.	Q	V	.	.	.
10.417	0.4963	0.78	.	Q	V	.	.	.
10.433	0.4974	0.78	.	Q	V	.	.	.
10.450	0.4984	0.78	.	Q	V	.	.	.
10.467	0.4995	0.78	.	Q	V	.	.	.
10.483	0.5006	0.78	.	Q	V	.	.	.
10.500	0.5017	0.78	.	Q	V	.	.	.
10.517	0.5028	0.79	.	Q	V	.	.	.
10.533	0.5038	0.79	.	Q	V	.	.	.
10.550	0.5049	0.79	.	Q	V	.	.	.

10.567	0.5060	0.79	. Q	V	.	.	.
10.583	0.5071	0.79	. Q	V	.	.	.
10.600	0.5082	0.79	. Q	V	.	.	.
10.617	0.5093	0.79	. Q	V	.	.	.
10.633	0.5104	0.80	. Q	V	.	.	.
10.650	0.5115	0.80	. Q	V	.	.	.
10.667	0.5126	0.80	. Q	V	.	.	.
10.683	0.5137	0.80	. Q	V	.	.	.
10.700	0.5148	0.80	. Q	V	.	.	.
10.717	0.5159	0.80	. Q	V	.	.	.
10.733	0.5170	0.80	. Q	V	.	.	.
10.750	0.5181	0.80	. Q	V	.	.	.
10.767	0.5192	0.80	. Q	V	.	.	.
10.783	0.5203	0.80	. Q	V	.	.	.
10.800	0.5214	0.80	. Q	V	.	.	.
10.817	0.5225	0.81	. Q	V	.	.	.
10.833	0.5236	0.81	. Q	V	.	.	.
10.850	0.5247	0.81	. Q	V	.	.	.
10.867	0.5259	0.81	. Q	V	.	.	.
10.883	0.5270	0.81	. Q	V	.	.	.
10.900	0.5281	0.81	. Q	V	.	.	.
10.917	0.5292	0.82	. Q	V	.	.	.
10.933	0.5304	0.82	. Q	.V	.	.	.
10.950	0.5315	0.82	. Q	.V	.	.	.
10.967	0.5326	0.82	. Q	.V	.	.	.
10.983	0.5338	0.82	. Q	.V	.	.	.
11.000	0.5349	0.82	. Q	.V	.	.	.
11.017	0.5360	0.82	. Q	.V	.	.	.
11.033	0.5372	0.83	. Q	.V	.	.	.
11.050	0.5383	0.83	. Q	.V	.	.	.
11.067	0.5394	0.83	. Q	.V	.	.	.
11.083	0.5406	0.83	. Q	.V	.	.	.
11.100	0.5417	0.83	. Q	.V	.	.	.
11.117	0.5429	0.83	. Q	.V	.	.	.
11.133	0.5440	0.83	. Q	.V	.	.	.
11.150	0.5452	0.83	. Q	.V	.	.	.
11.167	0.5463	0.83	. Q	.V	.	.	.
11.183	0.5475	0.84	. Q	.V	.	.	.
11.200	0.5486	0.84	. Q	.V	.	.	.
11.217	0.5498	0.84	. Q	.V	.	.	.
11.233	0.5509	0.84	. Q	.V	.	.	.
11.250	0.5521	0.84	. Q	.V	.	.	.
11.267	0.5533	0.84	. Q	.V	.	.	.
11.283	0.5544	0.85	. Q	.V	.	.	.
11.300	0.5556	0.85	. Q	.V	.	.	.
11.317	0.5568	0.85	. Q	.V	.	.	.
11.333	0.5579	0.85	. Q	.V	.	.	.
11.350	0.5591	0.85	. Q	.V	.	.	.
11.367	0.5603	0.86	. Q	.V	.	.	.
11.383	0.5615	0.86	. Q	.V	.	.	.
11.400	0.5627	0.86	. Q	.V	.	.	.
11.417	0.5638	0.86	. Q	.V	.	.	.
11.433	0.5650	0.86	. Q	.V	.	.	.
11.450	0.5662	0.86	. Q	.V	.	.	.
11.467	0.5674	0.86	. Q	.V	.	.	.
11.483	0.5686	0.86	. Q	.V	.	.	.
11.500	0.5698	0.86	. Q	.V	.	.	.
11.517	0.5710	0.86	. Q	.V	.	.	.
11.533	0.5722	0.87	. Q	.V	.	.	.
11.550	0.5733	0.87	. Q	.V	.	.	.
11.567	0.5745	0.87	. Q	.V	.	.	.
11.583	0.5757	0.87	. Q	.V	.	.	.
11.600	0.5770	0.87	. Q	.V	.	.	.
11.617	0.5782	0.88	. Q	.V	.	.	.
11.633	0.5794	0.88	. Q	. V	.	.	.
11.650	0.5806	0.88	. Q	. V	.	.	.
11.667	0.5818	0.88	. Q	. V	.	.	.
11.683	0.5830	0.89	. Q	. V	.	.	.
11.700	0.5842	0.89	. Q	. V	.	.	.
11.717	0.5855	0.89	. Q	. V	.	.	.
11.733	0.5867	0.89	. Q	. V	.	.	.
11.750	0.5879	0.89	. Q	. V	.	.	.
11.767	0.5892	0.89	. Q	. V	.	.	.
11.783	0.5904	0.89	. Q	. V	.	.	.
11.800	0.5916	0.90	. Q	. V	.	.	.
11.817	0.5929	0.90	. Q	. V	.	.	.
11.833	0.5941	0.90	. Q	. V	.	.	.
11.850	0.5953	0.90	. Q	. V	.	.	.
11.867	0.5966	0.90	. Q	. V	.	.	.
11.883	0.5978	0.90	. Q	. V	.	.	.
11.900	0.5991	0.90	. Q	. V	.	.	.
11.917	0.6003	0.90	. Q	. V	.	.	.
11.933	0.6016	0.91	. Q	. V	.	.	.
11.950	0.6028	0.91	. Q	. V	.	.	.
11.967	0.6041	0.91	. Q	. V	.	.	.
11.983	0.6053	0.91	. Q	. V	.	.	.
12.000	0.6066	0.91	. Q	. V	.	.	.
12.017	0.6078	0.92	. Q	. V	.	.	.
12.033	0.6091	0.92	. Q	. V	.	.	.
12.050	0.6104	0.92	. Q	. V	.	.	.
12.067	0.6116	0.92	. Q	. V	.	.	.
12.083	0.6129	0.92	. Q	. V	.	.	.
12.100	0.6142	0.92	. Q	. V	.	.	.
12.117	0.6154	0.92	. Q	. V	.	.	.
12.133	0.6167	0.92	. Q	. V	.	.	.
12.150	0.6180	0.92	. Q	. V	.	.	.
12.167	0.6192	0.92	. Q	. V	.	.	.
12.183	0.6205	0.92	. Q	. V	.	.	.
12.200	0.6218	0.92	. Q	. V	.	.	.
12.217	0.6230	0.91	. Q	. V	.	.	.
12.233	0.6243	0.91	. Q	. V	.	.	.
12.250	0.6255	0.91	. Q	. V	.	.	.
12.267	0.6268	0.91	. Q	. V	.	.	.
12.283	0.6280	0.91	. Q	. V	.	.	.
12.300	0.6293	0.91	. Q	. V	.	.	.
12.317	0.6306	0.92	. Q	. V	.	.	.
12.333	0.6318	0.92	. Q	. V	.	.	.
12.350	0.6331	0.92	. Q	. V	.	.	.
12.367	0.6344	0.92	. Q	. V	.	.	.
12.383	0.6357	0.93	. Q	. V	.	.	.
12.400	0.6369	0.93	. Q	. V	.	.	.
12.417	0.6382	0.93	. Q	. V	.	.	.
12.433	0.6395	0.94	. Q	. V	.	.	.
12.450	0.6408	0.94	. Q	. V	.	.	.
12.467	0.6421	0.94	. Q	. V	.	.	.
12.483	0.6434	0.94	. Q	. V	.	.	.
12.500	0.6447	0.94	. Q	. V	.	.	.
12.517	0.6460	0.95	. Q	. V	.	.	.

12.533	0.6473	0.95	.	Q	.	V	.	.	.
12.550	0.6486	0.95	.	Q	.	V	.	.	.
12.567	0.6499	0.95	.	Q	.	V	.	.	.
12.583	0.6512	0.95	.	Q	.	V	.	.	.
12.600	0.6525	0.95	.	Q	.	V	.	.	.
12.617	0.6539	0.96	.	Q	.	V	.	.	.
12.633	0.6552	0.96	.	Q	.	V	.	.	.
12.650	0.6565	0.96	.	Q	.	V	.	.	.
12.667	0.6578	0.96	.	Q	.	V	.	.	.
12.683	0.6592	0.96	.	Q	.	V	.	.	.
12.700	0.6605	0.97	.	Q	.	V	.	.	.
12.717	0.6618	0.97	.	Q	.	V	.	.	.
12.733	0.6632	0.97	.	Q	.	V	.	.	.
12.750	0.6645	0.98	.	Q	.	V	.	.	.
12.767	0.6659	0.98	.	Q	.	V	.	.	.
12.783	0.6672	0.98	.	Q	.	V	.	.	.
12.800	0.6686	0.99	.	Q	.	V	.	.	.
12.817	0.6700	0.99	.	Q	.	V	.	.	.
12.833	0.6713	0.99	.	Q	.	V	.	.	.
12.850	0.6727	1.00	.	Q	.	V	.	.	.
12.867	0.6741	1.00	.	Q	.	V	.	.	.
12.883	0.6754	1.00	.	Q	.	V	.	.	.
12.900	0.6768	1.00	.	Q	.	V	.	.	.
12.917	0.6782	1.00	.	Q	.	V	.	.	.
12.933	0.6796	1.01	.	Q	.	V	.	.	.
12.950	0.6810	1.01	.	Q	.	V	.	.	.
12.967	0.6824	1.01	.	Q	.	V	.	.	.
12.983	0.6838	1.01	.	Q	.	V	.	.	.
13.000	0.6852	1.01	.	Q	.	V	.	.	.
13.017	0.6866	1.02	.	Q	.	V	.	.	.
13.033	0.6880	1.02	.	Q	.	V	.	.	.
13.050	0.6894	1.02	.	Q	.	V	.	.	.
13.067	0.6908	1.03	.	Q	.	V	.	.	.
13.083	0.6922	1.03	.	Q	.	V	.	.	.
13.100	0.6936	1.03	.	Q	.	V	.	.	.
13.117	0.6951	1.04	.	Q	.	V	.	.	.
13.133	0.6965	1.04	.	Q	.	V	.	.	.
13.150	0.6979	1.05	.	Q	.	V	.	.	.
13.167	0.6994	1.05	.	Q	.	V	.	.	.
13.183	0.7008	1.05	.	Q	.	V	.	.	.
13.200	0.7023	1.06	.	Q	.	V	.	.	.
13.217	0.7038	1.06	.	Q	.	V	.	.	.
13.233	0.7052	1.06	.	Q	.	V	.	.	.
13.250	0.7067	1.07	.	Q	.	V	.	.	.
13.267	0.7082	1.07	.	Q	.	V	.	.	.
13.283	0.7096	1.07	.	Q	.	V	.	.	.
13.300	0.7111	1.07	.	Q	.	V	.	.	.
13.317	0.7126	1.07	.	Q	.	V	.	.	.
13.333	0.7141	1.08	.	Q	.	V	.	.	.
13.350	0.7156	1.08	.	Q	.	V	.	.	.
13.367	0.7171	1.08	.	Q	.	V	.	.	.
13.383	0.7185	1.08	.	Q	.	V	.	.	.
13.400	0.7200	1.09	.	Q	.	V	.	.	.
13.417	0.7215	1.09	.	Q	.	V	.	.	.
13.433	0.7231	1.10	.	Q	.	V	.	.	.
13.450	0.7246	1.10	.	Q	.	V	.	.	.
13.467	0.7261	1.11	.	Q	.	V	.	.	.
13.483	0.7276	1.11	.	Q	.	V	.	.	.
13.500	0.7292	1.11	.	Q	.	V	.	.	.
13.517	0.7307	1.12	.	Q	.	V	.	.	.
13.533	0.7322	1.12	.	Q	.	V	.	.	.
13.550	0.7338	1.13	.	Q	.	V	.	.	.
13.567	0.7354	1.13	.	Q	.	V	.	.	.
13.583	0.7369	1.14	.	Q	.	V	.	.	.
13.600	0.7385	1.14	.	Q	.	V	.	.	.
13.617	0.7401	1.15	.	Q	.	V	.	.	.
13.633	0.7417	1.15	.	Q	.	V	.	.	.
13.650	0.7432	1.15	.	Q	.	V	.	.	.
13.667	0.7448	1.15	.	Q	.	V	.	.	.
13.683	0.7464	1.16	.	Q	.	V	.	.	.
13.700	0.7480	1.16	.	Q	.	V	.	.	.
13.717	0.7496	1.16	.	Q	.	V	.	.	.
13.733	0.7512	1.16	.	Q	.	V	.	.	.
13.750	0.7528	1.17	.	Q	.	V	.	.	.
13.767	0.7544	1.17	.	Q	.	V	.	.	.
13.783	0.7561	1.17	.	Q	.	V	.	.	.
13.800	0.7577	1.18	.	Q	.	V	.	.	.
13.817	0.7593	1.19	.	Q	.	V	.	.	.
13.833	0.7610	1.19	.	Q	.	V	.	.	.
13.850	0.7626	1.20	.	Q	.	V	.	.	.
13.867	0.7643	1.21	.	Q	.	V	.	.	.
13.883	0.7659	1.21	.	Q	.	V	.	.	.
13.900	0.7676	1.22	.	Q	.	V	.	.	.
13.917	0.7693	1.22	.	Q	.	V	.	.	.
13.933	0.7710	1.23	.	Q	.	V	.	.	.
13.950	0.7727	1.24	.	Q	.	V	.	.	.
13.967	0.7744	1.24	.	Q	.	V	.	.	.
13.983	0.7761	1.24	.	Q	.	V	.	.	.
14.000	0.7778	1.25	.	Q	.	V	.	.	.
14.017	0.7796	1.25	.	Q	.	V	.	.	.
14.033	0.7813	1.25	.	Q	.	V	.	.	.
14.050	0.7830	1.25	.	Q	.	V	.	.	.
14.067	0.7847	1.26	.	Q	.	V	.	.	.
14.083	0.7865	1.26	.	Q	.	V	.	.	.
14.100	0.7882	1.26	.	Q	.	V	.	.	.
14.117	0.7900	1.26	.	Q	.	V	.	.	.
14.133	0.7917	1.27	.	Q	.	V	.	.	.
14.150	0.7934	1.27	.	Q	.	V	.	.	.
14.167	0.7952	1.27	.	Q	.	V	.	.	.
14.183	0.7969	1.27	.	Q	.	V	.	.	.
14.200	0.7987	1.27	.	Q	.	V	.	.	.
14.217	0.8005	1.27	.	Q	.	V	.	.	.
14.233	0.8022	1.27	.	Q	.	V	.	.	.
14.250	0.8040	1.27	.	Q	.	V	.	.	.
14.267	0.8057	1.28	.	Q	.	V	.	.	.
14.283	0.8075	1.28	.	Q	.	V	.	.	.
14.300	0.8092	1.28	.	Q	.	V	.	.	.
14.317	0.8110	1.28	.	Q	.	V	.	.	.
14.333	0.8128	1.28	.	Q	.	V	.	.	.
14.350	0.8145	1.28	.	Q	.	V	.	.	.
14.367	0.8163	1.29	.	Q	.	V	.	.	.
14.383	0.8181	1.29	.	Q	.	V	.	.	.
14.400	0.8199	1.30	.	Q	.	V	.	.	.
14.417	0.8217	1.30	.	Q	.	V	.	.	.
14.433	0.8235	1.31	.	Q	.	V	.	.	.
14.450	0.8253	1.31	.	Q	.	V	.	.	.
14.467	0.8271	1.32	.	Q	.	V	.	.	.
14.483	0.8289	1.32	.	Q	.	V	.	.	.

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14.500      0.8307      1.33  .   Q     .      V  .         .         .
14.517      0.8326      1.33  .   Q     .      V  .         .         .
14.533      0.8344      1.34  .   Q     .      V  .         .         .
14.550      0.8363      1.35  .   Q     .      V  .         .         .
14.567      0.8382      1.36  .   Q     .      V  .         .         .
14.583      0.8401      1.37  .   Q     .      V  .         .         .
14.600      0.8420      1.39  .   Q     .      V  .         .         .
14.617      0.8439      1.40  .   Q     .      V  .         .         .
14.633      0.8458      1.41  .   Q     .      V  .         .         .
14.650      0.8478      1.42  .   Q     .      V  .         .         .
14.667      0.8498      1.43  .   Q     .      V  .         .         .
14.683      0.8517      1.44  .   Q     .      V  .         .         .
14.700      0.8537      1.45  .   Q     .      V  .         .         .
14.717      0.8557      1.46  .   Q     .      V  .         .         .
14.733      0.8578      1.47  .   Q     .      V  .         .         .
14.750      0.8598      1.47  .   Q     .      V  .         .         .
14.767      0.8618      1.48  .   Q     .      V  .         .         .
14.783      0.8639      1.49  .   Q     .      V  .         .         .
14.800      0.8659      1.49  .   Q     .      V  .         .         .
14.817      0.8680      1.50  .   Q     .       V .         .         .
14.833      0.8701      1.51  .   Q     .       V .         .         .
14.850      0.8722      1.51  .   Q     .       V .         .         .
14.867      0.8743      1.52  .   Q     .       V .         .         .
14.883      0.8764      1.53  .   Q     .       V .         .         .
14.900      0.8785      1.54  .   Q     .       V .         .         .
14.917      0.8807      1.56  .   Q     .       V .         .         .
14.933      0.8828      1.58  .   Q     .       V .         .         .
14.950      0.8850      1.59  .   Q     .       V .         .         .
14.967      0.8872      1.61  .    Q    .       V .         .         .
14.983      0.8895      1.63  .    Q    .       V .         .         .
15.000      0.8917      1.64  .    Q    .       V .         .         .
15.017      0.8940      1.66  .    Q    .       V .         .         .
15.033      0.8963      1.68  .    Q    .       V .         .         .
15.050      0.8987      1.70  .    Q    .       V .         .         .
15.067      0.9010      1.71  .    Q    .       V .         .         .
15.083      0.9034      1.73  .    Q    .       V .         .         .
15.100      0.9058      1.74  .    Q    .       V .         .         .
15.117      0.9082      1.75  .    Q    .       V .         .         .
15.133      0.9106      1.76  .    Q    .       V .         .         .
15.150      0.9131      1.77  .    Q    .       V .         .         .
15.167      0.9155      1.78  .    Q    .        V.         .         .
15.183      0.9180      1.79  .    Q    .        V.         .         .
15.200      0.9205      1.81  .    Q    .        V.         .         .
15.217      0.9230      1.82  .    Q    .        V.         .         .
15.233      0.9255      1.83  .    Q    .        V.         .         .
15.250      0.9281      1.84  .    Q    .        V.         .         .
15.267      0.9306      1.86  .    Q    .        V.         .         .
15.283      0.9333      1.92  .     Q   .        V.         .         .
15.300      0.9360      1.98  .     Q   .        V.         .         .
15.317      0.9388      2.04  .     Q   .        V.         .         .
15.333      0.9417      2.11  .     Q   .        V.         .         .
15.350      0.9447      2.17  .     Q   .        V.         .         .
15.367      0.9478      2.23  .     Q   .        V.         .         .
15.383      0.9509      2.29  .      Q  .        V.         .         .
15.400      0.9542      2.35  .      Q  .        V.         .         .
15.417      0.9575      2.41  .      Q  .        V.         .         .
15.433      0.9609      2.47  .      Q  .        V.         .         .
15.450      0.9644      2.54  .      Q  .         V         .         .
15.467      0.9680      2.62  .       Q .         V         .         .
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15.483      0.9717      2.70  .       Q .         V         .         .
15.500      0.9756      2.79  .       Q .         V         .         .
15.517      0.9795      2.87  .       Q .         V         .         .
15.533      0.9836      2.95  .        Q.         V         .         .
15.550      0.9878      3.04  .        Q.         V         .         .
15.567      0.9921      3.12  .        Q.         V         .         .
15.583      0.9965      3.20  .         Q         V         .         .
15.600      1.0010      3.29  .         Q         V         .         .
15.617      1.0056      3.37  .         Q         V         .         .
15.633      1.0104      3.45  .         Q         V         .         .
15.650      1.0153      3.53  .         .Q        .V        .         .
15.667      1.0202      3.60  .         .Q        .V        .         .
15.683      1.0253      3.67  .         .Q        .V        .         .
15.700      1.0304      3.74  .         .Q        .V        .         .
15.717      1.0357      3.82  .         .Q        .V        .         .
15.733      1.0410      3.89  .         . Q       .V        .         .
15.750      1.0465      3.96  .         . Q       .V        .         .
15.767      1.0521      4.03  .         . Q       .V        .         .
15.783      1.0577      4.10  .         . Q       .V        .         .
15.800      1.0635      4.18  .         .  Q      . V       .         .
15.817      1.0693      4.25  .         .  Q      . V       .         .
15.833      1.0753      4.34  .         .  Q      . V       .         .
15.850      1.0814      4.45  .         .  Q      . V       .         .
15.867      1.0877      4.56  .         .   Q     . V       .         .
15.883      1.0941      4.67  .         .   Q     . V       .         .
15.900      1.1007      4.77  .         .   Q     . V       .         .
15.917      1.1074      4.88  .         .    Q    . V       .         .
15.933      1.1143      4.99  .         .    Q    .  V      .         .
15.950      1.1213      5.10  .         .    Q    .  V      .         .
15.967      1.1285      5.20  .         .     Q   .  V      .         .
15.983      1.1358      5.31  .         .     Q   .  V      .         .
16.000      1.1433      5.42  .         .     Q   .  V      .         .
16.017      1.1513      5.80  .         .       Q .  V      .         .
16.033      1.1602      6.46  .         .        Q   V      .         .
16.050      1.1700      7.11  .         .         . Q V     .         .
16.067      1.1807      7.77  .         .         .   Q     .         .
16.083      1.1923      8.42  .         .         .   V Q   .         .
16.100      1.2048      9.08  .         .         .    V  Q .         .
16.117      1.2182      9.73  .         .         .    V    Q        .
16.133      1.2325     10.39  .         .         .    V    . Q      .
16.150      1.2477     11.04  .         .         .    V    .   Q    .
16.167      1.2638     11.70  .         .         .     V   .     Q  .
16.183      1.2808     12.35  .         .         .     V   .       Q.
16.200      1.2984     12.80  .         .         .     V   .        Q
16.217      1.3146     11.75  .         .         .      V  .     Q  .
16.233      1.3297     10.96  .         .         .      V  .   Q    .
16.250      1.3437     10.17  .         .         .      V  .Q        .
16.267      1.3566      9.37  .         .         .       VQ.         .
16.283      1.3684      8.58  .         .         .     Q V .         .
16.300      1.3792      7.79  .         .         .   Q   V .         .
16.317      1.3888      6.99  .         .        .Q     V .         .
16.333      1.3974      6.20  .         .       Q.       V.         .
16.350      1.4048      5.41  .         .     Q  .       V.         .
16.367      1.4112      4.62  .         .   Q    .       V.         .
16.383      1.4166      3.95  .         . Q      .       V.         .
16.400      1.4217      3.74  .         .Q       .       V.         .
16.417      1.4267      3.56  .         .Q       .       V.         .
16.433      1.4313      3.39  .         Q        .       V.         .
16.450      1.4358      3.22  .         Q        .       V.         .
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16.467	1.4400	3.05	.		Q.	.		V.		.
16.483	1.4439	2.87	.		Q	.	.	V.		.
16.500	1.4476	2.70	.		Q	.	.	V		.
16.517	1.4511	2.53	.		Q	.	.	V		.
16.533	1.4544	2.35	.		Q	.	.	V		.
16.550	1.4574	2.18	.	Q		.	.	V		.
16.567	1.4602	2.02	.	Q		.	.	V		.
16.583	1.4629	1.97	.	Q		.	.	V		.
16.600	1.4655	1.93	.	Q		.	.	V		.
16.617	1.4681	1.90	.	Q		.	.	V		.
16.633	1.4707	1.87	.	Q		.	.	V		.
16.650	1.4732	1.83	.	Q		.	.	V		.
16.667	1.4757	1.80	.	Q		.	.	V		.
16.683	1.4781	1.76	.	Q		.	.	V		.
16.700	1.4805	1.73	.	Q		.	.	V		.
16.717	1.4829	1.70	.	Q		.	.	V		.
16.733	1.4852	1.66	.	Q		.	.	V		.
16.750	1.4874	1.63	.	Q		.	.	V		.
16.767	1.4896	1.60	.	Q		.	.	V		.
16.783	1.4918	1.58	.	Q		.	.	V		.
16.800	1.4939	1.56	.	Q		.	.	.V		.
16.817	1.4961	1.54	.	Q		.	.	.V		.
16.833	1.4982	1.52	.	Q		.	.	.V		.
16.850	1.5002	1.50	.	Q		.	.	.V		.
16.867	1.5023	1.48	.	Q		.	.	.V		.
16.883	1.5043	1.46	.	Q		.	.	.V		.
16.900	1.5062	1.44	.	Q		.	.	.V		.
16.917	1.5082	1.42	.	Q		.	.	.V		.
16.933	1.5101	1.40	.	Q		.	.	.V		.
16.950	1.5120	1.38	.	Q		.	.	.V		.
16.967	1.5139	1.37	.	Q		.	.	.V		.
16.983	1.5158	1.35	.	Q		.	.	.V		.
17.000	1.5176	1.34	.	Q		.	.	.V		.
17.017	1.5194	1.32	.	Q		.	.	.V		.
17.033	1.5212	1.31	.	Q		.	.	.V		.
17.050	1.5230	1.30	.	Q		.	.	.V		.
17.067	1.5248	1.28	.	Q		.	.	.V		.
17.083	1.5265	1.27	.	Q		.	.	.V		.
17.100	1.5283	1.25	.	Q		.	.	.V		.
17.117	1.5300	1.24	.	Q		.	.	.V		.
17.133	1.5317	1.23	.	Q		.	.	.V		.
17.150	1.5334	1.23	.	Q		.	.	.V		.
17.167	1.5351	1.23	.	Q		.	.	.V		.
17.183	1.5367	1.22	.	Q		.	.	.V		.
17.200	1.5384	1.22	.	Q		.	.	.V		.
17.217	1.5401	1.22	.	Q		.	.	.V		.
17.233	1.5418	1.22	.	Q		.	.	.V		.
17.250	1.5434	1.21	.	Q		.	.	. V		.
17.267	1.5451	1.21	.	Q		.	.	. V		.
17.283	1.5468	1.21	.	Q		.	.	. V		.
17.300	1.5484	1.21	.	Q		.	.	. V		.
17.317	1.5501	1.20	.	Q		.	.	. V		.
17.333	1.5517	1.19	.	Q		.	.	. V		.
17.350	1.5534	1.18	.	Q		.	.	. V		.
17.367	1.5550	1.18	.	Q		.	.	. V		.
17.383	1.5566	1.17	.	Q		.	.	. V		.
17.400	1.5582	1.16	.	Q		.	.	. V		.
17.417	1.5598	1.15	.	Q		.	.	. V		.
17.433	1.5614	1.14	.	Q		.	.	. V		.
17.450	1.5629	1.14	.	Q		.	.	. V		.
17.467	1.5645	1.13	.	Q		.	.	. V		.
17.483	1.5660	1.12	.	Q		.	.	. V		.
17.500	1.5676	1.11	.	Q		.	.	. V		.
17.517	1.5691	1.10	.	Q		.	.	. V		.
17.533	1.5706	1.10	.	Q		.	.	. V		.
17.550	1.5721	1.09	.	Q		.	.	. V		.
17.567	1.5736	1.09	.	Q		.	.	. V		.
17.583	1.5751	1.08	.	Q		.	.	. V		.
17.600	1.5765	1.07	.	Q		.	.	. V		.
17.617	1.5780	1.07	.	Q		.	.	. V		.
17.633	1.5795	1.06	.	Q		.	.	. V		.
17.650	1.5809	1.05	.	Q		.	.	. V		.
17.667	1.5824	1.05	.	Q		.	.	. V		.
17.683	1.5838	1.04	.	Q		.	.	. V		.
17.700	1.5852	1.03	.	Q		.	.	. V		.
17.717	1.5866	1.03	.	Q		.	.	. V		.
17.733	1.5880	1.02	.	Q		.	.	. V		.
17.750	1.5894	1.02	.	Q		.	.	. V		.
17.767	1.5908	1.01	.	Q		.	.	. V		.
17.783	1.5922	1.01	.	Q		.	.	. V		.
17.800	1.5936	1.00	.	Q		.	.	. V		.
17.817	1.5950	1.00	.	Q		.	.	. V		.
17.833	1.5963	0.99	.	Q		.	.	. V		.
17.850	1.5977	0.98	.	Q		.	.	. V		.
17.867	1.5990	0.98	.	Q		.	.	. V		.
17.883	1.6004	0.97	.	Q		.	.	. V		.
17.900	1.6017	0.97	.	Q		.	.	. V		.
17.917	1.6030	0.96	.	Q		.	.	. V		.
17.933	1.6044	0.96	.	Q		.	.	. V		.
17.950	1.6057	0.96	.	Q		.	.	. V		.
17.967	1.6070	0.95	.	Q		.	.	. V		.
17.983	1.6083	0.95	.	Q		.	.	. V		.
18.000	1.6096	0.94	.	Q		.	.	. V		.
18.017	1.6109	0.94	.	Q		.	.	. V		.
18.033	1.6122	0.93	.	Q		.	.	. V		.
18.050	1.6134	0.93	.	Q		.	.	. V		.
18.067	1.6147	0.92	.	Q		.	.	. V		.
18.083	1.6160	0.92	.	Q		.	.	. V		.
18.100	1.6173	0.92	.	Q		.	.	. V		.
18.117	1.6185	0.92	.	Q		.	.	. V		.
18.133	1.6198	0.92	.	Q		.	.	. V		.
18.150	1.6211	0.92	.	Q		.	.	. V		.
18.167	1.6223	0.92	.	Q		.	.	. V		.
18.183	1.6236	0.92	.	Q		.	.	. V		.
18.200	1.6249	0.92	.	Q		.	.	. V		.
18.217	1.6261	0.92	.	Q		.	.	. V		.
18.233	1.6274	0.92	.	Q		.	.	. V		.
18.250	1.6287	0.92	.	Q		.	.	. V		.
18.267	1.6299	0.91	.	Q		.	.	. V		.
18.283	1.6312	0.91	.	Q		.	.	. V		.
18.300	1.6324	0.91	.	Q		.	.	. V		.
18.317	1.6337	0.90	.	Q		.	.	. V		.
18.333	1.6349	0.90	.	Q		.	.	. V		.
18.350	1.6361	0.89	.	Q		.	.	. V		.
18.367	1.6374	0.89	.	Q		.	.	. V		.
18.383	1.6386	0.89	.	Q		.	.	. V		.
18.400	1.6398	0.88	.	Q		.	.	. V		.
18.417	1.6410	0.88	.	Q		.	.	. V		.

18.433	1.6422	0.88	.	Q	.	.	.	V	.
18.450	1.6434	0.87	.	Q	.	.	.	V	.
18.467	1.6446	0.87	.	Q	.	.	.	V	.
18.483	1.6458	0.87	.	Q	.	.	.	V	.
18.500	1.6470	0.87	.	Q	.	.	.	V	.
18.517	1.6482	0.86	.	Q	.	.	.	V	.
18.533	1.6494	0.86	.	Q	.	.	.	V	.
18.550	1.6506	0.86	.	Q	.	.	.	V	.
18.567	1.6517	0.85	.	Q	.	.	.	V	.
18.583	1.6529	0.85	.	Q	.	.	.	V	.
18.600	1.6541	0.85	.	Q	.	.	.	V	.
18.617	1.6552	0.84	.	Q	.	.	.	V	.
18.633	1.6564	0.84	.	Q	.	.	.	V	.
18.650	1.6575	0.84	.	Q	.	.	.	V	.
18.667	1.6587	0.84	.	Q	.	.	.	V	.
18.683	1.6598	0.83	.	Q	.	.	.	V	.
18.700	1.6610	0.83	.	Q	.	.	.	V	.
18.717	1.6621	0.83	.	Q	.	.	.	V	.
18.733	1.6633	0.82	.	Q	.	.	.	V	.
18.750	1.6644	0.82	.	Q	.	.	.	V	.
18.767	1.6655	0.82	.	Q	.	.	.	V	.
18.783	1.6666	0.82	.	Q	.	.	.	V	.
18.800	1.6678	0.81	.	Q	.	.	.	V	.
18.817	1.6689	0.81	.	Q	.	.	.	V	.
18.833	1.6700	0.81	.	Q	.	.	.	V	.
18.850	1.6711	0.81	.	Q	.	.	.	V	.
18.867	1.6722	0.80	.	Q	.	.	.	V	.
18.883	1.6733	0.80	.	Q	.	.	.	V	.
18.900	1.6744	0.80	.	Q	.	.	.	V	.
18.917	1.6755	0.80	.	Q	.	.	.	V	.
18.933	1.6766	0.79	.	Q	.	.	.	V	.
18.950	1.6777	0.79	.	Q	.	.	.	V	.
18.967	1.6788	0.79	.	Q	.	.	.	V	.
18.983	1.6799	0.79	.	Q	.	.	.	V	.
19.000	1.6809	0.78	.	Q	.	.	.	V	.
19.017	1.6820	0.78	.	Q	.	.	.	V	.
19.033	1.6831	0.78	.	Q	.	.	.	V	.
19.050	1.6842	0.78	.	Q	.	.	.	V	.
19.067	1.6852	0.78	.	Q	.	.	.	V	.
19.083	1.6863	0.77	.	Q	.	.	.	V	.
19.100	1.6874	0.77	.	Q	.	.	.	V	.
19.117	1.6884	0.77	.	Q	.	.	.	V	.
19.133	1.6895	0.77	.	Q	.	.	.	V	.
19.150	1.6905	0.76	.	Q	.	.	.	V	.
19.167	1.6916	0.76	.	Q	.	.	.	V	.
19.183	1.6926	0.76	.	Q	.	.	.	V	.
19.200	1.6937	0.76	.	Q	.	.	.	V	.
19.217	1.6947	0.76	.	Q	.	.	.	V	.
19.233	1.6957	0.75	.	Q	.	.	.	V	.
19.250	1.6968	0.75	.	Q	.	.	.	V	.
19.267	1.6978	0.75	.	Q	.	.	.	V	.
19.283	1.6988	0.75	.	Q	.	.	.	V	.
19.300	1.6999	0.75	.	Q	.	.	.	V	.
19.317	1.7009	0.74	.	Q	.	.	.	V	.
19.333	1.7019	0.74	.	Q	.	.	.	V	.
19.350	1.7029	0.74	.	Q	.	.	.	V	.
19.367	1.7039	0.74	.	Q	.	.	.	V	.
19.383	1.7050	0.74	.	Q	.	.	.	V	.
19.400	1.7060	0.73	.	Q	.	.	.	V	.
19.417	1.7070	0.73	.	Q	.	.	.	V	.
19.433	1.7080	0.73	.	Q	.	.	.	V	.
19.450	1.7090	0.73	.	Q	.	.	.	V	.
19.467	1.7100	0.73	.	Q	.	.	.	V	.
19.483	1.7110	0.72	.	Q	.	.	.	V	.
19.500	1.7120	0.72	.	Q	.	.	.	V	.
19.517	1.7130	0.72	.	Q	.	.	.	V	.
19.533	1.7140	0.72	.	Q	.	.	.	V	.
19.550	1.7149	0.72	.	Q	.	.	.	V	.
19.567	1.7159	0.71	.	Q	.	.	.	V	.
19.583	1.7169	0.71	.	Q	.	.	.	V	.
19.600	1.7179	0.71	.	Q	.	.	.	V	.
19.617	1.7189	0.71	.	Q	.	.	.	V	.
19.633	1.7198	0.71	.	Q	.	.	.	V	.
19.650	1.7208	0.71	.	Q	.	.	.	V	.
19.667	1.7218	0.70	.	Q	.	.	.	V	.
19.683	1.7228	0.70	.	Q	.	.	.	V	.
19.700	1.7237	0.70	.	Q	.	.	.	V	.
19.717	1.7247	0.70	.	Q	.	.	.	V	.
19.733	1.7256	0.70	.	Q	.	.	.	V	.
19.750	1.7266	0.70	.	Q	.	.	.	V	.
19.767	1.7276	0.69	.	Q	.	.	.	V	.
19.783	1.7285	0.69	.	Q	.	.	.	V	.
19.800	1.7295	0.69	.	Q	.	.	.	V	.
19.817	1.7304	0.69	.	Q	.	.	.	V	.
19.833	1.7314	0.69	.	Q	.	.	.	V	.
19.850	1.7323	0.69	.	Q	.	.	.	V	.
19.867	1.7333	0.69	.	Q	.	.	.	V	.
19.883	1.7342	0.68	.	Q	.	.	.	V	.
19.900	1.7351	0.68	.	Q	.	.	.	V	.
19.917	1.7361	0.68	.	Q	.	.	.	V	.
19.933	1.7370	0.68	.	Q	.	.	.	V	.
19.950	1.7379	0.68	.	Q	.	.	.	V	.
19.967	1.7389	0.68	.	Q	.	.	.	V	.
19.983	1.7398	0.67	.	Q	.	.	.	V	.
20.000	1.7407	0.67	.	Q	.	.	.	V	.
20.017	1.7417	0.67	.	Q	.	.	.	V	.
20.033	1.7426	0.67	.	Q	.	.	.	V	.
20.050	1.7435	0.67	.	Q	.	.	.	V	.
20.067	1.7444	0.67	.	Q	.	.	.	V	.
20.083	1.7453	0.67	.	Q	.	.	.	V	.
20.100	1.7462	0.66	.	Q	.	.	.	V	.
20.117	1.7472	0.66	.	Q	.	.	.	V	.
20.133	1.7481	0.66	.	Q	.	.	.	V	.
20.150	1.7490	0.66	.	Q	.	.	.	V	.
20.167	1.7499	0.66	.	Q	.	.	.	V	.
20.183	1.7508	0.66	.	Q	.	.	.	V	.
20.200	1.7517	0.66	.	Q	.	.	.	V	.
20.217	1.7526	0.65	.	Q	.	.	.	V	.
20.233	1.7535	0.65	.	Q	.	.	.	V	.
20.250	1.7544	0.65	.	Q	.	.	.	V	.
20.267	1.7553	0.65	.	Q	.	.	.	V	.
20.283	1.7562	0.65	.	Q	.	.	.	V	.
20.300	1.7571	0.65	.	Q	.	.	.	V	.
20.317	1.7580	0.65	.	Q	.	.	.	V	.
20.333	1.7589	0.65	.	Q	.	.	.	V	.
20.350	1.7597	0.64	.	Q	.	.	.	V	.
20.367	1.7606	0.64	.	Q	.	.	.	V	.
20.383	1.7615	0.64	.	Q	.	.	.	V	.

20.400	1.7624	0.64	. Q	.	.	.	V	.
20.417	1.7633	0.64	.Q	.	.	.	V	.
20.433	1.7641	0.64	.Q	.	.	.	V	.
20.450	1.7650	0.64	.Q	.	.	.	V	.
20.467	1.7659	0.63	.Q	.	.	.	V	.
20.483	1.7668	0.63	.Q	.	.	.	V	.
20.500	1.7676	0.63	.Q	.	.	.	V	.
20.517	1.7685	0.63	.Q	.	.	.	V	.
20.533	1.7694	0.63	.Q	.	.	.	V	.
20.550	1.7702	0.63	.Q	.	.	.	V	.
20.567	1.7711	0.63	.Q	.	.	.	V	.
20.583	1.7720	0.63	.Q	.	.	.	V	.
20.600	1.7728	0.63	.Q	.	.	.	V	.
20.617	1.7737	0.62	.Q	.	.	.	V	.
20.633	1.7746	0.62	.Q	.	.	.	V	.
20.650	1.7754	0.62	.Q	.	.	.	V	.
20.667	1.7763	0.62	.Q	.	.	.	V	.
20.683	1.7771	0.62	.Q	.	.	.	V	.
20.700	1.7780	0.62	.Q	.	.	.	V	.
20.717	1.7788	0.62	.Q	.	.	.	V	.
20.733	1.7797	0.62	.Q	.	.	.	V	.
20.750	1.7805	0.61	.Q	.	.	.	V	.
20.767	1.7814	0.61	.Q	.	.	.	V	.
20.783	1.7822	0.61	.Q	.	.	.	V	.
20.800	1.7830	0.61	.Q	.	.	.	V	.
20.817	1.7839	0.61	.Q	.	.	.	V	.
20.833	1.7847	0.61	.Q	.	.	.	V	.
20.850	1.7856	0.61	.Q	.	.	.	V	.
20.867	1.7864	0.61	.Q	.	.	.	V	.
20.883	1.7872	0.61	.Q	.	.	.	V	.
20.900	1.7881	0.60	.Q	.	.	.	V	.
20.917	1.7889	0.60	.Q	.	.	.	V	.
20.933	1.7897	0.60	.Q	.	.	.	V	.
20.950	1.7906	0.60	.Q	.	.	.	V	.
20.967	1.7914	0.60	.Q	.	.	.	V	.
20.983	1.7922	0.60	.Q	.	.	.	V	.
21.000	1.7930	0.60	.Q	.	.	.	V	.
21.017	1.7939	0.60	.Q	.	.	.	V	.
21.033	1.7947	0.60	.Q	.	.	.	V	.
21.050	1.7955	0.60	.Q	.	.	.	V	.
21.067	1.7963	0.59	.Q	.	.	.	V	.
21.083	1.7971	0.59	.Q	.	.	.	V	.
21.100	1.7979	0.59	.Q	.	.	.	V	.
21.117	1.7988	0.59	.Q	.	.	.	V	.
21.133	1.7996	0.59	.Q	.	.	.	V	.
21.150	1.8004	0.59	.Q	.	.	.	V	.
21.167	1.8012	0.59	.Q	.	.	.	V	.
21.183	1.8020	0.59	.Q	.	.	.	V	.
21.200	1.8028	0.59	.Q	.	.	.	V	.
21.217	1.8036	0.59	.Q	.	.	.	V	.
21.233	1.8044	0.58	.Q	.	.	.	V	.
21.250	1.8052	0.58	.Q	.	.	.	V	.
21.267	1.8060	0.58	.Q	.	.	.	V	.
21.283	1.8068	0.58	.Q	.	.	.	V	.
21.300	1.8076	0.58	.Q	.	.	.	V	.
21.317	1.8084	0.58	.Q	.	.	.	V	.
21.333	1.8092	0.58	.Q	.	.	.	V	.
21.350	1.8100	0.58	.Q	.	.	.	V	.
21.367	1.8108	0.58	.Q	.	.	.	V	.
21.383	1.8116	0.58	.Q	.	.	.	V	.
21.400	1.8124	0.57	.Q	.	.	.	V	.
21.417	1.8132	0.57	.Q	.	.	.	V	.
21.433	1.8140	0.57	.Q	.	.	.	V	.
21.450	1.8148	0.57	.Q	.	.	.	V	.
21.467	1.8156	0.57	.Q	.	.	.	V	.
21.483	1.8163	0.57	.Q	.	.	.	V	.
21.500	1.8171	0.57	.Q	.	.	.	V	.
21.517	1.8179	0.57	.Q	.	.	.	V	.
21.533	1.8187	0.57	.Q	.	.	.	V	.
21.550	1.8195	0.57	.Q	.	.	.	V	.
21.567	1.8202	0.57	.Q	.	.	.	V	.
21.583	1.8210	0.56	.Q	.	.	.	V	.
21.600	1.8218	0.56	.Q	.	.	.	V	.
21.617	1.8226	0.56	.Q	.	.	.	V	.
21.633	1.8234	0.56	.Q	.	.	.	V	.
21.650	1.8241	0.56	.Q	.	.	.	V	.
21.667	1.8249	0.56	.Q	.	.	.	V	.
21.683	1.8257	0.56	.Q	.	.	.	V	.
21.700	1.8264	0.56	.Q	.	.	.	V	.
21.717	1.8272	0.56	.Q	.	.	.	V	.
21.733	1.8280	0.56	.Q	.	.	.	V	.
21.750	1.8287	0.56	.Q	.	.	.	V	.
21.767	1.8295	0.56	.Q	.	.	.	V	.
21.783	1.8303	0.55	.Q	.	.	.	V	.
21.800	1.8310	0.55	.Q	.	.	.	V	.
21.817	1.8318	0.55	.Q	.	.	.	V	.
21.833	1.8326	0.55	.Q	.	.	.	V	.
21.850	1.8333	0.55	.Q	.	.	.	V	.
21.867	1.8341	0.55	.Q	.	.	.	V	.
21.883	1.8348	0.55	.Q	.	.	.	V	.
21.900	1.8356	0.55	.Q	.	.	.	V	.
21.917	1.8363	0.55	.Q	.	.	.	V	.
21.933	1.8371	0.55	.Q	.	.	.	V	.
21.950	1.8378	0.55	.Q	.	.	.	V	.
21.967	1.8386	0.55	.Q	.	.	.	V	.
21.983	1.8393	0.54	.Q	.	.	.	V	.
22.000	1.8401	0.54	.Q	.	.	.	V	.
22.017	1.8408	0.54	.Q	.	.	.	V	.
22.033	1.8416	0.54	.Q	.	.	.	V	.
22.050	1.8423	0.54	.Q	.	.	.	V	.
22.067	1.8431	0.54	.Q	.	.	.	V	.
22.083	1.8438	0.54	.Q	.	.	.	V	.
22.100	1.8446	0.54	.Q	.	.	.	V	.
22.117	1.8453	0.54	.Q	.	.	.	V	.
22.133	1.8461	0.54	.Q	.	.	.	V	.
22.150	1.8468	0.54	.Q	.	.	.	V	.
22.167	1.8475	0.54	.Q	.	.	.	V	.
22.183	1.8483	0.54	.Q	.	.	.	V	.
22.200	1.8490	0.53	.Q	.	.	.	V	.
22.217	1.8497	0.53	.Q	.	.	.	V	.
22.233	1.8505	0.53	.Q	.	.	.	V	.
22.250	1.8512	0.53	.Q	.	.	.	V	.
22.267	1.8519	0.53	.Q	.	.	.	V	.
22.283	1.8527	0.53	.Q	.	.	.	V	.
22.300	1.8534	0.53	.Q	.	.	.	V	.
22.317	1.8541	0.53	.Q	.	.	.	V	.
22.333	1.8549	0.53	.Q	.	.	.	V	.
22.350	1.8556	0.53	.Q	.	.	.	V	.

22.367	1.8563	0.53	.Q	.	.	.	V .
22.383	1.8570	0.53	.Q	.	.	.	V .
22.400	1.8578	0.53	.Q	.	.	.	V .
22.417	1.8585	0.53	.Q	.	.	.	V .
22.433	1.8592	0.52	.Q	.	.	.	V .
22.450	1.8599	0.52	.Q	.	.	.	V .
22.467	1.8607	0.52	.Q	.	.	.	V .
22.483	1.8614	0.52	.Q	.	.	.	V .
22.500	1.8621	0.52	.Q	.	.	.	V .
22.517	1.8628	0.52	.Q	.	.	.	V .
22.533	1.8635	0.52	.Q	.	.	.	V .
22.550	1.8642	0.52	.Q	.	.	.	V .
22.567	1.8650	0.52	.Q	.	.	.	V .
22.583	1.8657	0.52	.Q	.	.	.	V .
22.600	1.8664	0.52	.Q	.	.	.	V .
22.617	1.8671	0.52	.Q	.	.	.	V .
22.633	1.8678	0.52	.Q	.	.	.	V .
22.650	1.8685	0.52	.Q	.	.	.	V .
22.667	1.8692	0.52	.Q	.	.	.	V .
22.683	1.8699	0.51	.Q	.	.	.	V .
22.700	1.8706	0.51	.Q	.	.	.	V .
22.717	1.8714	0.51	.Q	.	.	.	V .
22.733	1.8721	0.51	.Q	.	.	.	V .
22.750	1.8728	0.51	.Q	.	.	.	V .
22.767	1.8735	0.51	.Q	.	.	.	V .
22.783	1.8742	0.51	.Q	.	.	.	V .
22.800	1.8749	0.51	.Q	.	.	.	V .
22.817	1.8756	0.51	.Q	.	.	.	V .
22.833	1.8763	0.51	.Q	.	.	.	V .
22.850	1.8770	0.51	.Q	.	.	.	V .
22.867	1.8777	0.51	.Q	.	.	.	V .
22.883	1.8784	0.51	.Q	.	.	.	V .
22.900	1.8791	0.51	.Q	.	.	.	V .
22.917	1.8798	0.51	.Q	.	.	.	V.
22.933	1.8805	0.50	.Q	.	.	.	V.
22.950	1.8812	0.50	.Q	.	.	.	V.
22.967	1.8818	0.50	.Q	.	.	.	V.
22.983	1.8825	0.50	.Q	.	.	.	V.
23.000	1.8832	0.50	.Q	.	.	.	V.
23.017	1.8839	0.50	.Q	.	.	.	V.
23.033	1.8846	0.50	.Q	.	.	.	V.
23.050	1.8853	0.50	.Q	.	.	.	V.
23.067	1.8860	0.50	.Q	.	.	.	V.
23.083	1.8867	0.50	.Q	.	.	.	V.
23.100	1.8874	0.50	.Q	.	.	.	V.
23.117	1.8881	0.50	.Q	.	.	.	V.
23.133	1.8887	0.50	.Q	.	.	.	V.
23.150	1.8894	0.50	.Q	.	.	.	V.
23.167	1.8901	0.50	.Q	.	.	.	V.
23.183	1.8908	0.50	.Q	.	.	.	V.
23.200	1.8915	0.49	.Q	.	.	.	V.
23.217	1.8922	0.49	.Q	.	.	.	V.
23.233	1.8928	0.49	.Q	.	.	.	V.
23.250	1.8935	0.49	.Q	.	.	.	V.
23.267	1.8942	0.49	.Q	.	.	.	V.
23.283	1.8949	0.49	.Q	.	.	.	V.
23.300	1.8955	0.49	.Q	.	.	.	V.
23.317	1.8962	0.49	.Q	.	.	.	V.
23.333	1.8969	0.49	.Q	.	.	.	V.
23.350	1.8976	0.49	.Q	.	.	.	V.
23.367	1.8982	0.49	.Q	.	.	.	V.
23.383	1.8989	0.49	.Q	.	.	.	V.
23.400	1.8996	0.49	.Q	.	.	.	V.
23.417	1.9003	0.49	.Q	.	.	.	V.
23.433	1.9009	0.49	.Q	.	.	.	V.
23.450	1.9016	0.49	.Q	.	.	.	V.
23.467	1.9023	0.49	.Q	.	.	.	V.
23.483	1.9029	0.49	.Q	.	.	.	V.
23.500	1.9036	0.48	.Q	.	.	.	V.
23.517	1.9043	0.48	.Q	.	.	.	V.
23.533	1.9049	0.48	.Q	.	.	.	V.
23.550	1.9056	0.48	.Q	.	.	.	V.
23.567	1.9063	0.48	.Q	.	.	.	V.
23.583	1.9069	0.48	.Q	.	.	.	V.
23.600	1.9076	0.48	.Q	.	.	.	V.
23.617	1.9083	0.48	.Q	.	.	.	V.
23.633	1.9089	0.48	.Q	.	.	.	V.
23.650	1.9096	0.48	.Q	.	.	.	V.
23.667	1.9102	0.48	.Q	.	.	.	V.
23.683	1.9109	0.48	.Q	.	.	.	V.
23.700	1.9116	0.48	.Q	.	.	.	V.
23.717	1.9122	0.48	.Q	.	.	.	V.
23.733	1.9129	0.48	.Q	.	.	.	V.
23.750	1.9135	0.48	.Q	.	.	.	V.
23.767	1.9142	0.48	.Q	.	.	.	V.
23.783	1.9148	0.48	.Q	.	.	.	V.
23.800	1.9155	0.47	.Q	.	.	.	V.
23.817	1.9161	0.47	.Q	.	.	.	V.
23.833	1.9168	0.47	.Q	.	.	.	V.
23.850	1.9174	0.47	.Q	.	.	.	V.
23.867	1.9181	0.47	.Q	.	.	.	V.
23.883	1.9187	0.47	.Q	.	.	.	V.
23.900	1.9194	0.47	.Q	.	.	.	V.
23.917	1.9200	0.47	.Q	.	.	.	V.
23.933	1.9207	0.47	.Q	.	.	.	V.
23.950	1.9213	0.47	.Q	.	.	.	V.
23.967	1.9220	0.47	.Q	.	.	.	V.
23.983	1.9226	0.47	.Q	.	.	.	V.
24.000	1.9233	0.47	.Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1441.0
10%	820.0
20%	315.0
30%	200.0
40%	120.0
50%	90.0
60%	75.0
70%	55.0
80%	35.0
90%	20.0

```
**************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE = 3.2
--------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
==========================================================================

                    INFLOW
                   (STREAM 1)
                        |
                        |
                        V                __effective depth
                    ------------         |   (and volume)
                   |           |    |    |
                   |           |    |....V........
                   | detention |<-->|           outflow
                   |   basin   |    |.........______
                    ------------     |    ^    |  \
                        |            |  dead   |   basin outlet
                        V            | storage |
                     OUTFLOW          ---------
                   (STREAM 1)



        ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
        THROUGH A FLOW-THROUGH DETENTION BASIN
        SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
          DEAD STORAGE(AF) =      0.000
          SPECIFIED DEAD STORAGE(AF) FILLED =      0.000
          SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =      0.000
          DETENTION BASIN CONSTANT LOSS RATE(CFS) =    0.00


        BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

         INTERVAL    DEPTH      OUTFLOW     STORAGE
          NUMBER      (FT)       (CFS)       (AF)
              1       0.00        0.00       0.000
              2       0.50        0.01       0.045
              3       1.00        2.70       0.097
              4       2.00        4.80       0.222
              5       3.00        6.10       0.380
              6       4.00        7.30       0.568


==========================================================================
 MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
 (Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
        MEAN OUTFLOW is the average value during the unit interval.)

           CLOCK                                              MEAN
            TIME  DEAD-STORAGE  INFLOW    LOSS   EFFECTIVE OUTFLOW  EFFECTIVE
           (HRS)   FILLED(AF)    (CFS)    (CFS)  DEPTH(FT)  (CFS)   VOLUME(AF)
--------------------------------------------------------------------------------
          0.017       0.000     0.02     0.00      0.00      0.0      0.000
          0.033       0.000     0.07     0.00      0.00      0.0      0.000
          0.050       0.000     0.12     0.00      0.00      0.0      0.000
          0.067       0.000     0.17     0.00      0.01      0.0      0.001
          0.083       0.000     0.22     0.00      0.01      0.0      0.001
          0.100       0.000     0.26     0.00      0.01      0.0      0.001
          0.117       0.000     0.31     0.00      0.02      0.0      0.002
          0.133       0.000     0.36     0.00      0.02      0.0      0.002
          0.150       0.000     0.41     0.00      0.03      0.0      0.003
          0.167       0.000     0.45     0.00      0.04      0.0      0.003
          0.183       0.000     0.46     0.00      0.04      0.0      0.004
          0.200       0.000     0.46     0.00      0.05      0.0      0.005
          0.217       0.000     0.46     0.00      0.06      0.0      0.005
          0.233       0.000     0.47     0.00      0.06      0.0      0.006
          0.250       0.000     0.47     0.00      0.07      0.0      0.006
          0.267       0.000     0.47     0.00      0.08      0.0      0.007
          0.283       0.000     0.47     0.00      0.09      0.0      0.008
          0.300       0.000     0.47     0.00      0.09      0.0      0.008
          0.317       0.000     0.47     0.00      0.10      0.0      0.009
          0.333       0.000     0.47     0.00      0.11      0.0      0.010
          0.350       0.000     0.47     0.00      0.11      0.0      0.010
          0.367       0.000     0.47     0.00      0.12      0.0      0.011
          0.383       0.000     0.47     0.00      0.13      0.0      0.012
          0.400       0.000     0.47     0.00      0.14      0.0      0.012
          0.417       0.000     0.47     0.00      0.14      0.0      0.013
          0.433       0.000     0.47     0.00      0.15      0.0      0.014
          0.450       0.000     0.47     0.00      0.16      0.0      0.014
          0.467       0.000     0.47     0.00      0.16      0.0      0.015
          0.483       0.000     0.47     0.00      0.17      0.0      0.015
          0.500       0.000     0.47     0.00      0.18      0.0      0.016
          0.517       0.000     0.47     0.00      0.19      0.0      0.017
          0.533       0.000     0.47     0.00      0.19      0.0      0.017
          0.550       0.000     0.47     0.00      0.20      0.0      0.018
          0.567       0.000     0.47     0.00      0.21      0.0      0.019
          0.583       0.000     0.47     0.00      0.21      0.0      0.019
          0.600       0.000     0.47     0.00      0.22      0.0      0.020
          0.617       0.000     0.47     0.00      0.23      0.0      0.021
          0.633       0.000     0.47     0.00      0.24      0.0      0.021
          0.650       0.000     0.47     0.00      0.24      0.0      0.022
          0.667       0.000     0.47     0.00      0.25      0.0      0.022
          0.683       0.000     0.47     0.00      0.26      0.0      0.023
          0.700       0.000     0.47     0.00      0.26      0.0      0.024
          0.717       0.000     0.47     0.00      0.27      0.0      0.024
          0.733       0.000     0.47     0.00      0.28      0.0      0.025
          0.750       0.000     0.47     0.00      0.29      0.0      0.026
          0.767       0.000     0.47     0.00      0.29      0.0      0.026
          0.783       0.000     0.47     0.00      0.30      0.0      0.027
          0.800       0.000     0.47     0.00      0.31      0.0      0.028
          0.817       0.000     0.47     0.00      0.31      0.0      0.028
          0.833       0.000     0.47     0.00      0.32      0.0      0.029
          0.850       0.000     0.47     0.00      0.33      0.0      0.030
          0.867       0.000     0.47     0.00      0.34      0.0      0.030
          0.883       0.000     0.48     0.00      0.34      0.0      0.031
          0.900       0.000     0.48     0.00      0.35      0.0      0.031
          0.917       0.000     0.48     0.00      0.36      0.0      0.032
          0.933       0.000     0.48     0.00      0.36      0.0      0.033
          0.950       0.000     0.48     0.00      0.37      0.0      0.033
          0.967       0.000     0.48     0.00      0.38      0.0      0.034
          0.983       0.000     0.48     0.00      0.39      0.0      0.035
          1.000       0.000     0.48     0.00      0.39      0.0      0.035
          1.017       0.000     0.48     0.00      0.40      0.0      0.036
          1.033       0.000     0.48     0.00      0.41      0.0      0.037
          1.050       0.000     0.48     0.00      0.41      0.0      0.037
```

1.067	0.000	0.48	0.00	0.42	0.0	0.038
1.083	0.000	0.48	0.00	0.43	0.0	0.039
1.100	0.000	0.48	0.00	0.44	0.0	0.039
1.117	0.000	0.48	0.00	0.44	0.0	0.040
1.133	0.000	0.48	0.00	0.45	0.0	0.041
1.150	0.000	0.48	0.00	0.46	0.0	0.041
1.167	0.000	0.48	0.00	0.46	0.0	0.042
1.183	0.000	0.48	0.00	0.47	0.0	0.042
1.200	0.000	0.48	0.00	0.48	0.0	0.043
1.217	0.000	0.48	0.00	0.49	0.0	0.044
1.233	0.000	0.48	0.00	0.49	0.0	0.044
1.250	0.000	0.48	0.00	0.50	0.0	0.045
1.267	0.000	0.48	0.00	0.51	0.0	0.046
1.283	0.000	0.48	0.00	0.51	0.1	0.046
1.300	0.000	0.48	0.00	0.52	0.1	0.047
1.317	0.000	0.48	0.00	0.52	0.1	0.047
1.333	0.000	0.48	0.00	0.53	0.1	0.048
1.350	0.000	0.48	0.00	0.53	0.2	0.048
1.367	0.000	0.48	0.00	0.53	0.2	0.049
1.383	0.000	0.48	0.00	0.54	0.2	0.049
1.400	0.000	0.48	0.00	0.54	0.2	0.049
1.417	0.000	0.48	0.00	0.54	0.2	0.050
1.433	0.000	0.48	0.00	0.55	0.3	0.050
1.450	0.000	0.48	0.00	0.55	0.3	0.050
1.467	0.000	0.48	0.00	0.55	0.3	0.051
1.483	0.000	0.48	0.00	0.56	0.3	0.051
1.500	0.000	0.48	0.00	0.56	0.3	0.051
1.517	0.000	0.48	0.00	0.56	0.3	0.051
1.533	0.000	0.49	0.00	0.56	0.3	0.051
1.550	0.000	0.49	0.00	0.56	0.3	0.052
1.567	0.000	0.49	0.00	0.57	0.4	0.052
1.583	0.000	0.49	0.00	0.57	0.4	0.052
1.600	0.000	0.49	0.00	0.57	0.4	0.052
1.617	0.000	0.49	0.00	0.57	0.4	0.052
1.633	0.000	0.49	0.00	0.57	0.4	0.052
1.650	0.000	0.49	0.00	0.57	0.4	0.053
1.667	0.000	0.49	0.00	0.57	0.4	0.053
1.683	0.000	0.49	0.00	0.57	0.4	0.053
1.700	0.000	0.49	0.00	0.58	0.4	0.053
1.717	0.000	0.49	0.00	0.58	0.4	0.053
1.733	0.000	0.49	0.00	0.58	0.4	0.053
1.750	0.000	0.49	0.00	0.58	0.4	0.053
1.767	0.000	0.49	0.00	0.58	0.4	0.053
1.783	0.000	0.49	0.00	0.58	0.4	0.053
1.800	0.000	0.49	0.00	0.58	0.4	0.053
1.817	0.000	0.49	0.00	0.58	0.4	0.053
1.833	0.000	0.49	0.00	0.58	0.4	0.053
1.850	0.000	0.49	0.00	0.58	0.4	0.054
1.867	0.000	0.49	0.00	0.58	0.5	0.054
1.883	0.000	0.49	0.00	0.58	0.5	0.054
1.900	0.000	0.49	0.00	0.58	0.5	0.054
1.917	0.000	0.49	0.00	0.58	0.5	0.054
1.933	0.000	0.49	0.00	0.58	0.5	0.054
1.950	0.000	0.49	0.00	0.58	0.5	0.054
1.967	0.000	0.49	0.00	0.58	0.5	0.054
1.983	0.000	0.49	0.00	0.59	0.5	0.054
2.000	0.000	0.49	0.00	0.59	0.5	0.054
2.017	0.000	0.49	0.00	0.59	0.5	0.054
2.033	0.000	0.49	0.00	0.59	0.5	0.054
2.050	0.000	0.49	0.00	0.59	0.5	0.054
2.067	0.000	0.49	0.00	0.59	0.5	0.054
2.083	0.000	0.50	0.00	0.59	0.5	0.054
2.100	0.000	0.50	0.00	0.59	0.5	0.054
2.117	0.000	0.50	0.00	0.59	0.5	0.054
2.133	0.000	0.50	0.00	0.59	0.5	0.054
2.150	0.000	0.50	0.00	0.59	0.5	0.054
2.167	0.000	0.50	0.00	0.59	0.5	0.054
2.183	0.000	0.50	0.00	0.59	0.5	0.054
2.200	0.000	0.50	0.00	0.59	0.5	0.054
2.217	0.000	0.50	0.00	0.59	0.5	0.054
2.233	0.000	0.50	0.00	0.59	0.5	0.054
2.250	0.000	0.50	0.00	0.59	0.5	0.054
2.267	0.000	0.50	0.00	0.59	0.5	0.054
2.283	0.000	0.50	0.00	0.59	0.5	0.054
2.300	0.000	0.50	0.00	0.59	0.5	0.054
2.317	0.000	0.50	0.00	0.59	0.5	0.054
2.333	0.000	0.50	0.00	0.59	0.5	0.054
2.350	0.000	0.50	0.00	0.59	0.5	0.054
2.367	0.000	0.50	0.00	0.59	0.5	0.054
2.383	0.000	0.50	0.00	0.59	0.5	0.054
2.400	0.000	0.50	0.00	0.59	0.5	0.054
2.417	0.000	0.50	0.00	0.59	0.5	0.054
2.433	0.000	0.50	0.00	0.59	0.5	0.054
2.450	0.000	0.50	0.00	0.59	0.5	0.054
2.467	0.000	0.50	0.00	0.59	0.5	0.054
2.483	0.000	0.50	0.00	0.59	0.5	0.054
2.500	0.000	0.50	0.00	0.59	0.5	0.054
2.517	0.000	0.50	0.00	0.59	0.5	0.054
2.533	0.000	0.50	0.00	0.59	0.5	0.054
2.550	0.000	0.50	0.00	0.59	0.5	0.054
2.567	0.000	0.50	0.00	0.59	0.5	0.054
2.583	0.000	0.50	0.00	0.59	0.5	0.054
2.600	0.000	0.50	0.00	0.59	0.5	0.054
2.617	0.000	0.50	0.00	0.59	0.5	0.054
2.633	0.000	0.50	0.00	0.59	0.5	0.054
2.650	0.000	0.50	0.00	0.59	0.5	0.054
2.667	0.000	0.51	0.00	0.59	0.5	0.054
2.683	0.000	0.51	0.00	0.59	0.5	0.054
2.700	0.000	0.51	0.00	0.59	0.5	0.054
2.717	0.000	0.51	0.00	0.59	0.5	0.054
2.733	0.000	0.51	0.00	0.59	0.5	0.054
2.750	0.000	0.51	0.00	0.59	0.5	0.054
2.767	0.000	0.51	0.00	0.59	0.5	0.055
2.783	0.000	0.51	0.00	0.59	0.5	0.055
2.800	0.000	0.51	0.00	0.59	0.5	0.055
2.817	0.000	0.51	0.00	0.59	0.5	0.055
2.833	0.000	0.51	0.00	0.59	0.5	0.055
2.850	0.000	0.51	0.00	0.59	0.5	0.055
2.867	0.000	0.51	0.00	0.59	0.5	0.055
2.883	0.000	0.51	0.00	0.59	0.5	0.055
2.900	0.000	0.51	0.00	0.59	0.5	0.055
2.917	0.000	0.51	0.00	0.59	0.5	0.055
2.933	0.000	0.51	0.00	0.59	0.5	0.055
2.950	0.000	0.51	0.00	0.59	0.5	0.055
2.967	0.000	0.51	0.00	0.59	0.5	0.055
2.983	0.000	0.51	0.00	0.59	0.5	0.055
3.000	0.000	0.51	0.00	0.59	0.5	0.055
3.017	0.000	0.51	0.00	0.59	0.5	0.055

3.033	0.000	0.51	0.00	0.59	0.5	0.055
3.050	0.000	0.51	0.00	0.59	0.5	0.055
3.067	0.000	0.51	0.00	0.59	0.5	0.055
3.083	0.000	0.51	0.00	0.59	0.5	0.055
3.100	0.000	0.51	0.00	0.59	0.5	0.055
3.117	0.000	0.51	0.00	0.59	0.5	0.055
3.133	0.000	0.52	0.00	0.59	0.5	0.055
3.150	0.000	0.52	0.00	0.59	0.5	0.055
3.167	0.000	0.52	0.00	0.59	0.5	0.055
3.183	0.000	0.52	0.00	0.59	0.5	0.055
3.200	0.000	0.52	0.00	0.59	0.5	0.055
3.217	0.000	0.52	0.00	0.59	0.5	0.055
3.233	0.000	0.52	0.00	0.59	0.5	0.055
3.250	0.000	0.52	0.00	0.59	0.5	0.055
3.267	0.000	0.52	0.00	0.59	0.5	0.055
3.283	0.000	0.52	0.00	0.59	0.5	0.055
3.300	0.000	0.52	0.00	0.59	0.5	0.055
3.317	0.000	0.52	0.00	0.59	0.5	0.055
3.333	0.000	0.52	0.00	0.59	0.5	0.055
3.350	0.000	0.52	0.00	0.59	0.5	0.055
3.367	0.000	0.52	0.00	0.59	0.5	0.055
3.383	0.000	0.52	0.00	0.59	0.5	0.055
3.400	0.000	0.52	0.00	0.59	0.5	0.055
3.417	0.000	0.52	0.00	0.59	0.5	0.055
3.433	0.000	0.52	0.00	0.59	0.5	0.055
3.450	0.000	0.52	0.00	0.59	0.5	0.055
3.467	0.000	0.52	0.00	0.59	0.5	0.055
3.483	0.000	0.52	0.00	0.59	0.5	0.055
3.500	0.000	0.52	0.00	0.59	0.5	0.055
3.517	0.000	0.52	0.00	0.59	0.5	0.055
3.533	0.000	0.52	0.00	0.59	0.5	0.055
3.550	0.000	0.52	0.00	0.59	0.5	0.055
3.567	0.000	0.52	0.00	0.59	0.5	0.055
3.583	0.000	0.52	0.00	0.59	0.5	0.055
3.600	0.000	0.52	0.00	0.59	0.5	0.055
3.617	0.000	0.52	0.00	0.59	0.5	0.055
3.633	0.000	0.52	0.00	0.59	0.5	0.055
3.650	0.000	0.53	0.00	0.59	0.5	0.055
3.667	0.000	0.53	0.00	0.59	0.5	0.055
3.683	0.000	0.53	0.00	0.59	0.5	0.055
3.700	0.000	0.53	0.00	0.59	0.5	0.055
3.717	0.000	0.53	0.00	0.59	0.5	0.055
3.733	0.000	0.53	0.00	0.60	0.5	0.055
3.750	0.000	0.53	0.00	0.60	0.5	0.055
3.767	0.000	0.53	0.00	0.60	0.5	0.055
3.783	0.000	0.53	0.00	0.60	0.5	0.055
3.800	0.000	0.53	0.00	0.60	0.5	0.055
3.817	0.000	0.53	0.00	0.60	0.5	0.055
3.833	0.000	0.53	0.00	0.60	0.5	0.055
3.850	0.000	0.53	0.00	0.60	0.5	0.055
3.867	0.000	0.53	0.00	0.60	0.5	0.055
3.883	0.000	0.53	0.00	0.60	0.5	0.055
3.900	0.000	0.53	0.00	0.60	0.5	0.055
3.917	0.000	0.53	0.00	0.60	0.5	0.055
3.933	0.000	0.53	0.00	0.60	0.5	0.055
3.950	0.000	0.53	0.00	0.60	0.5	0.055
3.967	0.000	0.53	0.00	0.60	0.5	0.055
3.983	0.000	0.53	0.00	0.60	0.5	0.055
4.000	0.000	0.53	0.00	0.60	0.5	0.055

4.017	0.000	0.53	0.00	0.60	0.5	0.055
4.033	0.000	0.53	0.00	0.60	0.5	0.055
4.050	0.000	0.53	0.00	0.60	0.5	0.055
4.067	0.000	0.53	0.00	0.60	0.5	0.055
4.083	0.000	0.53	0.00	0.60	0.5	0.055
4.100	0.000	0.53	0.00	0.60	0.5	0.055
4.117	0.000	0.53	0.00	0.60	0.5	0.055
4.133	0.000	0.54	0.00	0.60	0.5	0.055
4.150	0.000	0.54	0.00	0.60	0.5	0.055
4.167	0.000	0.54	0.00	0.60	0.5	0.055
4.183	0.000	0.54	0.00	0.60	0.5	0.055
4.200	0.000	0.54	0.00	0.60	0.5	0.055
4.217	0.000	0.54	0.00	0.60	0.5	0.055
4.233	0.000	0.54	0.00	0.60	0.5	0.055
4.250	0.000	0.54	0.00	0.60	0.5	0.055
4.267	0.000	0.54	0.00	0.60	0.5	0.055
4.283	0.000	0.54	0.00	0.60	0.5	0.055
4.300	0.000	0.54	0.00	0.60	0.5	0.055
4.317	0.000	0.54	0.00	0.60	0.5	0.055
4.333	0.000	0.54	0.00	0.60	0.5	0.055
4.350	0.000	0.54	0.00	0.60	0.5	0.055
4.367	0.000	0.54	0.00	0.60	0.5	0.055
4.383	0.000	0.54	0.00	0.60	0.5	0.055
4.400	0.000	0.54	0.00	0.60	0.5	0.055
4.417	0.000	0.54	0.00	0.60	0.5	0.055
4.433	0.000	0.54	0.00	0.60	0.5	0.055
4.450	0.000	0.54	0.00	0.60	0.5	0.055
4.467	0.000	0.54	0.00	0.60	0.5	0.055
4.483	0.000	0.54	0.00	0.60	0.5	0.055
4.500	0.000	0.54	0.00	0.60	0.5	0.055
4.517	0.000	0.54	0.00	0.60	0.5	0.055
4.533	0.000	0.54	0.00	0.60	0.5	0.055
4.550	0.000	0.55	0.00	0.60	0.5	0.055
4.567	0.000	0.55	0.00	0.60	0.5	0.055
4.583	0.000	0.55	0.00	0.60	0.5	0.055
4.600	0.000	0.55	0.00	0.60	0.5	0.055
4.617	0.000	0.55	0.00	0.60	0.5	0.055
4.633	0.000	0.55	0.00	0.60	0.5	0.055
4.650	0.000	0.55	0.00	0.60	0.5	0.055
4.667	0.000	0.55	0.00	0.60	0.5	0.055
4.683	0.000	0.55	0.00	0.60	0.5	0.055
4.700	0.000	0.55	0.00	0.60	0.5	0.055
4.717	0.000	0.55	0.00	0.60	0.5	0.055
4.733	0.000	0.55	0.00	0.60	0.5	0.055
4.750	0.000	0.55	0.00	0.60	0.5	0.055
4.767	0.000	0.55	0.00	0.60	0.5	0.055
4.783	0.000	0.55	0.00	0.60	0.5	0.055
4.800	0.000	0.55	0.00	0.60	0.5	0.055
4.817	0.000	0.55	0.00	0.60	0.5	0.055
4.833	0.000	0.55	0.00	0.60	0.5	0.055
4.850	0.000	0.55	0.00	0.60	0.5	0.055
4.867	0.000	0.55	0.00	0.60	0.5	0.055
4.883	0.000	0.55	0.00	0.60	0.5	0.055
4.900	0.000	0.55	0.00	0.60	0.5	0.055
4.917	0.000	0.55	0.00	0.60	0.5	0.055
4.933	0.000	0.55	0.00	0.60	0.5	0.055
4.950	0.000	0.56	0.00	0.60	0.5	0.055
4.967	0.000	0.56	0.00	0.60	0.5	0.055
4.983	0.000	0.56	0.00	0.60	0.6	0.055

5.000	0.000	0.56	0.00	0.60	0.6	0.055
5.017	0.000	0.56	0.00	0.60	0.6	0.055
5.033	0.000	0.56	0.00	0.60	0.6	0.055
5.050	0.000	0.56	0.00	0.60	0.6	0.055
5.067	0.000	0.56	0.00	0.60	0.6	0.055
5.083	0.000	0.56	0.00	0.60	0.6	0.055
5.100	0.000	0.56	0.00	0.60	0.6	0.055
5.117	0.000	0.56	0.00	0.60	0.6	0.056
5.133	0.000	0.56	0.00	0.60	0.6	0.056
5.150	0.000	0.56	0.00	0.60	0.6	0.056
5.167	0.000	0.56	0.00	0.60	0.6	0.056
5.183	0.000	0.56	0.00	0.60	0.6	0.056
5.200	0.000	0.56	0.00	0.60	0.6	0.056
5.217	0.000	0.56	0.00	0.60	0.6	0.056
5.233	0.000	0.56	0.00	0.60	0.6	0.056
5.250	0.000	0.56	0.00	0.60	0.6	0.056
5.267	0.000	0.56	0.00	0.60	0.6	0.056
5.283	0.000	0.56	0.00	0.60	0.6	0.056
5.300	0.000	0.56	0.00	0.60	0.6	0.056
5.317	0.000	0.56	0.00	0.60	0.6	0.056
5.333	0.000	0.57	0.00	0.60	0.6	0.056
5.350	0.000	0.57	0.00	0.60	0.6	0.056
5.367	0.000	0.57	0.00	0.60	0.6	0.056
5.383	0.000	0.57	0.00	0.60	0.6	0.056
5.400	0.000	0.57	0.00	0.60	0.6	0.056
5.417	0.000	0.57	0.00	0.60	0.6	0.056
5.433	0.000	0.57	0.00	0.60	0.6	0.056
5.450	0.000	0.57	0.00	0.60	0.6	0.056
5.467	0.000	0.57	0.00	0.60	0.6	0.056
5.483	0.000	0.57	0.00	0.60	0.6	0.056
5.500	0.000	0.57	0.00	0.60	0.6	0.056
5.517	0.000	0.57	0.00	0.60	0.6	0.056
5.533	0.000	0.57	0.00	0.60	0.6	0.056
5.550	0.000	0.57	0.00	0.60	0.6	0.056
5.567	0.000	0.57	0.00	0.60	0.6	0.056
5.583	0.000	0.57	0.00	0.60	0.6	0.056
5.600	0.000	0.57	0.00	0.60	0.6	0.056
5.617	0.000	0.57	0.00	0.60	0.6	0.056
5.633	0.000	0.57	0.00	0.60	0.6	0.056
5.650	0.000	0.57	0.00	0.60	0.6	0.056
5.667	0.000	0.57	0.00	0.60	0.6	0.056
5.683	0.000	0.57	0.00	0.60	0.6	0.056
5.700	0.000	0.58	0.00	0.60	0.6	0.056
5.717	0.000	0.58	0.00	0.60	0.6	0.056
5.733	0.000	0.58	0.00	0.60	0.6	0.056
5.750	0.000	0.58	0.00	0.60	0.6	0.056
5.767	0.000	0.58	0.00	0.60	0.6	0.056
5.783	0.000	0.58	0.00	0.60	0.6	0.056
5.800	0.000	0.58	0.00	0.60	0.6	0.056
5.817	0.000	0.58	0.00	0.60	0.6	0.056
5.833	0.000	0.58	0.00	0.60	0.6	0.056
5.850	0.000	0.58	0.00	0.60	0.6	0.056
5.867	0.000	0.58	0.00	0.60	0.6	0.056
5.883	0.000	0.58	0.00	0.60	0.6	0.056
5.900	0.000	0.58	0.00	0.60	0.6	0.056
5.917	0.000	0.58	0.00	0.60	0.6	0.056
5.933	0.000	0.58	0.00	0.60	0.6	0.056
5.950	0.000	0.58	0.00	0.61	0.6	0.056
5.967	0.000	0.58	0.00	0.61	0.6	0.056
5.983	0.000	0.58	0.00	0.61	0.6	0.056
6.000	0.000	0.58	0.00	0.61	0.6	0.056
6.017	0.000	0.58	0.00	0.61	0.6	0.056
6.033	0.000	0.58	0.00	0.61	0.6	0.056
6.050	0.000	0.59	0.00	0.61	0.6	0.056
6.067	0.000	0.59	0.00	0.61	0.6	0.056
6.083	0.000	0.59	0.00	0.61	0.6	0.056
6.100	0.000	0.59	0.00	0.61	0.6	0.056
6.117	0.000	0.59	0.00	0.61	0.6	0.056
6.133	0.000	0.59	0.00	0.61	0.6	0.056
6.150	0.000	0.59	0.00	0.61	0.6	0.056
6.167	0.000	0.59	0.00	0.61	0.6	0.056
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6.200	0.000	0.59	0.00	0.61	0.6	0.056
6.217	0.000	0.59	0.00	0.61	0.6	0.056
6.233	0.000	0.59	0.00	0.61	0.6	0.056
6.250	0.000	0.59	0.00	0.61	0.6	0.056
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6.283	0.000	0.59	0.00	0.61	0.6	0.056
6.300	0.000	0.59	0.00	0.61	0.6	0.056
6.317	0.000	0.59	0.00	0.61	0.6	0.056
6.333	0.000	0.59	0.00	0.61	0.6	0.056
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6.417	0.000	0.60	0.00	0.61	0.6	0.056
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6.467	0.000	0.60	0.00	0.61	0.6	0.056
6.483	0.000	0.60	0.00	0.61	0.6	0.056
6.500	0.000	0.60	0.00	0.61	0.6	0.056
6.517	0.000	0.60	0.00	0.61	0.6	0.056
6.533	0.000	0.60	0.00	0.61	0.6	0.056
6.550	0.000	0.60	0.00	0.61	0.6	0.056
6.567	0.000	0.60	0.00	0.61	0.6	0.056
6.583	0.000	0.60	0.00	0.61	0.6	0.056
6.600	0.000	0.60	0.00	0.61	0.6	0.056
6.617	0.000	0.60	0.00	0.61	0.6	0.056
6.633	0.000	0.60	0.00	0.61	0.6	0.056
6.650	0.000	0.60	0.00	0.61	0.6	0.056
6.667	0.000	0.60	0.00	0.61	0.6	0.056
6.683	0.000	0.60	0.00	0.61	0.6	0.056
6.700	0.000	0.60	0.00	0.61	0.6	0.056
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6.750	0.000	0.61	0.00	0.61	0.6	0.056
6.767	0.000	0.61	0.00	0.61	0.6	0.056
6.783	0.000	0.61	0.00	0.61	0.6	0.056
6.800	0.000	0.61	0.00	0.61	0.6	0.056
6.817	0.000	0.61	0.00	0.61	0.6	0.056
6.833	0.000	0.61	0.00	0.61	0.6	0.056
6.850	0.000	0.61	0.00	0.61	0.6	0.056
6.867	0.000	0.61	0.00	0.61	0.6	0.056
6.883	0.000	0.61	0.00	0.61	0.6	0.056
6.900	0.000	0.61	0.00	0.61	0.6	0.056
6.917	0.000	0.61	0.00	0.61	0.6	0.056
6.933	0.000	0.61	0.00	0.61	0.6	0.056
6.950	0.000	0.61	0.00	0.61	0.6	0.057

6.967	0.000	0.61	0.00	0.61	0.6	0.057
6.983	0.000	0.61	0.00	0.61	0.6	0.057
7.000	0.000	0.61	0.00	0.61	0.6	0.057
7.017	0.000	0.62	0.00	0.61	0.6	0.057
7.033	0.000	0.62	0.00	0.61	0.6	0.057
7.050	0.000	0.62	0.00	0.61	0.6	0.057
7.067	0.000	0.62	0.00	0.61	0.6	0.057
7.083	0.000	0.62	0.00	0.61	0.6	0.057
7.100	0.000	0.62	0.00	0.61	0.6	0.057
7.117	0.000	0.62	0.00	0.61	0.6	0.057
7.133	0.000	0.62	0.00	0.61	0.6	0.057
7.150	0.000	0.62	0.00	0.61	0.6	0.057
7.167	0.000	0.62	0.00	0.61	0.6	0.057
7.183	0.000	0.62	0.00	0.61	0.6	0.057
7.200	0.000	0.62	0.00	0.61	0.6	0.057
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7.250	0.000	0.62	0.00	0.61	0.6	0.057
7.267	0.000	0.63	0.00	0.61	0.6	0.057
7.283	0.000	0.63	0.00	0.61	0.6	0.057
7.300	0.000	0.63	0.00	0.61	0.6	0.057
7.317	0.000	0.63	0.00	0.61	0.6	0.057
7.333	0.000	0.63	0.00	0.61	0.6	0.057
7.350	0.000	0.63	0.00	0.61	0.6	0.057
7.367	0.000	0.63	0.00	0.61	0.6	0.057
7.383	0.000	0.63	0.00	0.61	0.6	0.057
7.400	0.000	0.63	0.00	0.61	0.6	0.057
7.417	0.000	0.63	0.00	0.61	0.6	0.057
7.433	0.000	0.63	0.00	0.61	0.6	0.057
7.450	0.000	0.63	0.00	0.61	0.6	0.057
7.467	0.000	0.63	0.00	0.61	0.6	0.057
7.483	0.000	0.63	0.00	0.61	0.6	0.057
7.500	0.000	0.63	0.00	0.61	0.6	0.057
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7.533	0.000	0.63	0.00	0.61	0.6	0.057
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7.583	0.000	0.64	0.00	0.61	0.6	0.057
7.600	0.000	0.64	0.00	0.61	0.6	0.057
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7.633	0.000	0.64	0.00	0.62	0.6	0.057
7.650	0.000	0.64	0.00	0.62	0.6	0.057
7.667	0.000	0.64	0.00	0.62	0.6	0.057
7.683	0.000	0.64	0.00	0.62	0.6	0.057
7.700	0.000	0.64	0.00	0.62	0.6	0.057
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7.733	0.000	0.64	0.00	0.62	0.6	0.057
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7.783	0.000	0.64	0.00	0.62	0.6	0.057
7.800	0.000	0.64	0.00	0.62	0.6	0.057
7.817	0.000	0.64	0.00	0.62	0.6	0.057
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8.000	0.000	0.65	0.00	0.62	0.6	0.057
8.017	0.000	0.65	0.00	0.62	0.6	0.057
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8.050	0.000	0.65	0.00	0.62	0.6	0.057
8.067	0.000	0.66	0.00	0.62	0.6	0.057
8.083	0.000	0.66	0.00	0.62	0.6	0.057
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8.183	0.000	0.66	0.00	0.62	0.7	0.057
8.200	0.000	0.66	0.00	0.62	0.7	0.057
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8.283	0.000	0.66	0.00	0.62	0.7	0.057
8.300	0.000	0.66	0.00	0.62	0.7	0.057
8.317	0.000	0.67	0.00	0.62	0.7	0.057
8.333	0.000	0.67	0.00	0.62	0.7	0.057
8.350	0.000	0.67	0.00	0.62	0.7	0.057
8.367	0.000	0.67	0.00	0.62	0.7	0.058
8.383	0.000	0.67	0.00	0.62	0.7	0.058
8.400	0.000	0.67	0.00	0.62	0.7	0.058
8.417	0.000	0.67	0.00	0.62	0.7	0.058
8.433	0.000	0.67	0.00	0.62	0.7	0.058
8.450	0.000	0.67	0.00	0.62	0.7	0.058
8.467	0.000	0.67	0.00	0.62	0.7	0.058
8.483	0.000	0.67	0.00	0.62	0.7	0.058
8.500	0.000	0.67	0.00	0.62	0.7	0.058
8.517	0.000	0.67	0.00	0.62	0.7	0.058
8.533	0.000	0.67	0.00	0.62	0.7	0.058
8.550	0.000	0.67	0.00	0.62	0.7	0.058
8.567	0.000	0.67	0.00	0.62	0.7	0.058
8.583	0.000	0.68	0.00	0.62	0.7	0.058
8.600	0.000	0.68	0.00	0.62	0.7	0.058
8.617	0.000	0.68	0.00	0.62	0.7	0.058
8.633	0.000	0.68	0.00	0.62	0.7	0.058
8.650	0.000	0.68	0.00	0.62	0.7	0.058
8.667	0.000	0.68	0.00	0.62	0.7	0.058
8.683	0.000	0.68	0.00	0.62	0.7	0.058
8.700	0.000	0.68	0.00	0.62	0.7	0.058
8.717	0.000	0.68	0.00	0.62	0.7	0.058
8.733	0.000	0.69	0.00	0.62	0.7	0.058
8.750	0.000	0.69	0.00	0.62	0.7	0.058
8.767	0.000	0.69	0.00	0.62	0.7	0.058
8.783	0.000	0.69	0.00	0.62	0.7	0.058
8.800	0.000	0.69	0.00	0.62	0.7	0.058
8.817	0.000	0.69	0.00	0.62	0.7	0.058
8.833	0.000	0.69	0.00	0.62	0.7	0.058
8.850	0.000	0.69	0.00	0.62	0.7	0.058
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9.817	0.000	0.74	0.00	0.63	0.7	0.059
9.833	0.000	0.74	0.00	0.63	0.7	0.059
9.850	0.000	0.74	0.00	0.63	0.7	0.059
9.867	0.000	0.75	0.00	0.63	0.7	0.059
9.883	0.000	0.75	0.00	0.63	0.7	0.059
9.900	0.000	0.75	0.00	0.63	0.7	0.059
9.917	0.000	0.75	0.00	0.63	0.7	0.059
9.933	0.000	0.75	0.00	0.63	0.7	0.059
9.950	0.000	0.75	0.00	0.63	0.7	0.059
9.967	0.000	0.75	0.00	0.63	0.7	0.059
9.983	0.000	0.75	0.00	0.64	0.7	0.059
10.000	0.000	0.75	0.00	0.64	0.7	0.059
10.017	0.000	0.75	0.00	0.64	0.7	0.059
10.033	0.000	0.75	0.00	0.64	0.7	0.059
10.050	0.000	0.75	0.00	0.64	0.7	0.059
10.067	0.000	0.75	0.00	0.64	0.7	0.059
10.083	0.000	0.76	0.00	0.64	0.7	0.059
10.100	0.000	0.76	0.00	0.64	0.7	0.059
10.117	0.000	0.76	0.00	0.64	0.7	0.059
10.133	0.000	0.76	0.00	0.64	0.7	0.059
10.150	0.000	0.76	0.00	0.64	0.7	0.059
10.167	0.000	0.76	0.00	0.64	0.7	0.059
10.183	0.000	0.76	0.00	0.64	0.7	0.059
10.200	0.000	0.77	0.00	0.64	0.7	0.059
10.217	0.000	0.77	0.00	0.64	0.8	0.059
10.233	0.000	0.77	0.00	0.64	0.8	0.059
10.250	0.000	0.77	0.00	0.64	0.8	0.059
10.267	0.000	0.77	0.00	0.64	0.8	0.059
10.283	0.000	0.77	0.00	0.64	0.8	0.059
10.300	0.000	0.77	0.00	0.64	0.8	0.059
10.317	0.000	0.77	0.00	0.64	0.8	0.059
10.333	0.000	0.77	0.00	0.64	0.8	0.059
10.350	0.000	0.77	0.00	0.64	0.8	0.059
10.367	0.000	0.77	0.00	0.64	0.8	0.060
10.383	0.000	0.78	0.00	0.64	0.8	0.060
10.400	0.000	0.78	0.00	0.64	0.8	0.060
10.417	0.000	0.78	0.00	0.64	0.8	0.060
10.433	0.000	0.78	0.00	0.64	0.8	0.060
10.450	0.000	0.78	0.00	0.64	0.8	0.060
10.467	0.000	0.78	0.00	0.64	0.8	0.060
10.483	0.000	0.78	0.00	0.64	0.8	0.060
10.500	0.000	0.78	0.00	0.64	0.8	0.060
10.517	0.000	0.79	0.00	0.64	0.8	0.060
10.533	0.000	0.79	0.00	0.64	0.8	0.060
10.550	0.000	0.79	0.00	0.64	0.8	0.060
10.567	0.000	0.79	0.00	0.64	0.8	0.060
10.583	0.000	0.79	0.00	0.64	0.8	0.060
10.600	0.000	0.79	0.00	0.64	0.8	0.060
10.617	0.000	0.79	0.00	0.64	0.8	0.060
10.633	0.000	0.80	0.00	0.64	0.8	0.060
10.650	0.000	0.80	0.00	0.64	0.8	0.060
10.667	0.000	0.80	0.00	0.64	0.8	0.060
10.683	0.000	0.80	0.00	0.64	0.8	0.060
10.700	0.000	0.80	0.00	0.64	0.8	0.060
10.717	0.000	0.80	0.00	0.64	0.8	0.060
10.733	0.000	0.80	0.00	0.64	0.8	0.060
10.750	0.000	0.80	0.00	0.64	0.8	0.060
10.767	0.000	0.80	0.00	0.64	0.8	0.060
10.783	0.000	0.80	0.00	0.64	0.8	0.060
10.800	0.000	0.80	0.00	0.64	0.8	0.060
10.817	0.000	0.81	0.00	0.65	0.8	0.060
10.833	0.000	0.81	0.00	0.65	0.8	0.060
10.850	0.000	0.81	0.00	0.65	0.8	0.060
10.867	0.000	0.81	0.00	0.65	0.8	0.060
10.883	0.000	0.81	0.00	0.65	0.8	0.060

10.900	0.000	0.81	0.00	0.65	0.8	0.060
10.917	0.000	0.82	0.00	0.65	0.8	0.060
10.933	0.000	0.82	0.00	0.65	0.8	0.060
10.950	0.000	0.82	0.00	0.65	0.8	0.060
10.967	0.000	0.82	0.00	0.65	0.8	0.060
10.983	0.000	0.82	0.00	0.65	0.8	0.060
11.000	0.000	0.82	0.00	0.65	0.8	0.060
11.017	0.000	0.82	0.00	0.65	0.8	0.060
11.033	0.000	0.83	0.00	0.65	0.8	0.060
11.050	0.000	0.83	0.00	0.65	0.8	0.060
11.067	0.000	0.83	0.00	0.65	0.8	0.060
11.083	0.000	0.83	0.00	0.65	0.8	0.060
11.100	0.000	0.83	0.00	0.65	0.8	0.061
11.117	0.000	0.83	0.00	0.65	0.8	0.061
11.133	0.000	0.83	0.00	0.65	0.8	0.061
11.150	0.000	0.83	0.00	0.65	0.8	0.061
11.167	0.000	0.83	0.00	0.65	0.8	0.061
11.183	0.000	0.84	0.00	0.65	0.8	0.061
11.200	0.000	0.84	0.00	0.65	0.8	0.061
11.217	0.000	0.84	0.00	0.65	0.8	0.061
11.233	0.000	0.84	0.00	0.65	0.8	0.061
11.250	0.000	0.84	0.00	0.65	0.8	0.061
11.267	0.000	0.84	0.00	0.65	0.8	0.061
11.283	0.000	0.85	0.00	0.65	0.8	0.061
11.300	0.000	0.85	0.00	0.65	0.8	0.061
11.317	0.000	0.85	0.00	0.65	0.8	0.061
11.333	0.000	0.85	0.00	0.65	0.8	0.061
11.350	0.000	0.85	0.00	0.65	0.8	0.061
11.367	0.000	0.86	0.00	0.65	0.8	0.061
11.383	0.000	0.86	0.00	0.65	0.8	0.061
11.400	0.000	0.86	0.00	0.65	0.8	0.061
11.417	0.000	0.86	0.00	0.65	0.8	0.061
11.433	0.000	0.86	0.00	0.65	0.8	0.061
11.450	0.000	0.86	0.00	0.65	0.8	0.061
11.467	0.000	0.86	0.00	0.65	0.8	0.061
11.483	0.000	0.86	0.00	0.66	0.8	0.061
11.500	0.000	0.86	0.00	0.66	0.8	0.061
11.517	0.000	0.86	0.00	0.66	0.8	0.061
11.533	0.000	0.87	0.00	0.66	0.8	0.061
11.550	0.000	0.87	0.00	0.66	0.8	0.061
11.567	0.000	0.87	0.00	0.66	0.9	0.061
11.583	0.000	0.87	0.00	0.66	0.9	0.061
11.600	0.000	0.87	0.00	0.66	0.9	0.061
11.617	0.000	0.88	0.00	0.66	0.9	0.061
11.633	0.000	0.88	0.00	0.66	0.9	0.061
11.650	0.000	0.88	0.00	0.66	0.9	0.061
11.667	0.000	0.88	0.00	0.66	0.9	0.061
11.683	0.000	0.89	0.00	0.66	0.9	0.061
11.700	0.000	0.89	0.00	0.66	0.9	0.061
11.717	0.000	0.89	0.00	0.66	0.9	0.062
11.733	0.000	0.89	0.00	0.66	0.9	0.062
11.750	0.000	0.89	0.00	0.66	0.9	0.062
11.767	0.000	0.89	0.00	0.66	0.9	0.062
11.783	0.000	0.89	0.00	0.66	0.9	0.062
11.800	0.000	0.90	0.00	0.66	0.9	0.062
11.817	0.000	0.90	0.00	0.66	0.9	0.062
11.833	0.000	0.90	0.00	0.66	0.9	0.062
11.850	0.000	0.90	0.00	0.66	0.9	0.062
11.867	0.000	0.90	0.00	0.66	0.9	0.062
11.883	0.000	0.90	0.00	0.66	0.9	0.062
11.900	0.000	0.90	0.00	0.66	0.9	0.062
11.917	0.000	0.90	0.00	0.66	0.9	0.062
11.933	0.000	0.91	0.00	0.66	0.9	0.062
11.950	0.000	0.91	0.00	0.66	0.9	0.062
11.967	0.000	0.91	0.00	0.66	0.9	0.062
11.983	0.000	0.91	0.00	0.66	0.9	0.062
12.000	0.000	0.91	0.00	0.66	0.9	0.062
12.017	0.000	0.92	0.00	0.66	0.9	0.062
12.033	0.000	0.92	0.00	0.66	0.9	0.062
12.050	0.000	0.92	0.00	0.66	0.9	0.062
12.067	0.000	0.92	0.00	0.67	0.9	0.062
12.083	0.000	0.92	0.00	0.67	0.9	0.062
12.100	0.000	0.92	0.00	0.67	0.9	0.062
12.117	0.000	0.92	0.00	0.67	0.9	0.062
12.133	0.000	0.92	0.00	0.67	0.9	0.062
12.150	0.000	0.92	0.00	0.67	0.9	0.062
12.167	0.000	0.92	0.00	0.67	0.9	0.062
12.183	0.000	0.92	0.00	0.67	0.9	0.062
12.200	0.000	0.92	0.00	0.67	0.9	0.062
12.217	0.000	0.91	0.00	0.67	0.9	0.062
12.233	0.000	0.91	0.00	0.67	0.9	0.062
12.250	0.000	0.91	0.00	0.67	0.9	0.062
12.267	0.000	0.91	0.00	0.67	0.9	0.062
12.283	0.000	0.91	0.00	0.67	0.9	0.062
12.300	0.000	0.91	0.00	0.67	0.9	0.062
12.317	0.000	0.92	0.00	0.67	0.9	0.062
12.333	0.000	0.92	0.00	0.67	0.9	0.062
12.350	0.000	0.92	0.00	0.67	0.9	0.062
12.367	0.000	0.92	0.00	0.67	0.9	0.062
12.383	0.000	0.93	0.00	0.67	0.9	0.062
12.400	0.000	0.93	0.00	0.67	0.9	0.062
12.417	0.000	0.93	0.00	0.67	0.9	0.062
12.433	0.000	0.94	0.00	0.67	0.9	0.063
12.450	0.000	0.94	0.00	0.67	0.9	0.063
12.467	0.000	0.94	0.00	0.67	0.9	0.063
12.483	0.000	0.94	0.00	0.67	0.9	0.063
12.500	0.000	0.94	0.00	0.67	0.9	0.063
12.517	0.000	0.95	0.00	0.67	0.9	0.063
12.533	0.000	0.95	0.00	0.67	0.9	0.063
12.550	0.000	0.95	0.00	0.67	0.9	0.063
12.567	0.000	0.95	0.00	0.67	0.9	0.063
12.583	0.000	0.95	0.00	0.67	0.9	0.063
12.600	0.000	0.95	0.00	0.67	0.9	0.063
12.617	0.000	0.96	0.00	0.67	0.9	0.063
12.633	0.000	0.96	0.00	0.67	0.9	0.063
12.650	0.000	0.96	0.00	0.67	0.9	0.063
12.667	0.000	0.96	0.00	0.67	0.9	0.063
12.683	0.000	0.96	0.00	0.67	0.9	0.063
12.700	0.000	0.97	0.00	0.67	0.9	0.063
12.717	0.000	0.97	0.00	0.67	0.9	0.063
12.733	0.000	0.97	0.00	0.67	0.9	0.063
12.750	0.000	0.98	0.00	0.67	0.9	0.063
12.767	0.000	0.98	0.00	0.67	0.9	0.063
12.783	0.000	0.98	0.00	0.68	1.0	0.063
12.800	0.000	0.99	0.00	0.68	1.0	0.063
12.817	0.000	0.99	0.00	0.68	1.0	0.063
12.833	0.000	0.99	0.00	0.68	1.0	0.063
12.850	0.000	1.00	0.00	0.68	1.0	0.063

12.867	0.000	1.00	0.00	0.68	1.0	0.063
12.883	0.000	1.00	0.00	0.68	1.0	0.064
12.900	0.000	1.00	0.00	0.68	1.0	0.064
12.917	0.000	1.00	0.00	0.68	1.0	0.064
12.933	0.000	1.01	0.00	0.68	1.0	0.064
12.950	0.000	1.01	0.00	0.68	1.0	0.064
12.967	0.000	1.01	0.00	0.68	1.0	0.064
12.983	0.000	1.01	0.00	0.68	1.0	0.064
13.000	0.000	1.01	0.00	0.68	1.0	0.064
13.017	0.000	1.02	0.00	0.68	1.0	0.064
13.033	0.000	1.02	0.00	0.68	1.0	0.064
13.050	0.000	1.02	0.00	0.68	1.0	0.064
13.067	0.000	1.03	0.00	0.68	1.0	0.064
13.083	0.000	1.03	0.00	0.68	1.0	0.064
13.100	0.000	1.03	0.00	0.68	1.0	0.064
13.117	0.000	1.04	0.00	0.68	1.0	0.064
13.133	0.000	1.04	0.00	0.68	1.0	0.064
13.150	0.000	1.05	0.00	0.69	1.0	0.064
13.167	0.000	1.05	0.00	0.69	1.0	0.064
13.183	0.000	1.05	0.00	0.69	1.0	0.064
13.200	0.000	1.06	0.00	0.69	1.0	0.064
13.217	0.000	1.06	0.00	0.69	1.0	0.064
13.233	0.000	1.06	0.00	0.69	1.0	0.065
13.250	0.000	1.07	0.00	0.69	1.0	0.065
13.267	0.000	1.07	0.00	0.69	1.0	0.065
13.283	0.000	1.07	0.00	0.69	1.0	0.065
13.300	0.000	1.07	0.00	0.69	1.0	0.065
13.317	0.000	1.07	0.00	0.69	1.0	0.065
13.333	0.000	1.08	0.00	0.69	1.0	0.065
13.350	0.000	1.08	0.00	0.69	1.0	0.065
13.367	0.000	1.08	0.00	0.69	1.0	0.065
13.383	0.000	1.08	0.00	0.69	1.0	0.065
13.400	0.000	1.09	0.00	0.69	1.0	0.065
13.417	0.000	1.09	0.00	0.69	1.1	0.065
13.433	0.000	1.10	0.00	0.69	1.1	0.065
13.450	0.000	1.10	0.00	0.69	1.1	0.065
13.467	0.000	1.11	0.00	0.70	1.1	0.065
13.483	0.000	1.11	0.00	0.70	1.1	0.065
13.500	0.000	1.11	0.00	0.70	1.1	0.065
13.517	0.000	1.12	0.00	0.70	1.1	0.066
13.533	0.000	1.12	0.00	0.70	1.1	0.066
13.550	0.000	1.13	0.00	0.70	1.1	0.066
13.567	0.000	1.13	0.00	0.70	1.1	0.066
13.583	0.000	1.14	0.00	0.70	1.1	0.066
13.600	0.000	1.14	0.00	0.70	1.1	0.066
13.617	0.000	1.15	0.00	0.70	1.1	0.066
13.633	0.000	1.15	0.00	0.70	1.1	0.066
13.650	0.000	1.15	0.00	0.70	1.1	0.066
13.667	0.000	1.15	0.00	0.70	1.1	0.066
13.683	0.000	1.16	0.00	0.70	1.1	0.066
13.700	0.000	1.16	0.00	0.70	1.1	0.066
13.717	0.000	1.16	0.00	0.71	1.1	0.066
13.733	0.000	1.16	0.00	0.71	1.1	0.066
13.750	0.000	1.17	0.00	0.71	1.1	0.066
13.767	0.000	1.17	0.00	0.71	1.1	0.067
13.783	0.000	1.17	0.00	0.71	1.1	0.067
13.800	0.000	1.18	0.00	0.71	1.1	0.067
13.817	0.000	1.19	0.00	0.71	1.1	0.067
13.833	0.000	1.19	0.00	0.71	1.1	0.067
13.850	0.000	1.20	0.00	0.71	1.1	0.067
13.867	0.000	1.21	0.00	0.71	1.1	0.067
13.883	0.000	1.21	0.00	0.71	1.2	0.067
13.900	0.000	1.22	0.00	0.71	1.2	0.067
13.917	0.000	1.22	0.00	0.71	1.2	0.067
13.933	0.000	1.23	0.00	0.71	1.2	0.067
13.950	0.000	1.24	0.00	0.72	1.2	0.067
13.967	0.000	1.24	0.00	0.72	1.2	0.068
13.983	0.000	1.24	0.00	0.72	1.2	0.068
14.000	0.000	1.25	0.00	0.72	1.2	0.068
14.017	0.000	1.25	0.00	0.72	1.2	0.068
14.033	0.000	1.25	0.00	0.72	1.2	0.068
14.050	0.000	1.25	0.00	0.72	1.2	0.068
14.067	0.000	1.26	0.00	0.72	1.2	0.068
14.083	0.000	1.26	0.00	0.72	1.2	0.068
14.100	0.000	1.26	0.00	0.72	1.2	0.068
14.117	0.000	1.26	0.00	0.72	1.2	0.068
14.133	0.000	1.27	0.00	0.72	1.2	0.068
14.150	0.000	1.27	0.00	0.72	1.2	0.068
14.167	0.000	1.27	0.00	0.73	1.2	0.068
14.183	0.000	1.27	0.00	0.73	1.2	0.069
14.200	0.000	1.27	0.00	0.73	1.2	0.069
14.217	0.000	1.27	0.00	0.73	1.2	0.069
14.233	0.000	1.27	0.00	0.73	1.2	0.069
14.250	0.000	1.27	0.00	0.73	1.2	0.069
14.267	0.000	1.28	0.00	0.73	1.2	0.069
14.283	0.000	1.28	0.00	0.73	1.2	0.069
14.300	0.000	1.28	0.00	0.73	1.2	0.069
14.317	0.000	1.28	0.00	0.73	1.2	0.069
14.333	0.000	1.28	0.00	0.73	1.2	0.069
14.350	0.000	1.28	0.00	0.73	1.3	0.069
14.367	0.000	1.29	0.00	0.73	1.3	0.069
14.383	0.000	1.29	0.00	0.73	1.3	0.069
14.400	0.000	1.30	0.00	0.73	1.3	0.069
14.417	0.000	1.30	0.00	0.73	1.3	0.069
14.433	0.000	1.31	0.00	0.73	1.3	0.069
14.450	0.000	1.31	0.00	0.73	1.3	0.069
14.467	0.000	1.32	0.00	0.73	1.3	0.069
14.483	0.000	1.32	0.00	0.74	1.3	0.069
14.500	0.000	1.33	0.00	0.74	1.3	0.070
14.517	0.000	1.33	0.00	0.74	1.3	0.070
14.533	0.000	1.34	0.00	0.74	1.3	0.070
14.550	0.000	1.35	0.00	0.74	1.3	0.070
14.567	0.000	1.36	0.00	0.74	1.3	0.070
14.583	0.000	1.37	0.00	0.74	1.3	0.070
14.600	0.000	1.39	0.00	0.74	1.3	0.070
14.617	0.000	1.40	0.00	0.74	1.3	0.070
14.633	0.000	1.41	0.00	0.74	1.3	0.070
14.650	0.000	1.42	0.00	0.74	1.3	0.070
14.667	0.000	1.43	0.00	0.75	1.3	0.071
14.683	0.000	1.44	0.00	0.75	1.3	0.071
14.700	0.000	1.45	0.00	0.75	1.3	0.071
14.717	0.000	1.46	0.00	0.75	1.4	0.071
14.733	0.000	1.47	0.00	0.75	1.4	0.071
14.750	0.000	1.47	0.00	0.75	1.4	0.071
14.767	0.000	1.48	0.00	0.75	1.4	0.071
14.783	0.000	1.49	0.00	0.76	1.4	0.072
14.800	0.000	1.49	0.00	0.76	1.4	0.072
14.817	0.000	1.50	0.00	0.76	1.4	0.072

14.833	0.000	1.51	0.00	0.76	1.4	0.072
14.850	0.000	1.51	0.00	0.76	1.4	0.072
14.867	0.000	1.52	0.00	0.76	1.4	0.072
14.883	0.000	1.53	0.00	0.76	1.4	0.072
14.900	0.000	1.54	0.00	0.77	1.4	0.073
14.917	0.000	1.56	0.00	0.77	1.4	0.073
14.933	0.000	1.58	0.00	0.77	1.5	0.073
14.950	0.000	1.59	0.00	0.77	1.5	0.073
14.967	0.000	1.61	0.00	0.77	1.5	0.073
14.983	0.000	1.63	0.00	0.77	1.5	0.074
15.000	0.000	1.64	0.00	0.78	1.5	0.074
15.017	0.000	1.66	0.00	0.78	1.5	0.074
15.033	0.000	1.68	0.00	0.78	1.5	0.074
15.050	0.000	1.70	0.00	0.78	1.5	0.074
15.067	0.000	1.71	0.00	0.79	1.5	0.075
15.083	0.000	1.73	0.00	0.79	1.6	0.075
15.100	0.000	1.74	0.00	0.79	1.6	0.075
15.117	0.000	1.75	0.00	0.79	1.6	0.075
15.133	0.000	1.76	0.00	0.79	1.6	0.076
15.150	0.000	1.77	0.00	0.80	1.6	0.076
15.167	0.000	1.78	0.00	0.80	1.6	0.076
15.183	0.000	1.79	0.00	0.80	1.6	0.076
15.200	0.000	1.81	0.00	0.80	1.6	0.077
15.217	0.000	1.82	0.00	0.81	1.6	0.077
15.233	0.000	1.83	0.00	0.81	1.7	0.077
15.250	0.000	1.84	0.00	0.81	1.7	0.077
15.267	0.000	1.86	0.00	0.81	1.7	0.077
15.283	0.000	1.92	0.00	0.82	1.7	0.078
15.300	0.000	1.98	0.00	0.82	1.7	0.078
15.317	0.000	2.04	0.00	0.82	1.7	0.079
15.333	0.000	2.11	0.00	0.83	1.8	0.079
15.350	0.000	2.17	0.00	0.83	1.8	0.080
15.367	0.000	2.23	0.00	0.84	1.8	0.080
15.383	0.000	2.29	0.00	0.84	1.8	0.081
15.400	0.000	2.35	0.00	0.85	1.9	0.081
15.417	0.000	2.41	0.00	0.86	1.9	0.082
15.433	0.000	2.47	0.00	0.86	1.9	0.083
15.450	0.000	2.54	0.00	0.87	2.0	0.084
15.467	0.000	2.62	0.00	0.88	2.0	0.084
15.483	0.000	2.70	0.00	0.89	2.1	0.085
15.500	0.000	2.79	0.00	0.90	2.1	0.086
15.517	0.000	2.87	0.00	0.91	2.2	0.087
15.533	0.000	2.95	0.00	0.92	2.2	0.088
15.550	0.000	3.04	0.00	0.93	2.3	0.089
15.567	0.000	3.12	0.00	0.94	2.3	0.090
15.583	0.000	3.20	0.00	0.95	2.4	0.091
15.600	0.000	3.29	0.00	0.96	2.4	0.093
15.617	0.000	3.37	0.00	0.97	2.5	0.094
15.633	0.000	3.45	0.00	0.98	2.6	0.095
15.650	0.000	3.53	0.00	0.99	2.6	0.096
15.667	0.000	3.60	0.00	1.00	2.7	0.098
15.683	0.000	3.67	0.00	1.01	2.7	0.099
15.700	0.000	3.74	0.00	1.03	2.7	0.100
15.717	0.000	3.82	0.00	1.04	2.8	0.102
15.733	0.000	3.89	0.00	1.05	2.8	0.103
15.750	0.000	3.96	0.00	1.06	2.8	0.105
15.767	0.000	4.03	0.00	1.08	2.8	0.106
15.783	0.000	4.10	0.00	1.09	2.9	0.108
15.800	0.000	4.18	0.00	1.10	2.9	0.110
15.817	0.000	4.25	0.00	1.12	2.9	0.112
15.833	0.000	4.34	0.00	1.13	3.0	0.114
15.850	0.000	4.45	0.00	1.15	3.0	0.116
15.867	0.000	4.56	0.00	1.17	3.0	0.118
15.883	0.000	4.67	0.00	1.18	3.1	0.120
15.900	0.000	4.77	0.00	1.20	3.1	0.122
15.917	0.000	4.88	0.00	1.22	3.1	0.125
15.933	0.000	4.99	0.00	1.24	3.2	0.127
15.950	0.000	5.10	0.00	1.26	3.2	0.130
15.967	0.000	5.20	0.00	1.28	3.3	0.132
15.983	0.000	5.31	0.00	1.30	3.3	0.135
16.000	0.000	5.42	0.00	1.33	3.4	0.138
16.017	0.000	5.80	0.00	1.35	3.4	0.141
16.033	0.000	6.46	0.00	1.39	3.5	0.145
16.050	0.000	7.11	0.00	1.43	3.6	0.150
16.067	0.000	7.77	0.00	1.47	3.6	0.156
16.083	0.000	8.42	0.00	1.52	3.7	0.162
16.100	0.000	9.08	0.00	1.58	3.9	0.169
16.117	0.000	9.73	0.00	1.64	4.0	0.177
16.133	0.000	10.39	0.00	1.71	4.1	0.186
16.150	0.000	11.04	0.00	1.79	4.3	0.195
16.167	0.000	11.70	0.00	1.87	4.4	0.205
16.183	0.000	12.35	0.00	1.95	4.6	0.216
16.200	0.000	12.80	0.00	2.03	4.8	0.227
16.217	0.000	11.75	0.00	2.09	4.9	0.237
16.233	0.000	10.96	0.00	2.14	5.0	0.245
16.250	0.000	10.17	0.00	2.19	5.0	0.252
16.267	0.000	9.37	0.00	2.23	5.1	0.258
16.283	0.000	8.58	0.00	2.26	5.1	0.263
16.300	0.000	7.79	0.00	2.28	5.1	0.266
16.317	0.000	6.99	0.00	2.30	5.2	0.269
16.333	0.000	6.20	0.00	2.30	5.2	0.270
16.350	0.000	5.41	0.00	2.31	5.2	0.270
16.367	0.000	4.62	0.00	2.30	5.2	0.270
16.383	0.000	3.95	0.00	2.29	5.2	0.268
16.400	0.000	3.74	0.00	2.28	5.2	0.266
16.417	0.000	3.56	0.00	2.26	5.2	0.264
16.433	0.000	3.39	0.00	2.25	5.1	0.261
16.450	0.000	3.22	0.00	2.23	5.1	0.259
16.467	0.000	3.05	0.00	2.21	5.1	0.256
16.483	0.000	2.87	0.00	2.20	5.1	0.253
16.500	0.000	2.70	0.00	2.18	5.0	0.250
16.517	0.000	2.53	0.00	2.15	5.0	0.246
16.533	0.000	2.35	0.00	2.13	5.0	0.243
16.550	0.000	2.18	0.00	2.11	5.0	0.239
16.567	0.000	2.02	0.00	2.08	4.9	0.235
16.583	0.000	1.97	0.00	2.06	4.9	0.231
16.600	0.000	1.93	0.00	2.03	4.9	0.227
16.617	0.000	1.90	0.00	2.00	4.8	0.223
16.633	0.000	1.87	0.00	1.97	4.8	0.219
16.650	0.000	1.83	0.00	1.94	4.7	0.215
16.667	0.000	1.80	0.00	1.91	4.6	0.211
16.683	0.000	1.76	0.00	1.88	4.6	0.207
16.700	0.000	1.73	0.00	1.85	4.5	0.203
16.717	0.000	1.70	0.00	1.82	4.5	0.199
16.733	0.000	1.66	0.00	1.79	4.4	0.196
16.750	0.000	1.63	0.00	1.76	4.3	0.192
16.767	0.000	1.60	0.00	1.73	4.3	0.188
16.783	0.000	1.58	0.00	1.70	4.2	0.185

16.800	0.000	1.56	0.00	1.67	4.1	0.181
16.817	0.000	1.54	0.00	1.64	4.1	0.178
16.833	0.000	1.52	0.00	1.62	4.0	0.174
16.850	0.000	1.50	0.00	1.59	4.0	0.171
16.867	0.000	1.48	0.00	1.56	3.9	0.167
16.883	0.000	1.46	0.00	1.54	3.9	0.164
16.900	0.000	1.44	0.00	1.51	3.8	0.161
16.917	0.000	1.42	0.00	1.48	3.7	0.158
16.933	0.000	1.40	0.00	1.46	3.7	0.154
16.950	0.000	1.38	0.00	1.43	3.6	0.151
16.967	0.000	1.37	0.00	1.41	3.6	0.148
16.983	0.000	1.35	0.00	1.39	3.5	0.145
17.000	0.000	1.34	0.00	1.36	3.5	0.142
17.017	0.000	1.32	0.00	1.34	3.4	0.139
17.033	0.000	1.31	0.00	1.32	3.4	0.137
17.050	0.000	1.30	0.00	1.29	3.3	0.134
17.067	0.000	1.28	0.00	1.27	3.3	0.131
17.083	0.000	1.27	0.00	1.25	3.2	0.128
17.100	0.000	1.25	0.00	1.23	3.2	0.126
17.117	0.000	1.24	0.00	1.21	3.2	0.123
17.133	0.000	1.23	0.00	1.19	3.1	0.120
17.150	0.000	1.23	0.00	1.17	3.1	0.118
17.167	0.000	1.23	0.00	1.15	3.0	0.115
17.183	0.000	1.22	0.00	1.13	3.0	0.113
17.200	0.000	1.22	0.00	1.11	2.9	0.110
17.217	0.000	1.22	0.00	1.09	2.9	0.108
17.233	0.000	1.22	0.00	1.07	2.9	0.106
17.250	0.000	1.21	0.00	1.05	2.8	0.104
17.267	0.000	1.21	0.00	1.04	2.8	0.101
17.283	0.000	1.21	0.00	1.02	2.8	0.099
17.300	0.000	1.21	0.00	1.00	2.7	0.097
17.317	0.000	1.20	0.00	0.98	2.7	0.095
17.333	0.000	1.19	0.00	0.97	2.6	0.093
17.350	0.000	1.18	0.00	0.95	2.5	0.092
17.367	0.000	1.18	0.00	0.93	2.4	0.090
17.383	0.000	1.17	0.00	0.92	2.3	0.088
17.400	0.000	1.16	0.00	0.90	2.2	0.087
17.417	0.000	1.15	0.00	0.89	2.1	0.086
17.433	0.000	1.14	0.00	0.88	2.1	0.084
17.450	0.000	1.14	0.00	0.87	2.0	0.083
17.467	0.000	1.13	0.00	0.86	2.0	0.082
17.483	0.000	1.12	0.00	0.85	1.9	0.081
17.500	0.000	1.11	0.00	0.84	1.8	0.080
17.517	0.000	1.10	0.00	0.83	1.8	0.079
17.533	0.000	1.10	0.00	0.82	1.7	0.078
17.550	0.000	1.09	0.00	0.81	1.7	0.077
17.567	0.000	1.09	0.00	0.80	1.7	0.076
17.583	0.000	1.08	0.00	0.80	1.6	0.076
17.600	0.000	1.07	0.00	0.79	1.6	0.075
17.617	0.000	1.07	0.00	0.78	1.5	0.074
17.633	0.000	1.06	0.00	0.78	1.5	0.074
17.650	0.000	1.05	0.00	0.77	1.5	0.073
17.667	0.000	1.05	0.00	0.76	1.5	0.073
17.683	0.000	1.04	0.00	0.76	1.4	0.072
17.700	0.000	1.03	0.00	0.76	1.4	0.072
17.717	0.000	1.03	0.00	0.75	1.4	0.071
17.733	0.000	1.02	0.00	0.75	1.3	0.071
17.750	0.000	1.02	0.00	0.74	1.3	0.070
17.767	0.000	1.01	0.00	0.74	1.3	0.070
17.783	0.000	1.01	0.00	0.73	1.3	0.069
17.800	0.000	1.00	0.00	0.73	1.3	0.069
17.817	0.000	1.00	0.00	0.73	1.2	0.069
17.833	0.000	0.99	0.00	0.72	1.2	0.068
17.850	0.000	0.98	0.00	0.72	1.2	0.068
17.867	0.000	0.98	0.00	0.72	1.2	0.068
17.883	0.000	0.97	0.00	0.72	1.2	0.067
17.900	0.000	0.97	0.00	0.71	1.2	0.067
17.917	0.000	0.96	0.00	0.71	1.2	0.067
17.933	0.000	0.96	0.00	0.71	1.1	0.067
17.950	0.000	0.96	0.00	0.71	1.1	0.066
17.967	0.000	0.95	0.00	0.70	1.1	0.066
17.983	0.000	0.95	0.00	0.70	1.1	0.066
18.000	0.000	0.94	0.00	0.70	1.1	0.066
18.017	0.000	0.94	0.00	0.70	1.1	0.066
18.033	0.000	0.93	0.00	0.70	1.1	0.065
18.050	0.000	0.93	0.00	0.69	1.1	0.065
18.067	0.000	0.92	0.00	0.69	1.1	0.065
18.083	0.000	0.92	0.00	0.69	1.0	0.065
18.100	0.000	0.92	0.00	0.69	1.0	0.065
18.117	0.000	0.92	0.00	0.69	1.0	0.065
18.133	0.000	0.92	0.00	0.69	1.0	0.064
18.150	0.000	0.92	0.00	0.69	1.0	0.064
18.167	0.000	0.92	0.00	0.68	1.0	0.064
18.183	0.000	0.92	0.00	0.68	1.0	0.064
18.200	0.000	0.92	0.00	0.68	1.0	0.064
18.217	0.000	0.92	0.00	0.68	1.0	0.064
18.233	0.000	0.92	0.00	0.68	1.0	0.064
18.250	0.000	0.92	0.00	0.68	1.0	0.064
18.267	0.000	0.91	0.00	0.68	1.0	0.064
18.283	0.000	0.91	0.00	0.68	1.0	0.064
18.300	0.000	0.91	0.00	0.68	1.0	0.063
18.317	0.000	0.90	0.00	0.68	1.0	0.063
18.333	0.000	0.90	0.00	0.68	1.0	0.063
18.350	0.000	0.89	0.00	0.67	1.0	0.063
18.367	0.000	0.89	0.00	0.67	0.9	0.063
18.383	0.000	0.89	0.00	0.67	0.9	0.063
18.400	0.000	0.88	0.00	0.67	0.9	0.063
18.417	0.000	0.88	0.00	0.67	0.9	0.063
18.433	0.000	0.88	0.00	0.67	0.9	0.063
18.450	0.000	0.87	0.00	0.67	0.9	0.063
18.467	0.000	0.87	0.00	0.67	0.9	0.063
18.483	0.000	0.87	0.00	0.67	0.9	0.063
18.500	0.000	0.87	0.00	0.67	0.9	0.063
18.517	0.000	0.86	0.00	0.67	0.9	0.062
18.533	0.000	0.86	0.00	0.67	0.9	0.062
18.550	0.000	0.86	0.00	0.67	0.9	0.062
18.567	0.000	0.85	0.00	0.67	0.9	0.062
18.583	0.000	0.85	0.00	0.66	0.9	0.062
18.600	0.000	0.85	0.00	0.66	0.9	0.062
18.617	0.000	0.84	0.00	0.66	0.9	0.062
18.633	0.000	0.84	0.00	0.66	0.9	0.062
18.650	0.000	0.84	0.00	0.66	0.9	0.062
18.667	0.000	0.84	0.00	0.66	0.9	0.062
18.683	0.000	0.83	0.00	0.66	0.9	0.062
18.700	0.000	0.83	0.00	0.66	0.9	0.062
18.717	0.000	0.83	0.00	0.66	0.9	0.062
18.733	0.000	0.82	0.00	0.66	0.9	0.062
18.750	0.000	0.82	0.00	0.66	0.9	0.062

18.767	0.000	0.82	0.00	0.66	0.9	0.061
18.783	0.000	0.82	0.00	0.66	0.9	0.061
18.800	0.000	0.81	0.00	0.66	0.9	0.061
18.817	0.000	0.81	0.00	0.66	0.9	0.061
18.833	0.000	0.81	0.00	0.66	0.9	0.061
18.850	0.000	0.81	0.00	0.66	0.8	0.061
18.867	0.000	0.80	0.00	0.65	0.8	0.061
18.883	0.000	0.80	0.00	0.65	0.8	0.061
18.900	0.000	0.80	0.00	0.65	0.8	0.061
18.917	0.000	0.80	0.00	0.65	0.8	0.061
18.933	0.000	0.79	0.00	0.65	0.8	0.061
18.950	0.000	0.79	0.00	0.65	0.8	0.061
18.967	0.000	0.79	0.00	0.65	0.8	0.061
18.983	0.000	0.79	0.00	0.65	0.8	0.061
19.000	0.000	0.78	0.00	0.65	0.8	0.061
19.017	0.000	0.78	0.00	0.65	0.8	0.061
19.033	0.000	0.78	0.00	0.65	0.8	0.061
19.050	0.000	0.78	0.00	0.65	0.8	0.061
19.067	0.000	0.78	0.00	0.65	0.8	0.060
19.083	0.000	0.77	0.00	0.65	0.8	0.060
19.100	0.000	0.77	0.00	0.65	0.8	0.060
19.117	0.000	0.77	0.00	0.65	0.8	0.060
19.133	0.000	0.77	0.00	0.65	0.8	0.060
19.150	0.000	0.76	0.00	0.65	0.8	0.060
19.167	0.000	0.76	0.00	0.65	0.8	0.060
19.183	0.000	0.76	0.00	0.65	0.8	0.060
19.200	0.000	0.76	0.00	0.64	0.8	0.060
19.217	0.000	0.76	0.00	0.64	0.8	0.060
19.233	0.000	0.75	0.00	0.64	0.8	0.060
19.250	0.000	0.75	0.00	0.64	0.8	0.060
19.267	0.000	0.75	0.00	0.64	0.8	0.060
19.283	0.000	0.75	0.00	0.64	0.8	0.060
19.300	0.000	0.75	0.00	0.64	0.8	0.060
19.317	0.000	0.74	0.00	0.64	0.8	0.060
19.333	0.000	0.74	0.00	0.64	0.8	0.060
19.350	0.000	0.74	0.00	0.64	0.8	0.060
19.367	0.000	0.74	0.00	0.64	0.8	0.060
19.383	0.000	0.74	0.00	0.64	0.8	0.060
19.400	0.000	0.73	0.00	0.64	0.8	0.060
19.417	0.000	0.73	0.00	0.64	0.8	0.059
19.433	0.000	0.73	0.00	0.64	0.8	0.059
19.450	0.000	0.73	0.00	0.64	0.8	0.059
19.467	0.000	0.73	0.00	0.64	0.8	0.059
19.483	0.000	0.72	0.00	0.64	0.8	0.059
19.500	0.000	0.72	0.00	0.64	0.8	0.059
19.517	0.000	0.72	0.00	0.64	0.7	0.059
19.533	0.000	0.72	0.00	0.64	0.7	0.059
19.550	0.000	0.72	0.00	0.64	0.7	0.059
19.567	0.000	0.71	0.00	0.64	0.7	0.059
19.583	0.000	0.71	0.00	0.64	0.7	0.059
19.600	0.000	0.71	0.00	0.64	0.7	0.059
19.617	0.000	0.71	0.00	0.63	0.7	0.059
19.633	0.000	0.71	0.00	0.63	0.7	0.059
19.650	0.000	0.71	0.00	0.63	0.7	0.059
19.667	0.000	0.70	0.00	0.63	0.7	0.059
19.683	0.000	0.70	0.00	0.63	0.7	0.059
19.700	0.000	0.70	0.00	0.63	0.7	0.059
19.717	0.000	0.70	0.00	0.63	0.7	0.059
19.733	0.000	0.70	0.00	0.63	0.7	0.059
19.750	0.000	0.70	0.00	0.63	0.7	0.059
19.767	0.000	0.69	0.00	0.63	0.7	0.059
19.783	0.000	0.69	0.00	0.63	0.7	0.059
19.800	0.000	0.69	0.00	0.63	0.7	0.059
19.817	0.000	0.69	0.00	0.63	0.7	0.059
19.833	0.000	0.69	0.00	0.63	0.7	0.059
19.850	0.000	0.69	0.00	0.63	0.7	0.059
19.867	0.000	0.69	0.00	0.63	0.7	0.058
19.883	0.000	0.68	0.00	0.63	0.7	0.058
19.900	0.000	0.68	0.00	0.63	0.7	0.058
19.917	0.000	0.68	0.00	0.63	0.7	0.058
19.933	0.000	0.68	0.00	0.63	0.7	0.058
19.950	0.000	0.68	0.00	0.63	0.7	0.058
19.967	0.000	0.68	0.00	0.63	0.7	0.058
19.983	0.000	0.67	0.00	0.63	0.7	0.058
20.000	0.000	0.67	0.00	0.63	0.7	0.058
20.017	0.000	0.67	0.00	0.63	0.7	0.058
20.033	0.000	0.67	0.00	0.63	0.7	0.058
20.050	0.000	0.67	0.00	0.63	0.7	0.058
20.067	0.000	0.67	0.00	0.63	0.7	0.058
20.083	0.000	0.67	0.00	0.63	0.7	0.058
20.100	0.000	0.66	0.00	0.63	0.7	0.058
20.117	0.000	0.66	0.00	0.63	0.7	0.058
20.133	0.000	0.66	0.00	0.62	0.7	0.058
20.150	0.000	0.66	0.00	0.62	0.7	0.058
20.167	0.000	0.66	0.00	0.62	0.7	0.058
20.183	0.000	0.66	0.00	0.62	0.7	0.058
20.200	0.000	0.66	0.00	0.62	0.7	0.058
20.217	0.000	0.65	0.00	0.62	0.7	0.058
20.233	0.000	0.65	0.00	0.62	0.7	0.058
20.250	0.000	0.65	0.00	0.62	0.7	0.058
20.267	0.000	0.65	0.00	0.62	0.7	0.058
20.283	0.000	0.65	0.00	0.62	0.7	0.058
20.300	0.000	0.65	0.00	0.62	0.7	0.058
20.317	0.000	0.65	0.00	0.62	0.7	0.058
20.333	0.000	0.65	0.00	0.62	0.7	0.058
20.350	0.000	0.64	0.00	0.62	0.7	0.058
20.367	0.000	0.64	0.00	0.62	0.7	0.058
20.383	0.000	0.64	0.00	0.62	0.7	0.058
20.400	0.000	0.64	0.00	0.62	0.7	0.058
20.417	0.000	0.64	0.00	0.62	0.7	0.058
20.433	0.000	0.64	0.00	0.62	0.7	0.057
20.450	0.000	0.64	0.00	0.62	0.7	0.057
20.467	0.000	0.63	0.00	0.62	0.7	0.057
20.483	0.000	0.63	0.00	0.62	0.7	0.057
20.500	0.000	0.63	0.00	0.62	0.7	0.057
20.517	0.000	0.63	0.00	0.62	0.6	0.057
20.533	0.000	0.63	0.00	0.62	0.6	0.057
20.550	0.000	0.63	0.00	0.62	0.6	0.057
20.567	0.000	0.63	0.00	0.62	0.6	0.057
20.583	0.000	0.63	0.00	0.62	0.6	0.057
20.600	0.000	0.63	0.00	0.62	0.6	0.057
20.617	0.000	0.62	0.00	0.62	0.6	0.057
20.633	0.000	0.62	0.00	0.62	0.6	0.057
20.650	0.000	0.62	0.00	0.62	0.6	0.057
20.667	0.000	0.62	0.00	0.62	0.6	0.057
20.683	0.000	0.62	0.00	0.62	0.6	0.057
20.700	0.000	0.62	0.00	0.62	0.6	0.057
20.717	0.000	0.62	0.00	0.62	0.6	0.057

20.733	0.000	0.62	0.00	0.62	0.6	0.057
20.750	0.000	0.61	0.00	0.62	0.6	0.057
20.767	0.000	0.61	0.00	0.62	0.6	0.057
20.783	0.000	0.61	0.00	0.61	0.6	0.057
20.800	0.000	0.61	0.00	0.61	0.6	0.057
20.817	0.000	0.61	0.00	0.61	0.6	0.057
20.833	0.000	0.61	0.00	0.61	0.6	0.057
20.850	0.000	0.61	0.00	0.61	0.6	0.057
20.867	0.000	0.61	0.00	0.61	0.6	0.057
20.883	0.000	0.61	0.00	0.61	0.6	0.057
20.900	0.000	0.60	0.00	0.61	0.6	0.057
20.917	0.000	0.60	0.00	0.61	0.6	0.057
20.933	0.000	0.60	0.00	0.61	0.6	0.057
20.950	0.000	0.60	0.00	0.61	0.6	0.057
20.967	0.000	0.60	0.00	0.61	0.6	0.057
20.983	0.000	0.60	0.00	0.61	0.6	0.057
21.000	0.000	0.60	0.00	0.61	0.6	0.057
21.017	0.000	0.60	0.00	0.61	0.6	0.057
21.033	0.000	0.60	0.00	0.61	0.6	0.057
21.050	0.000	0.60	0.00	0.61	0.6	0.057
21.067	0.000	0.59	0.00	0.61	0.6	0.057
21.083	0.000	0.59	0.00	0.61	0.6	0.057
21.100	0.000	0.59	0.00	0.61	0.6	0.057
21.117	0.000	0.59	0.00	0.61	0.6	0.057
21.133	0.000	0.59	0.00	0.61	0.6	0.056
21.150	0.000	0.59	0.00	0.61	0.6	0.056
21.167	0.000	0.59	0.00	0.61	0.6	0.056
21.183	0.000	0.59	0.00	0.61	0.6	0.056
21.200	0.000	0.59	0.00	0.61	0.6	0.056
21.217	0.000	0.59	0.00	0.61	0.6	0.056
21.233	0.000	0.58	0.00	0.61	0.6	0.056
21.250	0.000	0.58	0.00	0.61	0.6	0.056
21.267	0.000	0.58	0.00	0.61	0.6	0.056
21.283	0.000	0.58	0.00	0.61	0.6	0.056
21.300	0.000	0.58	0.00	0.61	0.6	0.056
21.317	0.000	0.58	0.00	0.61	0.6	0.056
21.333	0.000	0.58	0.00	0.61	0.6	0.056
21.350	0.000	0.58	0.00	0.61	0.6	0.056
21.367	0.000	0.58	0.00	0.61	0.6	0.056
21.383	0.000	0.58	0.00	0.61	0.6	0.056
21.400	0.000	0.57	0.00	0.61	0.6	0.056
21.417	0.000	0.57	0.00	0.61	0.6	0.056
21.433	0.000	0.57	0.00	0.61	0.6	0.056
21.450	0.000	0.57	0.00	0.61	0.6	0.056
21.467	0.000	0.57	0.00	0.61	0.6	0.056
21.483	0.000	0.57	0.00	0.61	0.6	0.056
21.500	0.000	0.57	0.00	0.61	0.6	0.056
21.517	0.000	0.57	0.00	0.61	0.6	0.056
21.533	0.000	0.57	0.00	0.61	0.6	0.056
21.550	0.000	0.57	0.00	0.61	0.6	0.056
21.567	0.000	0.57	0.00	0.61	0.6	0.056
21.583	0.000	0.56	0.00	0.61	0.6	0.056
21.600	0.000	0.56	0.00	0.61	0.6	0.056
21.617	0.000	0.56	0.00	0.61	0.6	0.056
21.633	0.000	0.56	0.00	0.60	0.6	0.056
21.650	0.000	0.56	0.00	0.60	0.6	0.056
21.667	0.000	0.56	0.00	0.60	0.6	0.056
21.683	0.000	0.56	0.00	0.60	0.6	0.056
21.700	0.000	0.56	0.00	0.60	0.6	0.056
21.717	0.000	0.56	0.00	0.60	0.6	0.056
21.733	0.000	0.56	0.00	0.60	0.6	0.056
21.750	0.000	0.56	0.00	0.60	0.6	0.056
21.767	0.000	0.56	0.00	0.60	0.6	0.056
21.783	0.000	0.55	0.00	0.60	0.6	0.056
21.800	0.000	0.55	0.00	0.60	0.6	0.056
21.817	0.000	0.55	0.00	0.60	0.6	0.056
21.833	0.000	0.55	0.00	0.60	0.6	0.056
21.850	0.000	0.55	0.00	0.60	0.6	0.056
21.867	0.000	0.55	0.00	0.60	0.6	0.056
21.883	0.000	0.55	0.00	0.60	0.6	0.056
21.900	0.000	0.55	0.00	0.60	0.6	0.056
21.917	0.000	0.55	0.00	0.60	0.6	0.056
21.933	0.000	0.55	0.00	0.60	0.6	0.056
21.950	0.000	0.55	0.00	0.60	0.6	0.056
21.967	0.000	0.55	0.00	0.60	0.6	0.056
21.983	0.000	0.54	0.00	0.60	0.6	0.056
22.000	0.000	0.54	0.00	0.60	0.6	0.056
22.017	0.000	0.54	0.00	0.60	0.6	0.056
22.033	0.000	0.54	0.00	0.60	0.6	0.055
22.050	0.000	0.54	0.00	0.60	0.6	0.055
22.067	0.000	0.54	0.00	0.60	0.6	0.055
22.083	0.000	0.54	0.00	0.60	0.6	0.055
22.100	0.000	0.54	0.00	0.60	0.6	0.055
22.117	0.000	0.54	0.00	0.60	0.6	0.055
22.133	0.000	0.54	0.00	0.60	0.5	0.055
22.150	0.000	0.54	0.00	0.60	0.5	0.055
22.167	0.000	0.54	0.00	0.60	0.5	0.055
22.183	0.000	0.54	0.00	0.60	0.5	0.055
22.200	0.000	0.53	0.00	0.60	0.5	0.055
22.216	0.000	0.53	0.00	0.60	0.5	0.055
22.233	0.000	0.53	0.00	0.60	0.5	0.055
22.250	0.000	0.53	0.00	0.60	0.5	0.055
22.266	0.000	0.53	0.00	0.60	0.5	0.055
22.283	0.000	0.53	0.00	0.60	0.5	0.055
22.300	0.000	0.53	0.00	0.60	0.5	0.055
22.316	0.000	0.53	0.00	0.60	0.5	0.055
22.333	0.000	0.53	0.00	0.60	0.5	0.055
22.350	0.000	0.53	0.00	0.60	0.5	0.055
22.366	0.000	0.53	0.00	0.60	0.5	0.055
22.383	0.000	0.53	0.00	0.60	0.5	0.055
22.400	0.000	0.53	0.00	0.60	0.5	0.055
22.416	0.000	0.53	0.00	0.60	0.5	0.055
22.433	0.000	0.52	0.00	0.60	0.5	0.055
22.450	0.000	0.52	0.00	0.60	0.5	0.055
22.466	0.000	0.52	0.00	0.60	0.5	0.055
22.483	0.000	0.52	0.00	0.60	0.5	0.055
22.500	0.000	0.52	0.00	0.60	0.5	0.055
22.516	0.000	0.52	0.00	0.60	0.5	0.055
22.533	0.000	0.52	0.00	0.60	0.5	0.055
22.550	0.000	0.52	0.00	0.60	0.5	0.055
22.566	0.000	0.52	0.00	0.60	0.5	0.055
22.583	0.000	0.52	0.00	0.60	0.5	0.055
22.600	0.000	0.52	0.00	0.60	0.5	0.055
22.616	0.000	0.52	0.00	0.60	0.5	0.055
22.633	0.000	0.52	0.00	0.60	0.5	0.055
22.650	0.000	0.52	0.00	0.60	0.5	0.055
22.666	0.000	0.52	0.00	0.60	0.5	0.055
22.683	0.000	0.51	0.00	0.60	0.5	0.055

22.700	0.000	0.51	0.00	0.60	0.5	0.055
22.716	0.000	0.51	0.00	0.60	0.5	0.055
22.733	0.000	0.51	0.00	0.59	0.5	0.055
22.750	0.000	0.51	0.00	0.59	0.5	0.055
22.766	0.000	0.51	0.00	0.59	0.5	0.055
22.783	0.000	0.51	0.00	0.59	0.5	0.055
22.800	0.000	0.51	0.00	0.59	0.5	0.055
22.816	0.000	0.51	0.00	0.59	0.5	0.055
22.833	0.000	0.51	0.00	0.59	0.5	0.055
22.850	0.000	0.51	0.00	0.59	0.5	0.055
22.866	0.000	0.51	0.00	0.59	0.5	0.055
22.883	0.000	0.51	0.00	0.59	0.5	0.055
22.900	0.000	0.51	0.00	0.59	0.5	0.055
22.916	0.000	0.51	0.00	0.59	0.5	0.055
22.933	0.000	0.50	0.00	0.59	0.5	0.055
22.950	0.000	0.50	0.00	0.59	0.5	0.055
22.966	0.000	0.50	0.00	0.59	0.5	0.055
22.983	0.000	0.50	0.00	0.59	0.5	0.055
23.000	0.000	0.50	0.00	0.59	0.5	0.055
23.016	0.000	0.50	0.00	0.59	0.5	0.055
23.033	0.000	0.50	0.00	0.59	0.5	0.055
23.050	0.000	0.50	0.00	0.59	0.5	0.055
23.066	0.000	0.50	0.00	0.59	0.5	0.055
23.083	0.000	0.50	0.00	0.59	0.5	0.055
23.100	0.000	0.50	0.00	0.59	0.5	0.055
23.116	0.000	0.50	0.00	0.59	0.5	0.055
23.133	0.000	0.50	0.00	0.59	0.5	0.055
23.150	0.000	0.50	0.00	0.59	0.5	0.055
23.166	0.000	0.50	0.00	0.59	0.5	0.055
23.183	0.000	0.50	0.00	0.59	0.5	0.055
23.200	0.000	0.49	0.00	0.59	0.5	0.055
23.216	0.000	0.49	0.00	0.59	0.5	0.055
23.233	0.000	0.49	0.00	0.59	0.5	0.054
23.250	0.000	0.49	0.00	0.59	0.5	0.054
23.266	0.000	0.49	0.00	0.59	0.5	0.054
23.283	0.000	0.49	0.00	0.59	0.5	0.054
23.300	0.000	0.49	0.00	0.59	0.5	0.054
23.316	0.000	0.49	0.00	0.59	0.5	0.054
23.333	0.000	0.49	0.00	0.59	0.5	0.054
23.350	0.000	0.49	0.00	0.59	0.5	0.054
23.366	0.000	0.49	0.00	0.59	0.5	0.054
23.383	0.000	0.49	0.00	0.59	0.5	0.054
23.400	0.000	0.49	0.00	0.59	0.5	0.054
23.416	0.000	0.49	0.00	0.59	0.5	0.054
23.433	0.000	0.49	0.00	0.59	0.5	0.054
23.450	0.000	0.49	0.00	0.59	0.5	0.054
23.466	0.000	0.49	0.00	0.59	0.5	0.054
23.483	0.000	0.49	0.00	0.59	0.5	0.054
23.500	0.000	0.48	0.00	0.59	0.5	0.054
23.516	0.000	0.48	0.00	0.59	0.5	0.054
23.533	0.000	0.48	0.00	0.59	0.5	0.054
23.550	0.000	0.48	0.00	0.59	0.5	0.054
23.566	0.000	0.48	0.00	0.59	0.5	0.054
23.583	0.000	0.48	0.00	0.59	0.5	0.054
23.600	0.000	0.48	0.00	0.59	0.5	0.054
23.616	0.000	0.48	0.00	0.59	0.5	0.054
23.633	0.000	0.48	0.00	0.59	0.5	0.054
23.650	0.000	0.48	0.00	0.59	0.5	0.054
23.666	0.000	0.48	0.00	0.59	0.5	0.054
23.683	0.000	0.48	0.00	0.59	0.5	0.054
23.700	0.000	0.48	0.00	0.59	0.5	0.054
23.716	0.000	0.48	0.00	0.59	0.5	0.054
23.733	0.000	0.48	0.00	0.59	0.5	0.054
23.750	0.000	0.48	0.00	0.59	0.5	0.054
23.766	0.000	0.48	0.00	0.59	0.5	0.054
23.783	0.000	0.48	0.00	0.59	0.5	0.054
23.800	0.000	0.47	0.00	0.59	0.5	0.054
23.816	0.000	0.47	0.00	0.59	0.5	0.054
23.833	0.000	0.47	0.00	0.59	0.5	0.054
23.850	0.000	0.47	0.00	0.59	0.5	0.054
23.866	0.000	0.47	0.00	0.59	0.5	0.054
23.883	0.000	0.47	0.00	0.59	0.5	0.054
23.900	0.000	0.47	0.00	0.59	0.5	0.054
23.916	0.000	0.47	0.00	0.59	0.5	0.054
23.933	0.000	0.47	0.00	0.59	0.5	0.054
23.950	0.000	0.47	0.00	0.59	0.5	0.054
23.966	0.000	0.47	0.00	0.59	0.5	0.054
23.983	0.000	0.47	0.00	0.59	0.5	0.054
24.000	0.000	0.47	0.00	0.59	0.5	0.054

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1.927 AF
BASIN STORAGE = 0.003 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 1.925 AF
LOSS VOLUME = 0.000 AF

****

FLOW PROCESS FROM NODE 110.00 TO NODE 110.00 IS CODE = 11

>>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<

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STREAM HYDROGRAPH IN ONE-MINUTE UNIT INTERVALS(CFS)
(Notes: Time indicated is at END of Each Unit Intervals.
Peak 5-minute rainfall intensity is modeled as
a constant value for entire 5-minute period.)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
0.017	0.0000	0.00	Q	.	.	.	.
0.033	0.0000	0.00	Q	.	.	.	.
0.050	0.0000	0.00	Q	.	.	.	.
0.067	0.0000	0.00	Q	.	.	.	.
0.083	0.0000	0.00	Q	.	.	.	.
0.100	0.0000	0.00	Q	.	.	.	.
0.117	0.0000	0.00	Q	.	.	.	.
0.133	0.0000	0.00	Q	.	.	.	.
0.150	0.0000	0.00	Q	.	.	.	.
0.167	0.0000	0.00	Q	.	.	.	.
0.183	0.0000	0.00	Q	.	.	.	.
0.200	0.0000	0.00	Q	.	.	.	.
0.217	0.0000	0.00	Q	.	.	.	.
0.233	0.0000	0.00	Q	.	.	.	.
0.250	0.0000	0.00	Q	.	.	.	.
0.267	0.0000	0.00	Q	.	.	.	.
0.283	0.0000	0.00	Q	.	.	.	.
0.300	0.0000	0.00	Q	.	.	.	.

0.317	0.0000	0.00	Q	.	.	.	.
0.333	0.0000	0.00	Q	.	.	.	.
0.350	0.0000	0.00	Q	.	.	.	.
0.367	0.0000	0.00	Q	.	.	.	.
0.383	0.0000	0.00	Q	.	.	.	.
0.400	0.0000	0.00	Q	.	.	.	.
0.417	0.0000	0.00	Q	.	.	.	.
0.433	0.0000	0.00	Q	.	.	.	.
0.450	0.0001	0.00	Q	.	.	.	.
0.467	0.0001	0.00	Q	.	.	.	.
0.483	0.0001	0.00	Q	.	.	.	.
0.500	0.0001	0.00	Q	.	.	.	.
0.517	0.0001	0.00	Q	.	.	.	.
0.533	0.0001	0.00	Q	.	.	.	.
0.550	0.0001	0.00	Q	.	.	.	.
0.567	0.0001	0.00	Q	.	.	.	.
0.583	0.0001	0.00	Q	.	.	.	.
0.600	0.0001	0.00	Q	.	.	.	.
0.617	0.0001	0.00	Q	.	.	.	.
0.633	0.0001	0.01	Q	.	.	.	.
0.650	0.0001	0.01	Q	.	.	.	.
0.667	0.0001	0.01	Q	.	.	.	.
0.683	0.0001	0.01	Q	.	.	.	.
0.700	0.0001	0.01	Q	.	.	.	.
0.717	0.0002	0.01	Q	.	.	.	.
0.733	0.0002	0.01	Q	.	.	.	.
0.750	0.0002	0.01	Q	.	.	.	.
0.767	0.0002	0.01	Q	.	.	.	.
0.783	0.0002	0.01	Q	.	.	.	.
0.800	0.0002	0.01	Q	.	.	.	.
0.817	0.0002	0.01	Q	.	.	.	.
0.833	0.0002	0.01	Q	.	.	.	.
0.850	0.0002	0.01	Q	.	.	.	.
0.867	0.0002	0.01	Q	.	.	.	.
0.883	0.0003	0.01	Q	.	.	.	.
0.900	0.0003	0.01	Q	.	.	.	.
0.917	0.0003	0.01	Q	.	.	.	.
0.933	0.0003	0.01	Q	.	.	.	.
0.950	0.0003	0.01	Q	.	.	.	.
0.967	0.0003	0.01	Q	.	.	.	.
0.983	0.0003	0.01	Q	.	.	.	.
1.000	0.0003	0.01	Q	.	.	.	.
1.017	0.0003	0.01	Q	.	.	.	.
1.033	0.0004	0.01	Q	.	.	.	.
1.050	0.0004	0.01	Q	.	.	.	.
1.067	0.0004	0.01	Q	.	.	.	.
1.083	0.0004	0.01	Q	.	.	.	.
1.100	0.0004	0.01	Q	.	.	.	.
1.117	0.0004	0.01	Q	.	.	.	.
1.133	0.0004	0.01	Q	.	.	.	.
1.150	0.0004	0.01	Q	.	.	.	.
1.167	0.0005	0.01	Q	.	.	.	.
1.183	0.0005	0.01	Q	.	.	.	.
1.200	0.0005	0.01	Q	.	.	.	.
1.217	0.0005	0.01	Q	.	.	.	.
1.233	0.0005	0.01	Q	.	.	.	.
1.250	0.0005	0.01	Q	.	.	.	.
1.267	0.0006	0.03	Q	.	.	.	.
1.283	0.0007	0.06	Q	.	.	.	.
1.300	0.0008	0.09	Q	.	.	.	.
1.317	0.0009	0.12	Q	.	.	.	.
1.333	0.0011	0.14	Q	.	.	.	.
1.350	0.0014	0.16	Q	.	.	.	.
1.367	0.0016	0.19	Q	.	.	.	.
1.383	0.0019	0.21	Q	.	.	.	.
1.400	0.0022	0.23	Q	.	.	.	.
1.417	0.0026	0.24	Q	.	.	.	.
1.433	0.0029	0.26	VQ	.	.	.	.
1.450	0.0033	0.28	VQ	.	.	.	.
1.467	0.0037	0.29	VQ	.	.	.	.
1.483	0.0041	0.30	VQ	.	.	.	.
1.500	0.0045	0.32	VQ	.	.	.	.
1.517	0.0050	0.33	VQ	.	.	.	.
1.533	0.0055	0.34	VQ	.	.	.	.
1.550	0.0059	0.35	VQ	.	.	.	.
1.567	0.0064	0.36	VQ	.	.	.	.
1.583	0.0069	0.37	VQ	.	.	.	.
1.600	0.0075	0.37	VQ	.	.	.	.
1.617	0.0080	0.38	VQ	.	.	.	.
1.633	0.0085	0.39	VQ	.	.	.	.
1.650	0.0091	0.40	VQ	.	.	.	.
1.667	0.0096	0.40	VQ	.	.	.	.
1.683	0.0102	0.41	VQ	.	.	.	.
1.700	0.0107	0.41	VQ	.	.	.	.
1.717	0.0113	0.42	VQ	.	.	.	.
1.733	0.0119	0.42	VQ	.	.	.	.
1.750	0.0125	0.43	VQ	.	.	.	.
1.767	0.0131	0.43	VQ	.	.	.	.
1.783	0.0137	0.44	VQ	.	.	.	.
1.800	0.0143	0.44	VQ	.	.	.	.
1.817	0.0149	0.44	VQ	.	.	.	.
1.833	0.0155	0.45	VQ	.	.	.	.
1.850	0.0161	0.45	VQ	.	.	.	.
1.867	0.0168	0.45	VQ	.	.	.	.
1.883	0.0174	0.46	VQ	.	.	.	.
1.900	0.0180	0.46	VQ	.	.	.	.
1.917	0.0187	0.46	VQ	.	.	.	.
1.933	0.0193	0.46	VQ	.	.	.	.
1.950	0.0199	0.46	VQ	.	.	.	.
1.967	0.0206	0.47	VQ	.	.	.	.
1.983	0.0212	0.47	VQ	.	.	.	.
2.000	0.0219	0.47	VQ	.	.	.	.
2.017	0.0225	0.47	VQ	.	.	.	.
2.033	0.0232	0.47	VQ	.	.	.	.
2.050	0.0238	0.47	VQ	.	.	.	.
2.067	0.0245	0.48	VQ	.	.	.	.
2.083	0.0251	0.48	VQ	.	.	.	.
2.100	0.0258	0.48	VQ	.	.	.	.
2.117	0.0265	0.48	VQ	.	.	.	.
2.133	0.0271	0.48	VQ	.	.	.	.
2.150	0.0278	0.48	VQ	.	.	.	.
2.167	0.0285	0.48	VQ	.	.	.	.
2.183	0.0291	0.48	VQ	.	.	.	.
2.200	0.0298	0.48	VQ	.	.	.	.
2.217	0.0305	0.49	VQ	.	.	.	.
2.233	0.0311	0.49	VQ	.	.	.	.
2.250	0.0318	0.49	VQ	.	.	.	.
2.267	0.0325	0.49	VQ	.	.	.	.

2.283	0.0331	0.49	VQ	.	.	.	.
2.300	0.0338	0.49	VQ	.	.	.	.
2.317	0.0345	0.49	VQ	.	.	.	.
2.333	0.0352	0.49	VQ	.	.	.	.
2.350	0.0358	0.49	VQ	.	.	.	.
2.367	0.0365	0.49	VQ	.	.	.	.
2.383	0.0372	0.49	VQ	.	.	.	.
2.400	0.0379	0.49	VQ	.	.	.	.
2.417	0.0386	0.49	VQ	.	.	.	.
2.433	0.0392	0.49	VQ	.	.	.	.
2.450	0.0399	0.49	VQ	.	.	.	.
2.467	0.0406	0.49	VQ	.	.	.	.
2.483	0.0413	0.50	VQ	.	.	.	.
2.500	0.0420	0.50	VQ	.	.	.	.
2.517	0.0426	0.50	VQ	.	.	.	.
2.533	0.0433	0.50	VQ	.	.	.	.
2.550	0.0440	0.50	VQ	.	.	.	.
2.567	0.0447	0.50	VQ	.	.	.	.
2.583	0.0454	0.50	VQ	.	.	.	.
2.600	0.0461	0.50	VQ	.	.	.	.
2.617	0.0468	0.50	VQ	.	.	.	.
2.633	0.0474	0.50	VQ	.	.	.	.
2.650	0.0481	0.50	.Q	.	.	.	.
2.667	0.0488	0.50	.Q	.	.	.	.
2.683	0.0495	0.50	.VQ	.	.	.	.
2.700	0.0502	0.50	.VQ	.	.	.	.
2.717	0.0509	0.50	.VQ	.	.	.	.
2.733	0.0516	0.50	.VQ	.	.	.	.
2.750	0.0523	0.50	.VQ	.	.	.	.
2.767	0.0530	0.50	.VQ	.	.	.	.
2.783	0.0537	0.50	.VQ	.	.	.	.
2.800	0.0544	0.50	.VQ	.	.	.	.
2.817	0.0550	0.50	.VQ	.	.	.	.
2.833	0.0557	0.50	.VQ	.	.	.	.
2.850	0.0564	0.50	.VQ	.	.	.	.
2.867	0.0571	0.50	.VQ	.	.	.	.
2.883	0.0578	0.50	.VQ	.	.	.	.
2.900	0.0585	0.51	.VQ	.	.	.	.
2.917	0.0592	0.51	.VQ	.	.	.	.
2.933	0.0599	0.51	.VQ	.	.	.	.
2.950	0.0606	0.51	.VQ	.	.	.	.
2.967	0.0613	0.51	.VQ	.	.	.	.
2.983	0.0620	0.51	.VQ	.	.	.	.
3.000	0.0627	0.51	.VQ	.	.	.	.
3.017	0.0634	0.51	.VQ	.	.	.	.
3.033	0.0641	0.51	.VQ	.	.	.	.
3.050	0.0648	0.51	.VQ	.	.	.	.
3.067	0.0655	0.51	.VQ	.	.	.	.
3.083	0.0662	0.51	.VQ	.	.	.	.
3.100	0.0669	0.51	.VQ	.	.	.	.
3.117	0.0676	0.51	.VQ	.	.	.	.
3.133	0.0683	0.51	.VQ	.	.	.	.
3.150	0.0690	0.51	.VQ	.	.	.	.
3.167	0.0697	0.51	.VQ	.	.	.	.
3.183	0.0704	0.51	.VQ	.	.	.	.
3.200	0.0711	0.51	.VQ	.	.	.	.
3.217	0.0718	0.51	.VQ	.	.	.	.
3.233	0.0725	0.51	.VQ	.	.	.	.
3.250	0.0732	0.51	.VQ	.	.	.	.
3.267	0.0739	0.51	.VQ	.	.	.	.
3.283	0.0747	0.51	.VQ	.	.	.	.
3.300	0.0754	0.51	.VQ	.	.	.	.
3.317	0.0761	0.51	.VQ	.	.	.	.
3.333	0.0768	0.51	.VQ	.	.	.	.
3.350	0.0775	0.51	.VQ	.	.	.	.
3.367	0.0782	0.51	.VQ	.	.	.	.
3.383	0.0789	0.51	.VQ	.	.	.	.
3.400	0.0796	0.52	.VQ	.	.	.	.
3.417	0.0803	0.52	.VQ	.	.	.	.
3.433	0.0810	0.52	.VQ	.	.	.	.
3.450	0.0817	0.52	.VQ	.	.	.	.
3.467	0.0825	0.52	.VQ	.	.	.	.
3.483	0.0832	0.52	.VQ	.	.	.	.
3.500	0.0839	0.52	.VQ	.	.	.	.
3.517	0.0846	0.52	.VQ	.	.	.	.
3.533	0.0853	0.52	.VQ	.	.	.	.
3.550	0.0860	0.52	.VQ	.	.	.	.
3.567	0.0867	0.52	.VQ	.	.	.	.
3.583	0.0874	0.52	.VQ	.	.	.	.
3.600	0.0882	0.52	.VQ	.	.	.	.
3.617	0.0889	0.52	.VQ	.	.	.	.
3.633	0.0896	0.52	.VQ	.	.	.	.
3.650	0.0903	0.52	.VQ	.	.	.	.
3.667	0.0910	0.52	.VQ	.	.	.	.
3.683	0.0917	0.52	.VQ	.	.	.	.
3.700	0.0925	0.52	.VQ	.	.	.	.
3.717	0.0932	0.52	.VQ	.	.	.	.
3.733	0.0939	0.52	.VQ	.	.	.	.
3.750	0.0946	0.52	.VQ	.	.	.	.
3.767	0.0953	0.52	.VQ	.	.	.	.
3.783	0.0961	0.52	.VQ	.	.	.	.
3.800	0.0968	0.52	. Q	.	.	.	.
3.817	0.0975	0.52	. Q	.	.	.	.
3.833	0.0982	0.52	. Q	.	.	.	.
3.850	0.0989	0.52	. Q	.	.	.	.
3.867	0.0997	0.52	. Q	.	.	.	.
3.883	0.1004	0.53	. Q	.	.	.	.
3.900	0.1011	0.53	. Q	.	.	.	.
3.917	0.1018	0.53	. Q	.	.	.	.
3.933	0.1026	0.53	. Q	.	.	.	.
3.950	0.1033	0.53	. Q	.	.	.	.
3.967	0.1040	0.53	. Q	.	.	.	.
3.983	0.1047	0.53	. Q	.	.	.	.
4.000	0.1055	0.53	. Q	.	.	.	.
4.017	0.1062	0.53	. Q	.	.	.	.
4.033	0.1069	0.53	. Q	.	.	.	.
4.050	0.1077	0.53	. Q	.	.	.	.
4.067	0.1084	0.53	. Q	.	.	.	.
4.083	0.1091	0.53	. Q	.	.	.	.
4.100	0.1098	0.53	. Q	.	.	.	.
4.117	0.1106	0.53	. Q	.	.	.	.
4.133	0.1113	0.53	. Q	.	.	.	.
4.150	0.1120	0.53	. Q	.	.	.	.
4.167	0.1128	0.53	. Q	.	.	.	.
4.183	0.1135	0.53	. Q	.	.	.	.
4.200	0.1142	0.53	. Q	.	.	.	.
4.217	0.1150	0.53	. Q	.	.	.	.
4.233	0.1157	0.53	. Q	.	.	.	.

4.250	0.1164	0.53	. Q	.	.	.	.
4.267	0.1172	0.53	. Q	.	.	.	.
4.283	0.1179	0.53	. Q	.	.	.	.
4.300	0.1186	0.53	. Q	.	.	.	.
4.317	0.1194	0.53	. Q	.	.	.	.
4.333	0.1201	0.54	. Q	.	.	.	.
4.350	0.1209	0.54	. Q	.	.	.	.
4.367	0.1216	0.54	. Q	.	.	.	.
4.383	0.1223	0.54	. Q	.	.	.	.
4.400	0.1231	0.54	. Q	.	.	.	.
4.417	0.1238	0.54	. Q	.	.	.	.
4.433	0.1246	0.54	. Q	.	.	.	.
4.450	0.1253	0.54	. Q	.	.	.	.
4.467	0.1260	0.54	. Q	.	.	.	.
4.483	0.1268	0.54	. Q	.	.	.	.
4.500	0.1275	0.54	. Q	.	.	.	.
4.517	0.1283	0.54	. Q	.	.	.	.
4.533	0.1290	0.54	. Q	.	.	.	.
4.550	0.1297	0.54	. Q	.	.	.	.
4.567	0.1305	0.54	. Q	.	.	.	.
4.583	0.1312	0.54	. Q	.	.	.	.
4.600	0.1320	0.54	. Q	.	.	.	.
4.617	0.1327	0.54	. Q	.	.	.	.
4.633	0.1335	0.54	. Q	.	.	.	.
4.650	0.1342	0.54	. Q	.	.	.	.
4.667	0.1350	0.54	. Q	.	.	.	.
4.683	0.1357	0.54	. Q	.	.	.	.
4.700	0.1365	0.54	. Q	.	.	.	.
4.717	0.1372	0.54	. Q	.	.	.	.
4.733	0.1380	0.54	. Q	.	.	.	.
4.750	0.1387	0.54	. Q	.	.	.	.
4.767	0.1395	0.55	. Q	.	.	.	.
4.783	0.1402	0.55	. Q	.	.	.	.
4.800	0.1410	0.55	. Q	.	.	.	.
4.817	0.1417	0.55	. Q	.	.	.	.
4.833	0.1425	0.55	. Q	.	.	.	.
4.850	0.1432	0.55	. Q	.	.	.	.
4.867	0.1440	0.55	. Q	.	.	.	.
4.883	0.1447	0.55	. QV	.	.	.	.
4.900	0.1455	0.55	. QV	.	.	.	.
4.917	0.1463	0.55	. QV	.	.	.	.
4.933	0.1470	0.55	. QV	.	.	.	.
4.950	0.1478	0.55	. QV	.	.	.	.
4.967	0.1485	0.55	. QV	.	.	.	.
4.983	0.1493	0.55	. QV	.	.	.	.
5.000	0.1500	0.55	. QV	.	.	.	.
5.017	0.1508	0.55	. QV	.	.	.	.
5.033	0.1516	0.55	. QV	.	.	.	.
5.050	0.1523	0.55	. QV	.	.	.	.
5.067	0.1531	0.55	. QV	.	.	.	.
5.083	0.1538	0.55	. QV	.	.	.	.
5.100	0.1546	0.55	. QV	.	.	.	.
5.117	0.1554	0.55	. QV	.	.	.	.
5.133	0.1561	0.55	. QV	.	.	.	.
5.150	0.1569	0.55	. QV	.	.	.	.
5.167	0.1577	0.55	. QV	.	.	.	.
5.183	0.1584	0.56	. QV	.	.	.	.
5.200	0.1592	0.56	. QV	.	.	.	.
5.217	0.1600	0.56	. QV	.	.	.	.
5.233	0.1607	0.56	. QV	.	.	.	.
5.250	0.1615	0.56	. QV	.	.	.	.
5.267	0.1623	0.56	. QV	.	.	.	.
5.283	0.1630	0.56	. QV	.	.	.	.
5.300	0.1638	0.56	. QV	.	.	.	.
5.317	0.1646	0.56	. QV	.	.	.	.
5.333	0.1653	0.56	. QV	.	.	.	.
5.350	0.1661	0.56	. QV	.	.	.	.
5.367	0.1669	0.56	. QV	.	.	.	.
5.383	0.1676	0.56	. QV	.	.	.	.
5.400	0.1684	0.56	. QV	.	.	.	.
5.417	0.1692	0.56	. QV	.	.	.	.
5.433	0.1700	0.56	. QV	.	.	.	.
5.450	0.1707	0.56	. QV	.	.	.	.
5.467	0.1715	0.56	. QV	.	.	.	.
5.483	0.1723	0.56	. QV	.	.	.	.
5.500	0.1731	0.56	. QV	.	.	.	.
5.517	0.1738	0.56	. QV	.	.	.	.
5.533	0.1746	0.56	. QV	.	.	.	.
5.550	0.1754	0.56	. QV	.	.	.	.
5.567	0.1762	0.57	. QV	.	.	.	.
5.583	0.1770	0.57	. QV	.	.	.	.
5.600	0.1777	0.57	. QV	.	.	.	.
5.617	0.1785	0.57	. QV	.	.	.	.
5.633	0.1793	0.57	. QV	.	.	.	.
5.650	0.1801	0.57	. QV	.	.	.	.
5.667	0.1809	0.57	. QV	.	.	.	.
5.683	0.1816	0.57	. QV	.	.	.	.
5.700	0.1824	0.57	. QV	.	.	.	.
5.717	0.1832	0.57	. QV	.	.	.	.
5.733	0.1840	0.57	. QV	.	.	.	.
5.750	0.1848	0.57	. QV	.	.	.	.
5.767	0.1856	0.57	. QV	.	.	.	.
5.783	0.1864	0.57	. QV	.	.	.	.
5.800	0.1871	0.57	. QV	.	.	.	.
5.817	0.1879	0.57	. QV	.	.	.	.
5.833	0.1887	0.57	. QV	.	.	.	.
5.850	0.1895	0.57	. QV	.	.	.	.
5.867	0.1903	0.57	. QV	.	.	.	.
5.883	0.1911	0.57	. QV	.	.	.	.
5.900	0.1919	0.57	. QV	.	.	.	.
5.917	0.1927	0.57	. Q V	.	.	.	.
5.933	0.1935	0.58	. Q V	.	.	.	.
5.950	0.1943	0.58	. Q V	.	.	.	.
5.967	0.1950	0.58	. Q V	.	.	.	.
5.983	0.1958	0.58	. Q V	.	.	.	.
6.000	0.1966	0.58	. Q V	.	.	.	.
6.017	0.1974	0.58	. Q V	.	.	.	.
6.033	0.1982	0.58	. Q V	.	.	.	.
6.050	0.1990	0.58	. Q V	.	.	.	.
6.067	0.1998	0.58	. Q V	.	.	.	.
6.083	0.2006	0.58	. Q V	.	.	.	.
6.100	0.2014	0.58	. Q V	.	.	.	.
6.117	0.2022	0.58	. Q V	.	.	.	.
6.133	0.2030	0.58	. Q V	.	.	.	.
6.150	0.2038	0.58	. Q V	.	.	.	.
6.167	0.2046	0.58	. Q V	.	.	.	.
6.183	0.2054	0.58	. Q V	.	.	.	.
6.200	0.2062	0.58	. Q V	.	.	.	.

6.217	0.2070	0.58	.	Q	V	.	.	.	.
6.233	0.2078	0.58	.	Q	V	.	.	.	.
6.250	0.2086	0.58	.	Q	V	.	.	.	.
6.267	0.2094	0.58	.	Q	V	.	.	.	.
6.283	0.2102	0.59	.	Q	V	.	.	.	.
6.300	0.2111	0.59	.	Q	V	.	.	.	.
6.317	0.2119	0.59	.	Q	V	.	.	.	.
6.333	0.2127	0.59	.	Q	V	.	.	.	.
6.350	0.2135	0.59	.	Q	V	.	.	.	.
6.367	0.2143	0.59	.	Q	V	.	.	.	.
6.383	0.2151	0.59	.	Q	V	.	.	.	.
6.400	0.2159	0.59	.	Q	V	.	.	.	.
6.417	0.2167	0.59	.	Q	V	.	.	.	.
6.433	0.2175	0.59	.	Q	V	.	.	.	.
6.450	0.2183	0.59	.	Q	V	.	.	.	.
6.467	0.2192	0.59	.	Q	V	.	.	.	.
6.483	0.2200	0.59	.	Q	V	.	.	.	.
6.500	0.2208	0.59	.	Q	V	.	.	.	.
6.517	0.2216	0.59	.	Q	V	.	.	.	.
6.533	0.2224	0.59	.	Q	V	.	.	.	.
6.550	0.2232	0.59	.	Q	V	.	.	.	.
6.567	0.2240	0.59	.	Q	V	.	.	.	.
6.583	0.2249	0.59	.	Q	V	.	.	.	.
6.600	0.2257	0.59	.	Q	V	.	.	.	.
6.617	0.2265	0.60	.	Q	V	.	.	.	.
6.633	0.2273	0.60	.	Q	V	.	.	.	.
6.650	0.2281	0.60	.	Q	V	.	.	.	.
6.667	0.2290	0.60	.	Q	V	.	.	.	.
6.683	0.2298	0.60	.	Q	V	.	.	.	.
6.700	0.2306	0.60	.	Q	V	.	.	.	.
6.717	0.2314	0.60	.	Q	V	.	.	.	.
6.733	0.2323	0.60	.	Q	V	.	.	.	.
6.750	0.2331	0.60	.	Q	V	.	.	.	.
6.767	0.2339	0.60	.	Q	V	.	.	.	.
6.783	0.2347	0.60	.	Q	V	.	.	.	.
6.800	0.2356	0.60	.	Q	V	.	.	.	.
6.817	0.2364	0.60	.	Q	V	.	.	.	.
6.833	0.2372	0.60	.	Q	V	.	.	.	.
6.850	0.2381	0.60	.	Q	V	.	.	.	.
6.867	0.2389	0.60	.	Q	V	.	.	.	.
6.883	0.2397	0.60	.	Q	V	.	.	.	.
6.900	0.2406	0.60	.	Q	V	.	.	.	.
6.917	0.2414	0.60	.	Q	V	.	.	.	.
6.933	0.2422	0.61	.	Q	V	.	.	.	.
6.950	0.2431	0.61	.	Q	V	.	.	.	.
6.967	0.2439	0.61	.	Q	V	.	.	.	.
6.983	0.2447	0.61	.	Q	V	.	.	.	.
7.000	0.2456	0.61	.	Q	V	.	.	.	.
7.017	0.2464	0.61	.	Q	V	.	.	.	.
7.033	0.2472	0.61	.	Q	V	.	.	.	.
7.050	0.2481	0.61	.	Q	V	.	.	.	.
7.067	0.2489	0.61	.	Q	V	.	.	.	.
7.083	0.2498	0.61	.	Q	V	.	.	.	.
7.100	0.2506	0.61	.	Q	V	.	.	.	.
7.117	0.2514	0.61	.	Q	V	.	.	.	.
7.133	0.2523	0.61	.	Q	V	.	.	.	.
7.150	0.2531	0.61	.	Q	V	.	.	.	.
7.167	0.2540	0.61	.	Q	V	.	.	.	.
7.183	0.2548	0.61	.	Q	V	.	.	.	.
7.200	0.2557	0.61	.	Q	V	.	.	.	.
7.217	0.2565	0.61	.	Q	V	.	.	.	.
7.233	0.2573	0.62	.	Q	V	.	.	.	.
7.250	0.2582	0.62	.	Q	V	.	.	.	.
7.267	0.2590	0.62	.	Q	V	.	.	.	.
7.283	0.2599	0.62	.	Q	V	.	.	.	.
7.300	0.2607	0.62	.	Q	V	.	.	.	.
7.317	0.2616	0.62	.	Q	V	.	.	.	.
7.333	0.2625	0.62	.	Q	V	.	.	.	.
7.350	0.2633	0.62	.	Q	V	.	.	.	.
7.367	0.2642	0.62	.	Q	V	.	.	.	.
7.383	0.2650	0.62	.	Q	V	.	.	.	.
7.400	0.2659	0.62	.	Q	V	.	.	.	.
7.417	0.2667	0.62	.	Q	V	.	.	.	.
7.433	0.2676	0.62	.	Q	V	.	.	.	.
7.450	0.2684	0.62	.	Q	V	.	.	.	.
7.467	0.2693	0.62	.	Q	V	.	.	.	.
7.483	0.2702	0.62	.	Q	V	.	.	.	.
7.500	0.2710	0.62	.	Q	V	.	.	.	.
7.517	0.2719	0.62	.	Q	V	.	.	.	.
7.533	0.2727	0.63	.	Q	V	.	.	.	.
7.550	0.2736	0.63	.	Q	V	.	.	.	.
7.567	0.2745	0.63	.	Q	V	.	.	.	.
7.583	0.2753	0.63	.	Q	V	.	.	.	.
7.600	0.2762	0.63	.	Q	V	.	.	.	.
7.617	0.2771	0.63	.	Q	V	.	.	.	.
7.633	0.2779	0.63	.	Q	V	.	.	.	.
7.650	0.2788	0.63	.	Q	V	.	.	.	.
7.667	0.2797	0.63	.	Q	V	.	.	.	.
7.683	0.2805	0.63	.	Q	V	.	.	.	.
7.700	0.2814	0.63	.	Q	V	.	.	.	.
7.717	0.2823	0.63	.	Q	V	.	.	.	.
7.733	0.2831	0.63	.	Q	V	.	.	.	.
7.750	0.2840	0.63	.	Q	V	.	.	.	.
7.767	0.2849	0.63	.	Q	V	.	.	.	.
7.783	0.2858	0.63	.	Q	V	.	.	.	.
7.800	0.2866	0.64	.	Q	V	.	.	.	.
7.817	0.2875	0.64	.	Q	V	.	.	.	.
7.833	0.2884	0.64	.	Q	V	.	.	.	.
7.850	0.2893	0.64	.	Q	V	.	.	.	.
7.867	0.2901	0.64	.	Q	V	.	.	.	.
7.883	0.2910	0.64	.	Q	V	.	.	.	.
7.900	0.2919	0.64	.	Q	V	.	.	.	.
7.917	0.2928	0.64	.	Q	V	.	.	.	.
7.933	0.2937	0.64	.	Q	V	.	.	.	.
7.950	0.2946	0.64	.	Q	V	.	.	.	.
7.967	0.2954	0.64	.	Q	V	.	.	.	.
7.983	0.2963	0.64	.	Q	V	.	.	.	.
8.000	0.2972	0.64	.	Q	V	.	.	.	.
8.017	0.2981	0.64	.	Q	V	.	.	.	.
8.033	0.2990	0.64	.	Q	V	.	.	.	.
8.050	0.2999	0.65	.	Q	V	.	.	.	.
8.067	0.3008	0.65	.	Q	V	.	.	.	.
8.083	0.3016	0.65	.	Q	V	.	.	.	.
8.100	0.3025	0.65	.	Q	V	.	.	.	.
8.117	0.3034	0.65	.	Q	V	.	.	.	.
8.133	0.3043	0.65	.	Q	V	.	.	.	.
8.150	0.3052	0.65	.	Q	V	.	.	.	.
8.167	0.3061	0.65	.	Q	V	.	.	.	.

8.183	0.3070	0.65	. Q	V	.	.	.	.
8.200	0.3079	0.65	. Q	V	.	.	.	.
8.217	0.3088	0.65	. Q	V	.	.	.	.
8.233	0.3097	0.65	. Q	V	.	.	.	.
8.250	0.3106	0.65	. Q	V	.	.	.	.
8.267	0.3115	0.65	. Q	V	.	.	.	.
8.283	0.3124	0.65	. Q	V	.	.	.	.
8.300	0.3133	0.65	. Q	V	.	.	.	.
8.317	0.3142	0.66	. Q	V	.	.	.	.
8.333	0.3151	0.66	. Q	V	.	.	.	.
8.350	0.3160	0.66	. Q	V	.	.	.	.
8.367	0.3169	0.66	. Q	V	.	.	.	.
8.383	0.3178	0.66	. Q	V	.	.	.	.
8.400	0.3187	0.66	. Q	V	.	.	.	.
8.417	0.3196	0.66	. Q	V	.	.	.	.
8.433	0.3206	0.66	. Q	V	.	.	.	.
8.450	0.3215	0.66	. Q	V	.	.	.	.
8.467	0.3224	0.66	. Q	V	.	.	.	.
8.483	0.3233	0.66	. Q	V	.	.	.	.
8.500	0.3242	0.66	. Q	V	.	.	.	.
8.517	0.3251	0.66	. Q	V	.	.	.	.
8.533	0.3260	0.66	. Q	V	.	.	.	.
8.550	0.3269	0.67	. Q	V	.	.	.	.
8.567	0.3279	0.67	. Q	V	.	.	.	.
8.583	0.3288	0.67	. Q	V	.	.	.	.
8.600	0.3297	0.67	. Q	V	.	.	.	.
8.617	0.3306	0.67	. Q	V	.	.	.	.
8.633	0.3315	0.67	. Q	V	.	.	.	.
8.650	0.3325	0.67	. Q	V	.	.	.	.
8.667	0.3334	0.67	. Q	V	.	.	.	.
8.683	0.3343	0.67	. Q	V	.	.	.	.
8.700	0.3352	0.67	. Q	V	.	.	.	.
8.717	0.3362	0.67	. Q	V	.	.	.	.
8.733	0.3371	0.67	. Q	V	.	.	.	.
8.750	0.3380	0.67	. Q	V	.	.	.	.
8.767	0.3390	0.68	. Q	V	.	.	.	.
8.783	0.3399	0.68	. Q	V	.	.	.	.
8.800	0.3408	0.68	. Q	V	.	.	.	.
8.817	0.3417	0.68	. Q	V	.	.	.	.
8.833	0.3427	0.68	. Q	V	.	.	.	.
8.850	0.3436	0.68	. Q	V	.	.	.	.
8.867	0.3446	0.68	. Q	V	.	.	.	.
8.883	0.3455	0.68	. Q	V	.	.	.	.
8.900	0.3464	0.68	. Q	V	.	.	.	.
8.917	0.3474	0.68	. Q	V	.	.	.	.
8.933	0.3483	0.68	. Q	V	.	.	.	.
8.950	0.3492	0.68	. Q	V	.	.	.	.
8.967	0.3502	0.68	. Q	V	.	.	.	.
8.983	0.3511	0.68	. Q	V	.	.	.	.
9.000	0.3521	0.69	. Q	V	.	.	.	.
9.017	0.3530	0.69	. Q	V	.	.	.	.
9.033	0.3540	0.69	. Q	V	.	.	.	.
9.050	0.3549	0.69	. Q	V	.	.	.	.
9.067	0.3559	0.69	. Q	V	.	.	.	.
9.083	0.3568	0.69	. Q	V	.	.	.	.
9.100	0.3578	0.69	. Q	V	.	.	.	.
9.117	0.3587	0.69	. Q	V	.	.	.	.
9.133	0.3597	0.69	. Q	V	.	.	.	.
9.150	0.3606	0.69	. Q	V	.	.	.	.
9.167	0.3616	0.69	. Q	V	.	.	.	.
9.183	0.3625	0.69	. Q	V	.	.	.	.
9.200	0.3635	0.70	. Q	V	.	.	.	.
9.217	0.3645	0.70	. Q	V	.	.	.	.
9.233	0.3654	0.70	. Q	V	.	.	.	.
9.250	0.3664	0.70	. Q	V	.	.	.	.
9.267	0.3673	0.70	. Q	V	.	.	.	.
9.283	0.3683	0.70	. Q	V	.	.	.	.
9.300	0.3693	0.70	. Q	V	.	.	.	.
9.317	0.3702	0.70	. Q	V	.	.	.	.
9.333	0.3712	0.70	. Q	V	.	.	.	.
9.350	0.3722	0.70	. Q	V	.	.	.	.
9.367	0.3731	0.70	. Q	V	.	.	.	.
9.383	0.3741	0.70	. Q	V	.	.	.	.
9.400	0.3751	0.70	. Q	V	.	.	.	.
9.417	0.3760	0.71	. Q	V	.	.	.	.
9.433	0.3770	0.71	. Q	V	.	.	.	.
9.450	0.3780	0.71	. Q	V	.	.	.	.
9.467	0.3790	0.71	. Q	V	.	.	.	.
9.483	0.3799	0.71	. Q	V	.	.	.	.
9.500	0.3809	0.71	. Q	V	.	.	.	.
9.517	0.3819	0.71	. Q	V	.	.	.	.
9.533	0.3829	0.71	. Q	V	.	.	.	.
9.550	0.3839	0.71	. Q	V	.	.	.	.
9.567	0.3849	0.71	. Q	V	.	.	.	.
9.583	0.3858	0.72	. Q	V	.	.	.	.
9.600	0.3868	0.72	. Q	V	.	.	.	.
9.617	0.3878	0.72	. Q	V	.	.	.	.
9.633	0.3888	0.72	. Q	V	.	.	.	.
9.650	0.3898	0.72	. Q	V	.	.	.	.
9.667	0.3908	0.72	. Q	V	.	.	.	.
9.683	0.3918	0.72	. Q	V	.	.	.	.
9.700	0.3928	0.72	. Q	V	.	.	.	.
9.717	0.3938	0.72	. Q	V	.	.	.	.
9.733	0.3948	0.72	. Q	V	.	.	.	.
9.750	0.3958	0.72	. Q	V	.	.	.	.
9.767	0.3967	0.72	. Q	V	.	.	.	.
9.783	0.3977	0.73	. Q	V	.	.	.	.
9.800	0.3987	0.73	. Q	V	.	.	.	.
9.817	0.3997	0.73	. Q	V	.	.	.	.
9.833	0.4008	0.73	. Q	V	.	.	.	.
9.850	0.4018	0.73	. Q	V	.	.	.	.
9.867	0.4028	0.73	. Q	V	.	.	.	.
9.883	0.4038	0.73	. Q	V	.	.	.	.
9.900	0.4048	0.73	. Q	V	.	.	.	.
9.917	0.4058	0.73	. Q	V	.	.	.	.
9.933	0.4068	0.73	. Q	V	.	.	.	.
9.950	0.4078	0.74	. Q	V	.	.	.	.
9.967	0.4088	0.74	. Q	V	.	.	.	.
9.983	0.4098	0.74	. Q	V	.	.	.	.
10.000	0.4109	0.74	. Q	V	.	.	.	.
10.017	0.4119	0.74	. Q	V	.	.	.	.
10.033	0.4129	0.74	. Q	V	.	.	.	.
10.050	0.4139	0.74	. Q	V	.	.	.	.
10.067	0.4149	0.74	. Q	V	.	.	.	.
10.083	0.4160	0.74	. Q	V	.	.	.	.
10.100	0.4170	0.74	. Q	V	.	.	.	.
10.117	0.4180	0.74	. Q	V	.	.	.	.
10.133	0.4190	0.75	. Q	V	.	.	.	.

10.150	0.4201	0.75	.	Q	V	.	.	.
10.167	0.4211	0.75	.	Q	V	.	.	.
10.183	0.4221	0.75	.	Q	V	.	.	.
10.200	0.4232	0.75	.	Q	V	.	.	.
10.217	0.4242	0.75	.	Q	V	.	.	.
10.233	0.4252	0.75	.	Q	V	.	.	.
10.250	0.4263	0.75	.	Q	V	.	.	.
10.267	0.4273	0.75	.	Q	V	.	.	.
10.283	0.4284	0.76	.	Q	V	.	.	.
10.300	0.4294	0.76	.	Q	V	.	.	.
10.317	0.4304	0.76	.	Q	V	.	.	.
10.333	0.4315	0.76	.	Q	V	.	.	.
10.350	0.4325	0.76	.	Q	V	.	.	.
10.367	0.4336	0.76	.	Q	V.	.	.	.
10.383	0.4346	0.76	.	Q	V.	.	.	.
10.400	0.4357	0.76	.	Q	V.	.	.	.
10.417	0.4367	0.76	.	Q	V.	.	.	.
10.433	0.4378	0.76	.	Q	V.	.	.	.
10.450	0.4388	0.77	.	Q	V.	.	.	.
10.467	0.4399	0.77	.	Q	V.	.	.	.
10.483	0.4409	0.77	.	Q	V.	.	.	.
10.500	0.4420	0.77	.	Q	V.	.	.	.
10.517	0.4431	0.77	.	Q	V.	.	.	.
10.533	0.4441	0.77	.	Q	V.	.	.	.
10.550	0.4452	0.77	.	Q	V.	.	.	.
10.567	0.4463	0.77	.	Q	V.	.	.	.
10.583	0.4473	0.77	.	Q	V.	.	.	.
10.600	0.4484	0.78	.	Q	V.	.	.	.
10.617	0.4495	0.78	.	Q	V.	.	.	.
10.633	0.4505	0.78	.	Q	V.	.	.	.
10.650	0.4516	0.78	.	Q	V.	.	.	.
10.667	0.4527	0.78	.	Q	V.	.	.	.
10.683	0.4538	0.78	.	Q	V.	.	.	.
10.700	0.4548	0.78	.	Q	V.	.	.	.
10.717	0.4559	0.78	.	Q	V.	.	.	.
10.733	0.4570	0.79	.	Q	V.	.	.	.
10.750	0.4581	0.79	.	Q	V.	.	.	.
10.767	0.4592	0.79	.	Q	V.	.	.	.
10.783	0.4603	0.79	.	Q	V.	.	.	.
10.800	0.4613	0.79	.	Q	V.	.	.	.
10.817	0.4624	0.79	.	Q	V.	.	.	.
10.833	0.4635	0.79	.	Q	V.	.	.	.
10.850	0.4646	0.79	.	Q	V.	.	.	.
10.867	0.4657	0.79	.	Q	V.	.	.	.
10.883	0.4668	0.80	.	Q	V.	.	.	.
10.900	0.4679	0.80	.	Q	V.	.	.	.
10.917	0.4690	0.80	.	Q	V.	.	.	.
10.933	0.4701	0.80	.	Q	V.	.	.	.
10.950	0.4712	0.80	.	Q	V.	.	.	.
10.967	0.4723	0.80	.	Q	V.	.	.	.
10.983	0.4734	0.80	.	Q	V.	.	.	.
11.000	0.4745	0.80	.	Q	V.	.	.	.
11.017	0.4756	0.81	.	Q	V.	.	.	.
11.033	0.4767	0.81	.	Q	V.	.	.	.
11.050	0.4779	0.81	.	Q	V.	.	.	.
11.067	0.4790	0.81	.	Q	V.	.	.	.
11.083	0.4801	0.81	.	Q	V.	.	.	.
11.100	0.4812	0.81	.	Q	V	.	.	.
11.117	0.4823	0.81	.	Q	V	.	.	.
11.133	0.4835	0.81	.	Q	V	.	.	.
11.150	0.4846	0.82	.	Q	V	.	.	.
11.167	0.4857	0.82	.	Q	V	.	.	.
11.183	0.4868	0.82	.	Q	V	.	.	.
11.200	0.4880	0.82	.	Q	V	.	.	.
11.217	0.4891	0.82	.	Q	V	.	.	.
11.233	0.4902	0.82	.	Q	V	.	.	.
11.250	0.4914	0.82	.	Q	V	.	.	.
11.267	0.4925	0.82	.	Q	V	.	.	.
11.283	0.4936	0.83	.	Q	V	.	.	.
11.300	0.4948	0.83	.	Q	V	.	.	.
11.317	0.4959	0.83	.	Q	V	.	.	.
11.333	0.4971	0.83	.	Q	V	.	.	.
11.350	0.4982	0.83	.	Q	V	.	.	.
11.367	0.4994	0.83	.	Q	V	.	.	.
11.383	0.5005	0.84	.	Q	V	.	.	.
11.400	0.5017	0.84	.	Q	V	.	.	.
11.417	0.5028	0.84	.	Q	V	.	.	.
11.433	0.5040	0.84	.	Q	V	.	.	.
11.450	0.5051	0.84	.	Q	V	.	.	.
11.467	0.5063	0.84	.	Q	V	.	.	.
11.483	0.5075	0.84	.	Q	V	.	.	.
11.500	0.5086	0.85	.	Q	V	.	.	.
11.517	0.5098	0.85	.	Q	V	.	.	.
11.533	0.5110	0.85	.	Q	V	.	.	.
11.550	0.5121	0.85	.	Q	V	.	.	.
11.567	0.5133	0.85	.	Q	V	.	.	.
11.583	0.5145	0.85	.	Q	V	.	.	.
11.600	0.5156	0.85	.	Q	V	.	.	.
11.617	0.5168	0.86	.	Q	V	.	.	.
11.633	0.5180	0.86	.	Q	V	.	.	.
11.650	0.5192	0.86	.	Q	V	.	.	.
11.667	0.5204	0.86	.	Q	V	.	.	.
11.683	0.5216	0.86	.	Q	V	.	.	.
11.700	0.5227	0.86	.	Q	V	.	.	.
11.717	0.5239	0.86	.	Q	V	.	.	.
11.733	0.5251	0.87	.	Q	V	.	.	.
11.750	0.5263	0.87	.	Q	V	.	.	.
11.767	0.5275	0.87	.	Q	V	.	.	.
11.783	0.5287	0.87	.	Q	V	.	.	.
11.800	0.5299	0.87	.	Q	.V	.	.	.
11.817	0.5311	0.87	.	Q	.V	.	.	.
11.833	0.5323	0.88	.	Q	.V	.	.	.
11.850	0.5336	0.88	.	Q	.V	.	.	.
11.867	0.5348	0.88	.	Q	.V	.	.	.
11.883	0.5360	0.88	.	Q	.V	.	.	.
11.900	0.5372	0.88	.	Q	.V	.	.	.
11.917	0.5384	0.88	.	Q	.V	.	.	.
11.933	0.5396	0.89	.	Q	.V	.	.	.
11.950	0.5409	0.89	.	Q	.V	.	.	.
11.967	0.5421	0.89	.	Q	.V	.	.	.
11.983	0.5433	0.89	.	Q	.V	.	.	.
12.000	0.5445	0.89	.	Q	.V	.	.	.
12.017	0.5458	0.89	.	Q	.V	.	.	.
12.033	0.5470	0.89	.	Q	.V	.	.	.
12.050	0.5482	0.90	.	Q	.V	.	.	.
12.067	0.5495	0.90	.	Q	.V	.	.	.
12.083	0.5507	0.90	.	Q	.V	.	.	.
12.100	0.5519	0.90	.	Q	.V	.	.	.

12.117	0.5532	0.90	.	Q	.V	.	.	.
12.133	0.5544	0.90	.	Q	.V	.	.	.
12.150	0.5557	0.91	.	Q	.V	.	.	.
12.167	0.5569	0.91	.	Q	.V	.	.	.
12.183	0.5582	0.91	.	Q	.V	.	.	.
12.200	0.5594	0.91	.	Q	.V	.	.	.
12.217	0.5607	0.91	.	Q	.V	.	.	.
12.233	0.5619	0.91	.	Q	.V	.	.	.
12.250	0.5632	0.91	.	Q	.V	.	.	.
12.267	0.5644	0.91	.	Q	.V	.	.	.
12.283	0.5657	0.91	.	Q	.V	.	.	.
12.300	0.5669	0.91	.	Q	.V	.	.	.
12.317	0.5682	0.91	.	Q	.V	.	.	.
12.333	0.5694	0.91	.	Q	.V	.	.	.
12.350	0.5707	0.91	.	Q	.V	.	.	.
12.367	0.5720	0.91	.	Q	.V	.	.	.
12.383	0.5732	0.91	.	Q	.V	.	.	.
12.400	0.5745	0.91	.	Q	.V	.	.	.
12.417	0.5757	0.91	.	Q	.V	.	.	.
12.433	0.5770	0.92	.	Q	.V	.	.	.
12.450	0.5783	0.92	.	Q	. V	.	.	.
12.467	0.5795	0.92	.	Q	. V	.	.	.
12.483	0.5808	0.92	.	Q	. V	.	.	.
12.500	0.5821	0.92	.	Q	. V	.	.	.
12.517	0.5833	0.92	.	Q	. V	.	.	.
12.533	0.5846	0.93	.	Q	. V	.	.	.
12.550	0.5859	0.93	.	Q	. V	.	.	.
12.567	0.5872	0.93	.	Q	. V	.	.	.
12.583	0.5884	0.93	.	Q	. V	.	.	.
12.600	0.5897	0.93	.	Q	. V	.	.	.
12.617	0.5910	0.93	.	Q	. V	.	.	.
12.633	0.5923	0.93	.	Q	. V	.	.	.
12.650	0.5936	0.94	.	Q	. V	.	.	.
12.667	0.5949	0.94	.	Q	. V	.	.	.
12.683	0.5962	0.94	.	Q	. V	.	.	.
12.700	0.5975	0.94	.	Q	. V	.	.	.
12.717	0.5988	0.94	.	Q	. V	.	.	.
12.733	0.6001	0.95	.	Q	. V	.	.	.
12.750	0.6014	0.95	.	Q	. V	.	.	.
12.767	0.6027	0.95	.	Q	. V	.	.	.
12.783	0.6040	0.95	.	Q	. V	.	.	.
12.800	0.6053	0.95	.	Q	. V	.	.	.
12.817	0.6066	0.96	.	Q	. V	.	.	.
12.833	0.6080	0.96	.	Q	. V	.	.	.
12.850	0.6093	0.96	.	Q	. V	.	.	.
12.867	0.6106	0.96	.	Q	. V	.	.	.
12.883	0.6119	0.97	.	Q	. V	.	.	.
12.900	0.6133	0.97	.	Q	. V	.	.	.
12.917	0.6146	0.97	.	Q	. V	.	.	.
12.933	0.6160	0.97	.	Q	. V	.	.	.
12.950	0.6173	0.98	.	Q	. V	.	.	.
12.967	0.6186	0.98	.	Q	. V	.	.	.
12.983	0.6200	0.98	.	Q	. V	.	.	.
13.000	0.6214	0.98	.	Q	. V	.	.	.
13.017	0.6227	0.99	.	Q	. V	.	.	.
13.033	0.6241	0.99	.	Q	. V	.	.	.
13.050	0.6254	0.99	.	Q	. V	.	.	.
13.067	0.6268	0.99	.	Q	. V	.	.	.
13.083	0.6282	0.99	.	Q	. V	.	.	.
13.100	0.6295	1.00	.	Q	. V	.	.	.
13.117	0.6309	1.00	.	Q	. V	.	.	.
13.133	0.6323	1.00	.	Q	. V	.	.	.
13.150	0.6337	1.01	.	Q	. V	.	.	.
13.167	0.6351	1.01	.	Q	. V	.	.	.
13.183	0.6365	1.01	.	Q	. V	.	.	.
13.200	0.6379	1.01	.	Q	. V	.	.	.
13.217	0.6393	1.02	.	Q	. V	.	.	.
13.233	0.6407	1.02	.	Q	. V	.	.	.
13.250	0.6421	1.02	.	Q	. V	.	.	.
13.267	0.6435	1.03	.	Q	. V	.	.	.
13.283	0.6449	1.03	.	Q	. V	.	.	.
13.300	0.6463	1.03	.	Q	. V	.	.	.
13.317	0.6478	1.04	.	Q	. V	.	.	.
13.333	0.6492	1.04	.	Q	. V	.	.	.
13.350	0.6506	1.04	.	Q	. V	.	.	.
13.367	0.6521	1.04	.	Q	. V	.	.	.
13.383	0.6535	1.05	.	Q	. V	.	.	.
13.400	0.6549	1.05	.	Q	. V	.	.	.
13.417	0.6564	1.05	.	Q	. V	.	.	.
13.433	0.6578	1.05	.	Q	. V	.	.	.
13.450	0.6593	1.06	.	Q	. V	.	.	.
13.467	0.6608	1.06	.	Q	. V	.	.	.
13.483	0.6622	1.06	.	Q	. V	.	.	.
13.500	0.6637	1.07	.	Q	. V	.	.	.
13.517	0.6652	1.07	.	Q	. V	.	.	.
13.533	0.6667	1.07	.	Q	. V	.	.	.
13.550	0.6681	1.08	.	Q	. V	.	.	.
13.567	0.6696	1.08	.	Q	. V	.	.	.
13.583	0.6711	1.09	.	Q	. V	.	.	.
13.600	0.6726	1.09	.	Q	. V	.	.	.
13.617	0.6741	1.09	.	Q	. V	.	.	.
13.633	0.6756	1.10	.	Q	. V	.	.	.
13.650	0.6772	1.10	.	Q	. V	.	.	.
13.667	0.6787	1.10	.	Q	. V	.	.	.
13.683	0.6802	1.11	.	Q	. V	.	.	.
13.700	0.6817	1.11	.	Q	. V	.	.	.
13.717	0.6833	1.11	.	Q	. V	.	.	.
13.733	0.6848	1.12	.	Q	. V	.	.	.
13.750	0.6863	1.12	.	Q	. V	.	.	.
13.767	0.6879	1.12	.	Q	. V	.	.	.
13.783	0.6894	1.13	.	Q	. V	.	.	.
13.800	0.6910	1.13	.	Q	. V	.	.	.
13.817	0.6926	1.13	.	Q	. V	.	.	.
13.833	0.6941	1.14	.	Q	. V	.	.	.
13.850	0.6957	1.14	.	Q	. V	.	.	.
13.867	0.6973	1.15	.	Q	. V	.	.	.
13.883	0.6989	1.15	.	Q	. V	.	.	.
13.900	0.7005	1.15	.	Q	. V	.	.	.
13.917	0.7021	1.16	.	Q	. V	.	.	.
13.933	0.7037	1.16	.	Q	. V	.	.	.
13.950	0.7053	1.17	.	Q	. V	.	.	.
13.967	0.7069	1.17	.	Q	. V	.	.	.
13.983	0.7085	1.18	.	Q	. V	.	.	.
14.000	0.7101	1.18	.	Q	. V	.	.	.
14.017	0.7118	1.19	.	Q	. V	.	.	.
14.033	0.7134	1.19	.	Q	. V	.	.	.
14.050	0.7151	1.20	.	Q	. V	.	.	.
14.067	0.7167	1.20	.	Q	. V	.	.	.

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14.083      0.7184      1.20  .   Q     .   V     .         .         .
14.100      0.7200      1.21  .   Q     .   V     .         .         .
14.117      0.7217      1.21  .   Q     .   V     .         .         .
14.133      0.7234      1.22  .   Q     .    V    .         .         .
14.150      0.7251      1.22  .   Q     .    V    .         .         .
14.167      0.7267      1.22  .   Q     .    V    .         .         .
14.183      0.7284      1.23  .   Q     .    V    .         .         .
14.200      0.7301      1.23  .   Q     .    V    .         .         .
14.217      0.7318      1.23  .   Q     .    V    .         .         .
14.233      0.7335      1.23  .   Q     .    V    .         .         .
14.250      0.7352      1.24  .   Q     .    V    .         .         .
14.267      0.7369      1.24  .   Q     .    V    .         .         .
14.283      0.7386      1.24  .   Q     .    V    .         .         .
14.300      0.7404      1.24  .   Q     .    V    .         .         .
14.317      0.7421      1.25  .   Q     .    V    .         .         .
14.333      0.7438      1.25  .   Q     .    V    .         .         .
14.350      0.7455      1.25  .    Q    .    V    .         .         .
14.367      0.7472      1.25  .    Q    .    V    .         .         .
14.383      0.7490      1.26  .    Q    .    V    .         .         .
14.400      0.7507      1.26  .    Q    .    V    .         .         .
14.417      0.7524      1.26  .    Q    .    V    .         .         .
14.433      0.7542      1.26  .    Q    .    V    .         .         .
14.450      0.7559      1.27  .    Q    .    V    .         .         .
14.467      0.7577      1.27  .    Q    .    V    .         .         .
14.483      0.7594      1.27  .    Q    .    V    .         .         .
14.500      0.7612      1.28  .    Q    .    V    .         .         .
14.517      0.7630      1.28  .    Q    .    V    .         .         .
14.533      0.7647      1.29  .    Q    .    V    .         .         .
14.550      0.7665      1.29  .    Q    .    V    .         .         .
14.567      0.7683      1.29  .    Q    .    V    .         .         .
14.583      0.7701      1.30  .    Q    .     V   .         .         .
14.600      0.7719      1.30  .    Q    .     V   .         .         .
14.617      0.7737      1.31  .    Q    .     V   .         .         .
14.633      0.7755      1.32  .    Q    .     V   .         .         .
14.650      0.7773      1.32  .    Q    .     V   .         .         .
14.667      0.7792      1.33  .    Q    .     V   .         .         .
14.683      0.7810      1.34  .    Q    .     V   .         .         .
14.700      0.7829      1.35  .    Q    .     V   .         .         .
14.717      0.7847      1.35  .    Q    .     V   .         .         .
14.733      0.7866      1.36  .    Q    .     V   .         .         .
14.750      0.7885      1.37  .    Q    .     V   .         .         .
14.767      0.7904      1.38  .    Q    .     V   .         .         .
14.783      0.7923      1.38  .    Q    .     V   .         .         .
14.800      0.7942      1.39  .    Q    .     V   .         .         .
14.817      0.7961      1.40  .    Q    .     V   .         .         .
14.833      0.7981      1.41  .    Q    .     V   .         .         .
14.850      0.8000      1.41  .    Q    .     V   .         .         .
14.867      0.8020      1.42  .    Q    .     V   .         .         .
14.883      0.8039      1.43  .    Q    .     V   .         .         .
14.900      0.8059      1.43  .    Q    .     V   .         .         .
14.917      0.8079      1.44  .    Q    .     V   .         .         .
14.933      0.8099      1.45  .    Q    .     V   .         .         .
14.950      0.8119      1.46  .    Q    .     V   .         .         .
14.967      0.8139      1.47  .    Q    .     V   .         .         .
14.983      0.8160      1.48  .    Q    .     V   .         .         .
15.000      0.8180      1.49  .    Q    .     V   .         .         .
15.017      0.8201      1.50  .     Q   .      V  .         .         .
15.033      0.8222      1.51  .     Q   .      V  .         .         .
15.050      0.8243      1.53  .     Q   .      V  .         .         .
15.067      0.8264      1.54  .     Q   .      V  .         .         .
15.083      0.8285      1.55  .     Q   .      V  .         .         .
15.100      0.8307      1.56  .     Q   .      V  .         .         .
15.117      0.8328      1.58  .     Q   .      V  .         .         .
15.133      0.8350      1.59  .     Q   .      V  .         .         .
15.150      0.8372      1.60  .     Q   .      V  .         .         .
15.167      0.8395      1.61  .     Q   .      V  .         .         .
15.183      0.8417      1.62  .     Q   .      V  .         .         .
15.200      0.8439      1.64  .     Q   .      V  .         .         .
15.217      0.8462      1.65  .     Q   .      V  .         .         .
15.233      0.8485      1.66  .     Q   .      V  .         .         .
15.250      0.8508      1.67  .     Q   .      V  .         .         .
15.267      0.8531      1.68  .     Q   .      V  .         .         .
15.283      0.8555      1.70  .     Q   .      V  .         .         .
15.300      0.8578      1.72  .     Q   .      V  .         .         .
15.317      0.8602      1.74  .     Q   .      V  .         .         .
15.333      0.8627      1.76  .      Q  .      V  .         .         .
15.350      0.8651      1.79  .      Q  .      V  .         .         .
15.367      0.8676      1.81  .      Q  .       V .         .         .
15.383      0.8702      1.85  .      Q  .       V .         .         .
15.400      0.8727      1.88  .      Q  .       V .         .         .
15.417      0.8754      1.91  .      Q  .       V .         .         .
15.433      0.8781      1.95  .      Q  .       V .         .         .
15.450      0.8808      1.99  .      Q  .       V .         .         .
15.467      0.8836      2.03  .       Q .       V .         .         .
15.483      0.8864      2.07  .       Q .       V .         .         .
15.500      0.8894      2.12  .       Q .       V .         .         .
15.517      0.8923      2.17  .       Q .       V .         .         .
15.533      0.8954      2.22  .       Q .       V .         .         .
15.550      0.8985      2.27  .        Q.       V .         .         .
15.567      0.9017      2.33  .        Q.       V .         .         .
15.583      0.9050      2.38  .        Q.       V .         .         .
15.600      0.9084      2.44  .        Q.       V .         .         .
15.617      0.9118      2.50  .         Q       V .         .         .
15.633      0.9154      2.57  .         Q        V.         .         .
15.650      0.9190      2.63  .         Q        V.         .         .
15.667      0.9227      2.69  .         Q        V.         .         .
15.683      0.9264      2.72  .         Q        V.         .         .
15.700      0.9302      2.74  .         Q        V.         .         .
15.717      0.9340      2.77  .         .Q       V.         .         .
15.733      0.9379      2.79  .         .Q       V.         .         .
15.750      0.9417      2.82  .         .Q       V.         .         .
15.767      0.9457      2.84  .         .Q       V.         .         .
15.783      0.9496      2.87  .         .Q       V.         .         .
15.800      0.9536      2.90  .         .Q       V.         .         .
15.817      0.9577      2.93  .         .Q       V.         .         .
15.833      0.9617      2.96  .         .Q       V.         .         .
15.850      0.9659      3.00  .         .Q        V         .         .
15.867      0.9700      3.03  .         . Q       V         .         .
15.883      0.9743      3.07  .         . Q       V         .         .
15.900      0.9785      3.10  .         . Q       V         .         .
15.917      0.9829      3.14  .         . Q       V         .         .
15.933      0.9872      3.18  .         . Q       V         .         .
15.950      0.9917      3.23  .         . Q       V         .         .
15.967      0.9962      3.27  .         .  Q      V         .         .
15.983      1.0008      3.32  .         .  Q      V         .         .
16.000      1.0054      3.36  .         .  Q      V         .         .
16.017      1.0101      3.41  .         .  Q      V         .         .
16.033      1.0149      3.48  .         .  Q      .V        .         .
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16.050    1.0198    3.55  .       .   Q     .V       .       .
16.067    1.0248    3.64  .       .   Q     .V       .       .
16.083    1.0300    3.74  .       .   Q     .V       .       .
16.100    1.0353    3.86  .       .    Q    .V       .       .
16.117    1.0408    3.98  .       .    Q    .V       .       .
16.133    1.0464    4.12  .       .     Q   .V       .       .
16.150    1.0523    4.27  .       .      Q  .V       .       .
16.167    1.0584    4.44  .       .      Q  .V       .       .
16.183    1.0648    4.61  .       .       Q . V      .       .
16.200    1.0713    4.77  .       .        Q. V      .       .
16.217    1.0781    4.88  .       .        Q. V      .       .
16.233    1.0849    4.95  .       .        Q. V      .       .
16.250    1.0918    5.02  .       .         Q V      .       .
16.267    1.0988    5.07  .       .         Q V      .       .
16.283    1.1058    5.11  .       .         Q V      .       .
16.300    1.1129    5.15  .       .         Q  V     .       .
16.317    1.1201    5.17  .       .         Q  V     .       .
16.333    1.1272    5.19  .       .         Q  V     .       .
16.350    1.1344    5.20  .       .         Q  V     .       .
16.367    1.1415    5.20  .       .         Q  V     .       .
16.383    1.1487    5.18  .       .         Q  V     .       .
16.400    1.1558    5.17  .       .         Q   V    .       .
16.417    1.1629    5.15  .       .         Q   V    .       .
16.433    1.1700    5.13  .       .         Q   V    .       .
16.450    1.1770    5.11  .       .         Q   V    .       .
16.467    1.1840    5.09  .       .         Q   V    .       .
16.483    1.1910    5.07  .       .         Q   V    .       .
16.500    1.1979    5.04  .       .         Q   V    .       .
16.517    1.2048    5.01  .       .         Q    V   .       .
16.533    1.2117    4.98  .       .        Q.    V   .       .
16.550    1.2185    4.95  .       .        Q.    V   .       .
16.567    1.2253    4.92  .       .        Q.    V   .       .
16.583    1.2320    4.89  .       .        Q.    V   .       .
16.600    1.2387    4.86  .       .        Q.    V   .       .
16.617    1.2454    4.82  .       .        Q.    V   .       .
16.633    1.2520    4.78  .       .        Q.     V  .       .
16.650    1.2584    4.71  .       .       Q .     V  .       .
16.667    1.2648    4.65  .       .       Q .     V  .       .
16.683    1.2712    4.58  .       .       Q .     V  .       .
16.700    1.2774    4.52  .       .       Q .     V  .       .
16.717    1.2835    4.45  .       .      Q  .     V  .       .
16.733    1.2895    4.39  .       .      Q  .     V  .       .
16.750    1.2955    4.33  .       .      Q  .     V  .       .
16.767    1.3014    4.26  .       .      Q  .      V .       .
16.783    1.3072    4.20  .       .     Q   .      V .       .
16.800    1.3129    4.14  .       .     Q   .      V .       .
16.817    1.3185    4.08  .       .     Q   .      V .       .
16.833    1.3240    4.02  .       .     Q   .      V .       .
16.850    1.3295    3.97  .       .    Q    .      V .       .
16.867    1.3349    3.91  .       .    Q    .      V .       .
16.883    1.3402    3.85  .       .    Q    .      V .       .
16.900    1.3454    3.80  .       .    Q    .      V .       .
16.917    1.3506    3.75  .       .   Q     .       V.       .
16.933    1.3557    3.69  .       .   Q     .       V.       .
16.950    1.3607    3.64  .       .   Q     .       V.       .
16.967    1.3656    3.59  .       .   Q     .       V.       .
16.983    1.3705    3.54  .       .   Q     .       V.       .
17.000    1.3753    3.49  .       .  Q      .       V.       .
17.017    1.3800    3.44  .       .  Q      .       V.       .
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17.033    1.3847    3.39  .       .  Q      .       V .      .
17.050    1.3893    3.34  .       .  Q      .       V .      .
17.067    1.3938    3.29  .       .  Q      .       V .      .
17.083    1.3983    3.25  .       . Q       .        V.      .
17.100    1.4027    3.20  .       . Q       .        V.      .
17.117    1.4071    3.16  .       . Q       .        V.      .
17.133    1.4114    3.11  .       . Q       .        V.      .
17.150    1.4156    3.07  .       . Q       .        V.      .
17.167    1.4198    3.03  .       . Q       .        V.      .
17.183    1.4239    2.99  .       .Q        .        V.      .
17.200    1.4279    2.95  .       .Q        .        V.      .
17.217    1.4319    2.91  .       .Q        .        V.      .
17.233    1.4359    2.87  .       .Q        .        V.      .
17.250    1.4398    2.83  .       .Q        .        V.      .
17.267    1.4436    2.79  .       .Q        .         V      .
17.283    1.4474    2.76  .       .Q        .         V      .
17.300    1.4512    2.72  .       Q         .         V      .
17.317    1.4548    2.66  .       Q         .         V      .
17.333    1.4584    2.56  .       Q         .         V      .
17.350    1.4618    2.47  .      Q.         .         V      .
17.367    1.4650    2.38  .      Q.         .         V      .
17.383    1.4682    2.30  .      Q.         .         V      .
17.400    1.4713    2.22  .     Q .         .         V      .
17.417    1.4742    2.14  .     Q .         .         V      .
17.433    1.4771    2.08  .     Q .         .         V      .
17.450    1.4798    2.01  .     Q .         .         V      .
17.467    1.4825    1.95  .    Q  .         .         V      .
17.483    1.4851    1.89  .    Q  .         .         V      .
17.500    1.4877    1.84  .    Q  .         .         V      .
17.517    1.4901    1.79  .    Q  .         .         V      .
17.533    1.4925    1.74  .   Q   .         .         .V     .
17.550    1.4949    1.70  .   Q   .         .         .V     .
17.567    1.4972    1.66  .   Q   .         .         .V     .
17.583    1.4994    1.62  .   Q   .         .         .V     .
17.600    1.5016    1.58  .   Q   .         .         .V     .
17.617    1.5037    1.54  .   Q   .         .         .V     .
17.633    1.5058    1.51  .   Q   .         .         .V     .
17.650    1.5078    1.48  .  Q    .         .         .V     .
17.667    1.5098    1.45  .  Q    .         .         .V     .
17.683    1.5118    1.42  .  Q    .         .         .V     .
17.700    1.5137    1.40  .  Q    .         .         .V     .
17.717    1.5156    1.37  .  Q    .         .         .V     .
17.733    1.5174    1.35  .  Q    .         .         .V     .
17.750    1.5193    1.32  .  Q    .         .         .V     .
17.767    1.5211    1.30  .  Q    .         .         .V     .
17.783    1.5228    1.28  .  Q    .         .         .V     .
17.800    1.5246    1.26  .  Q    .         .         .V     .
17.817    1.5263    1.25  . Q     .         .         .V     .
17.833    1.5280    1.23  . Q     .         .         .V     .
17.850    1.5296    1.21  . Q     .         .         .V     .
17.867    1.5313    1.20  . Q     .         .         .V     .
17.883    1.5329    1.18  . Q     .         .         .V     .
17.900    1.5345    1.17  . Q     .         .         .V     .
17.917    1.5361    1.15  . Q     .         .         .V     .
17.933    1.5377    1.14  . Q     .         .         .V     .
17.950    1.5392    1.13  . Q     .         .         .V     .
17.967    1.5408    1.11  . Q     .         .         . V    .
17.983    1.5423    1.10  . Q     .         .         . V    .
18.000    1.5438    1.09  . Q     .         .         . V    .
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18.017	1.5453	1.08	.	Q	.	.	.	V	.	
18.033	1.5467	1.07	.	Q	.	.	.	V	.	
18.050	1.5482	1.06	.	Q	.	.	.	V	.	
18.067	1.5497	1.05	.	Q	.	.	.	V	.	
18.083	1.5511	1.04	.	Q	.	.	.	V	.	
18.100	1.5525	1.04	.	Q	.	.	.	V	.	
18.117	1.5539	1.03	.	Q	.	.	.	V	.	
18.133	1.5553	1.02	.	Q	.	.	.	V	.	
18.150	1.5567	1.01	.	Q	.	.	.	V	.	
18.167	1.5581	1.01	.	Q	.	.	.	V	.	
18.183	1.5595	1.00	.	Q	.	.	.	V	.	
18.200	1.5609	1.00	.	Q	.	.	.	V	.	
18.217	1.5622	0.99	.	Q	.	.	.	V	.	
18.233	1.5636	0.99	.	Q	.	.	.	V	.	
18.250	1.5650	0.98	.	Q	.	.	.	V	.	
18.267	1.5663	0.98	.	Q	.	.	.	V	.	
18.283	1.5676	0.97	.	Q	.	.	.	V	.	
18.300	1.5690	0.97	.	Q	.	.	.	V	.	
18.317	1.5703	0.96	.	Q	.	.	.	V	.	
18.333	1.5716	0.96	.	Q	.	.	.	V	.	
18.350	1.5729	0.95	.	Q	.	.	.	V	.	
18.367	1.5742	0.95	.	Q	.	.	.	V	.	
18.383	1.5755	0.95	.	Q	.	.	.	V	.	
18.400	1.5768	0.94	.	Q	.	.	.	V	.	
18.417	1.5781	0.94	.	Q	.	.	.	V	.	
18.433	1.5794	0.93	.	Q	.	.	.	V	.	
18.450	1.5807	0.93	.	Q	.	.	.	V	.	
18.467	1.5820	0.93	.	Q	.	.	.	V	.	
18.483	1.5832	0.92	.	Q	.	.	.	V	.	
18.500	1.5845	0.92	.	Q	.	.	.	V	.	
18.517	1.5858	0.91	.	Q	.	.	.	V	.	
18.533	1.5870	0.91	.	Q	.	.	.	V	.	
18.550	1.5883	0.91	.	Q	.	.	.	V	.	
18.567	1.5895	0.90	.	Q	.	.	.	V	.	
18.583	1.5908	0.90	.	Q	.	.	.	V	.	
18.600	1.5920	0.90	.	Q	.	.	.	V	.	
18.617	1.5932	0.89	.	Q	.	.	.	V	.	
18.633	1.5944	0.89	.	Q	.	.	.	V	.	
18.650	1.5957	0.89	.	Q	.	.	.	V	.	
18.667	1.5969	0.88	.	Q	.	.	.	V	.	
18.683	1.5981	0.88	.	Q	.	.	.	V	.	
18.700	1.5993	0.88	.	Q	.	.	.	V	.	
18.717	1.6005	0.87	.	Q	.	.	.	V	.	
18.733	1.6017	0.87	.	Q	.	.	.	V	.	
18.750	1.6029	0.87	.	Q	.	.	.	V	.	
18.767	1.6041	0.86	.	Q	.	.	.	V	.	
18.783	1.6053	0.86	.	Q	.	.	.	V	.	
18.800	1.6064	0.86	.	Q	.	.	.	V	.	
18.817	1.6076	0.85	.	Q	.	.	.	V	.	
18.833	1.6088	0.85	.	Q	.	.	.	V	.	
18.850	1.6100	0.85	.	Q	.	.	.	V	.	
18.867	1.6111	0.84	.	Q	.	.	.	V	.	
18.883	1.6123	0.84	.	Q	.	.	.	V	.	
18.900	1.6134	0.84	.	Q	.	.	.	V	.	
18.917	1.6146	0.84	.	Q	.	.	.	V	.	
18.933	1.6157	0.83	.	Q	.	.	.	V	.	
18.950	1.6169	0.83	.	Q	.	.	.	V	.	
18.967	1.6180	0.83	.	Q	.	.	.	V	.	
18.983	1.6192	0.82	.	Q	.	.	.	V	.	
19.000	1.6203	0.82	.	Q	.	.	.	V	.	
19.017	1.6214	0.82	.	Q	.	.	.	V	.	
19.033	1.6225	0.82	.	Q	.	.	.	V	.	
19.050	1.6237	0.81	.	Q	.	.	.	V	.	
19.067	1.6248	0.81	.	Q	.	.	.	V	.	
19.083	1.6259	0.81	.	Q	.	.	.	V	.	
19.100	1.6270	0.81	.	Q	.	.	.	V	.	
19.117	1.6281	0.80	.	Q	.	.	.	V	.	
19.133	1.6292	0.80	.	Q	.	.	.	V	.	
19.150	1.6303	0.80	.	Q	.	.	.	V	.	
19.167	1.6314	0.80	.	Q	.	.	.	V	.	
19.183	1.6325	0.79	.	Q	.	.	.	V	.	
19.200	1.6336	0.79	.	Q	.	.	.	V	.	
19.217	1.6347	0.79	.	Q	.	.	.	V	.	
19.233	1.6358	0.79	.	Q	.	.	.	V	.	
19.250	1.6368	0.78	.	Q	.	.	.	V	.	
19.267	1.6379	0.78	.	Q	.	.	.	V	.	
19.283	1.6390	0.78	.	Q	.	.	.	V	.	
19.300	1.6401	0.78	.	Q	.	.	.	V	.	
19.317	1.6411	0.78	.	Q	.	.	.	V	.	
19.333	1.6422	0.77	.	Q	.	.	.	V	.	
19.350	1.6433	0.77	.	Q	.	.	.	V	.	
19.367	1.6443	0.77	.	Q	.	.	.	V	.	
19.383	1.6454	0.77	.	Q	.	.	.	V	.	
19.400	1.6464	0.76	.	Q	.	.	.	V	.	
19.417	1.6475	0.76	.	Q	.	.	.	V	.	
19.433	1.6485	0.76	.	Q	.	.	.	V	.	
19.450	1.6496	0.76	.	Q	.	.	.	V	.	
19.467	1.6506	0.76	.	Q	.	.	.	V	.	
19.483	1.6516	0.75	.	Q	.	.	.	V	.	
19.500	1.6527	0.75	.	Q	.	.	.	V	.	
19.517	1.6537	0.75	.	Q	.	.	.	V	.	
19.533	1.6547	0.75	.	Q	.	.	.	V	.	
19.550	1.6558	0.75	.	Q	.	.	.	V	.	
19.567	1.6568	0.74	.	Q	.	.	.	V	.	
19.583	1.6578	0.74	.	Q	.	.	.	V	.	
19.600	1.6588	0.74	.	Q	.	.	.	V	.	
19.617	1.6598	0.74	.	Q	.	.	.	V	.	
19.633	1.6609	0.74	.	Q	.	.	.	V	.	
19.650	1.6619	0.73	.	Q	.	.	.	V	.	
19.667	1.6629	0.73	.	Q	.	.	.	V	.	
19.683	1.6639	0.73	.	Q	.	.	.	V	.	
19.700	1.6649	0.73	.	Q	.	.	.	V	.	
19.717	1.6659	0.73	.	Q	.	.	.	V	.	
19.733	1.6669	0.72	.	Q	.	.	.	V	.	
19.750	1.6679	0.72	.	Q	.	.	.	V	.	
19.767	1.6689	0.72	.	Q	.	.	.	V	.	
19.783	1.6699	0.72	.	Q	.	.	.	V	.	
19.800	1.6708	0.72	.	Q	.	.	.	V	.	
19.817	1.6718	0.71	.	Q	.	.	.	V	.	
19.833	1.6728	0.71	.	Q	.	.	.	V	.	
19.850	1.6738	0.71	.	Q	.	.	.	V	.	
19.867	1.6748	0.71	.	Q	.	.	.	V	.	
19.883	1.6757	0.71	.	Q	.	.	.	V	.	
19.900	1.6767	0.71	.	Q	.	.	.	V	.	
19.917	1.6777	0.70	.	Q	.	.	.	V	.	
19.933	1.6786	0.70	.	Q	.	.	.	V	.	
19.950	1.6796	0.70	.	Q	.	.	.	V	.	
19.967	1.6806	0.70	.	Q	.	.	.	V	.	

19.983	1.6815	0.70	.	Q	.	.	.	V	.
20.000	1.6825	0.70	.	Q	.	.	.	V	.
20.017	1.6835	0.69	.	Q	.	.	.	V	.
20.033	1.6844	0.69	.	Q	.	.	.	V	.
20.050	1.6854	0.69	.	Q	.	.	.	V	.
20.067	1.6863	0.69	.	Q	.	.	.	V	.
20.083	1.6873	0.69	.	Q	.	.	.	V	.
20.100	1.6882	0.69	.	Q	.	.	.	V	.
20.117	1.6891	0.68	.	Q	.	.	.	V	.
20.133	1.6901	0.68	.	Q	.	.	.	V	.
20.150	1.6910	0.68	.	Q	.	.	.	V	.
20.167	1.6920	0.68	.	Q	.	.	.	V	.
20.183	1.6929	0.68	.	Q	.	.	.	V	.
20.200	1.6938	0.68	.	Q	.	.	.	V	.
20.217	1.6948	0.68	.	Q	.	.	.	V	.
20.233	1.6957	0.67	.	Q	.	.	.	V	.
20.250	1.6966	0.67	.	Q	.	.	.	V	.
20.267	1.6975	0.67	.	Q	.	.	.	V	.
20.283	1.6985	0.67	.	Q	.	.	.	V	.
20.300	1.6994	0.67	.	Q	.	.	.	V	.
20.317	1.7003	0.67	.	Q	.	.	.	V	.
20.333	1.7012	0.67	.	Q	.	.	.	V	.
20.350	1.7021	0.66	.	Q	.	.	.	V	.
20.367	1.7030	0.66	.	Q	.	.	.	V	.
20.383	1.7040	0.66	.	Q	.	.	.	V	.
20.400	1.7049	0.66	.	Q	.	.	.	V	.
20.417	1.7058	0.66	.	Q	.	.	.	V	.
20.433	1.7067	0.66	.	Q	.	.	.	V	.
20.450	1.7076	0.66	.	Q	.	.	.	V	.
20.467	1.7085	0.65	.	Q	.	.	.	V	.
20.483	1.7094	0.65	.	Q	.	.	.	V	.
20.500	1.7103	0.65	.	Q	.	.	.	V	.
20.517	1.7112	0.65	.	Q	.	.	.	V	.
20.533	1.7121	0.65	.	Q	.	.	.	V	.
20.550	1.7130	0.65	.	Q	.	.	.	V	.
20.567	1.7138	0.65	.	Q	.	.	.	V	.
20.583	1.7147	0.64	.	Q	.	.	.	V	.
20.600	1.7156	0.64	.	Q	.	.	.	V	.
20.617	1.7165	0.64	.	Q	.	.	.	V	.
20.633	1.7174	0.64	.	Q	.	.	.	V	.
20.650	1.7183	0.64	.	Q	.	.	.	V	.
20.667	1.7191	0.64	.	Q	.	.	.	V	.
20.683	1.7200	0.64	.	Q	.	.	.	V	.
20.700	1.7209	0.64	.	Q	.	.	.	V	.
20.717	1.7218	0.63	.	Q	.	.	.	V	.
20.733	1.7226	0.63	.	Q	.	.	.	V	.
20.750	1.7235	0.63	.	Q	.	.	.	V	.
20.767	1.7244	0.63	.	Q	.	.	.	V	.
20.783	1.7252	0.63	.	Q	.	.	.	V	.
20.800	1.7261	0.63	.	Q	.	.	.	V	.
20.817	1.7270	0.63	.	Q	.	.	.	V	.
20.833	1.7278	0.63	.	Q	.	.	.	V	.
20.850	1.7287	0.62	.	Q	.	.	.	V	.
20.867	1.7296	0.62	.	Q	.	.	.	V	.
20.883	1.7304	0.62	.	Q	.	.	.	V	.
20.900	1.7313	0.62	.	Q	.	.	.	V	.
20.917	1.7321	0.62	.	Q	.	.	.	V	.
20.933	1.7330	0.62	.	Q	.	.	.	V	.
20.950	1.7338	0.62	.	Q	.	.	.	V	.
20.967	1.7347	0.62	.	Q	.	.	.	V	.
20.983	1.7355	0.62	.	Q	.	.	.	V	.
21.000	1.7364	0.61	.	Q	.	.	.	V	.
21.017	1.7372	0.61	.	Q	.	.	.	V	.
21.033	1.7381	0.61	.	Q	.	.	.	V	.
21.050	1.7389	0.61	.	Q	.	.	.	V	.
21.067	1.7397	0.61	.	Q	.	.	.	V	.
21.083	1.7406	0.61	.	Q	.	.	.	V	.
21.100	1.7414	0.61	.	Q	.	.	.	V	.
21.117	1.7423	0.61	.	Q	.	.	.	V	.
21.133	1.7431	0.61	.	Q	.	.	.	V	.
21.150	1.7439	0.60	.	Q	.	.	.	V	.
21.167	1.7448	0.60	.	Q	.	.	.	V	.
21.183	1.7456	0.60	.	Q	.	.	.	V	.
21.200	1.7464	0.60	.	Q	.	.	.	V	.
21.217	1.7472	0.60	.	Q	.	.	.	V	.
21.233	1.7481	0.60	.	Q	.	.	.	V	.
21.250	1.7489	0.60	.	Q	.	.	.	V	.
21.267	1.7497	0.60	.	Q	.	.	.	V	.
21.283	1.7505	0.60	.	Q	.	.	.	V	.
21.300	1.7513	0.59	.	Q	.	.	.	V	.
21.317	1.7522	0.59	.	Q	.	.	.	V	.
21.333	1.7530	0.59	.	Q	.	.	.	V	.
21.350	1.7538	0.59	.	Q	.	.	.	V	.
21.367	1.7546	0.59	.	Q	.	.	.	V	.
21.383	1.7554	0.59	.	Q	.	.	.	V	.
21.400	1.7562	0.59	.	Q	.	.	.	V	.
21.417	1.7570	0.59	.	Q	.	.	.	V	.
21.433	1.7579	0.59	.	Q	.	.	.	V	.
21.450	1.7587	0.59	.	Q	.	.	.	V	.
21.467	1.7595	0.58	.	Q	.	.	.	V	.
21.483	1.7603	0.58	.	Q	.	.	.	V	.
21.500	1.7611	0.58	.	Q	.	.	.	V	.
21.517	1.7619	0.58	.	Q	.	.	.	V	.
21.533	1.7627	0.58	.	Q	.	.	.	V	.
21.550	1.7635	0.58	.	Q	.	.	.	V	.
21.567	1.7643	0.58	.	Q	.	.	.	V	.
21.583	1.7651	0.58	.	Q	.	.	.	V	.
21.600	1.7659	0.58	.	Q	.	.	.	V	.
21.617	1.7667	0.58	.	Q	.	.	.	V	.
21.633	1.7674	0.58	.	Q	.	.	.	V	.
21.650	1.7682	0.57	.	Q	.	.	.	V	.
21.667	1.7690	0.57	.	Q	.	.	.	V	.
21.683	1.7698	0.57	.	Q	.	.	.	V	.
21.700	1.7706	0.57	.	Q	.	.	.	V	.
21.717	1.7714	0.57	.	Q	.	.	.	V	.
21.733	1.7722	0.57	.	Q	.	.	.	V	.
21.750	1.7730	0.57	.	Q	.	.	.	V	.
21.767	1.7737	0.57	.	Q	.	.	.	V	.
21.783	1.7745	0.57	.	Q	.	.	.	V	.
21.800	1.7753	0.57	.	Q	.	.	.	V	.
21.817	1.7761	0.57	.	Q	.	.	.	V	.
21.833	1.7769	0.56	.	Q	.	.	.	V	.
21.850	1.7776	0.56	.	Q	.	.	.	V	.
21.867	1.7784	0.56	.	Q	.	.	.	V	.
21.883	1.7792	0.56	.	Q	.	.	.	V	.
21.900	1.7800	0.56	.	Q	.	.	.	V	.
21.917	1.7807	0.56	.	Q	.	.	.	V	.
21.933	1.7815	0.56	.	Q	.	.	.	V	.

21.950	1.7823	0.56	.	Q	.	.	V	.
21.967	1.7830	0.56	.	Q	.	.	V	.
21.983	1.7838	0.56	.	Q	.	.	V	.
22.000	1.7846	0.56	.	Q	.	.	V	.
22.017	1.7853	0.56	.	Q	.	.	V	.
22.033	1.7861	0.55	.	Q	.	.	V	.
22.050	1.7869	0.55	.	Q	.	.	V	.
22.067	1.7876	0.55	.	Q	.	.	V	.
22.083	1.7884	0.55	.	Q	.	.	V	.
22.100	1.7891	0.55	.	Q	.	.	V	.
22.117	1.7899	0.55	.	Q	.	.	V	.
22.133	1.7907	0.55	.	Q	.	.	V	.
22.150	1.7914	0.55	.	Q	.	.	V	.
22.167	1.7922	0.55	.	Q	.	.	V	.
22.183	1.7929	0.55	.	Q	.	.	V	.
22.200	1.7937	0.55	.	Q	.	.	V	.
22.217	1.7944	0.55	.	Q	.	.	V	.
22.233	1.7952	0.54	.	Q	.	.	V	.
22.250	1.7959	0.54	.	Q	.	.	V	.
22.267	1.7967	0.54	.	Q	.	.	V	.
22.283	1.7974	0.54	.	Q	.	.	V	.
22.300	1.7982	0.54	.	Q	.	.	V	.
22.317	1.7989	0.54	.	Q	.	.	V	.
22.333	1.7996	0.54	.	Q	.	.	V	.
22.350	1.8004	0.54	.	Q	.	.	V	.
22.367	1.8011	0.54	.	Q	.	.	V	.
22.383	1.8019	0.54	.	Q	.	.	V	.
22.400	1.8026	0.54	.	Q	.	.	V	.
22.417	1.8033	0.54	.	Q	.	.	V	.
22.433	1.8041	0.54	.	Q	.	.	V	.
22.450	1.8048	0.53	.	Q	.	.	V	.
22.467	1.8056	0.53	.	Q	.	.	V	.
22.483	1.8063	0.53	.	Q	.	.	V	.
22.500	1.8070	0.53	.	Q	.	.	V	.
22.517	1.8078	0.53	.	Q	.	.	V	.
22.533	1.8085	0.53	.	Q	.	.	V	.
22.550	1.8092	0.53	.	Q	.	.	V	.
22.567	1.8099	0.53	.	Q	.	.	V	.
22.583	1.8107	0.53	.	Q	.	.	V	.
22.600	1.8114	0.53	.	Q	.	.	V	.
22.617	1.8121	0.53	.	Q	.	.	V	.
22.633	1.8129	0.53	.	Q	.	.	V	.
22.650	1.8136	0.53	.	Q	.	.	V	.
22.667	1.8143	0.53	.	Q	.	.	V	.
22.683	1.8150	0.52	.	Q	.	.	V	.
22.700	1.8157	0.52	.	Q	.	.	V	.
22.717	1.8165	0.52	.	Q	.	.	V	.
22.733	1.8172	0.52	.	Q	.	.	V	.
22.750	1.8179	0.52	.	Q	.	.	V	.
22.767	1.8186	0.52	.	Q	.	.	V	.
22.783	1.8193	0.52	.	Q	.	.	V	.
22.800	1.8200	0.52	.	Q	.	.	V	.
22.817	1.8208	0.52	.	Q	.	.	V	.
22.833	1.8215	0.52	.	Q	.	.	V	.
22.850	1.8222	0.52	.	Q	.	.	V	.
22.867	1.8229	0.52	.	Q	.	.	V	.
22.883	1.8236	0.52	.	Q	.	.	V	.
22.900	1.8243	0.52	.	Q	.	.	V	.
22.917	1.8250	0.51	.	Q	.	.	V	.
22.933	1.8257	0.51	.	Q	.	.	V	.
22.950	1.8264	0.51	.	Q	.	.	V	.
22.967	1.8272	0.51	.	Q	.	.	V	.
22.983	1.8279	0.51	.	Q	.	.	V	.
23.000	1.8286	0.51	.	Q	.	.	V	.
23.017	1.8293	0.51	.	Q	.	.	V	.
23.033	1.8300	0.51	.	Q	.	.	V	.
23.050	1.8307	0.51	.	Q	.	.	V	.
23.067	1.8314	0.51	.	Q	.	.	V	.
23.083	1.8321	0.51	.	Q	.	.	V	.
23.100	1.8328	0.51	.	Q	.	.	V	.
23.117	1.8335	0.51	.	Q	.	.	V	.
23.133	1.8342	0.51	.	Q	.	.	V	.
23.150	1.8349	0.51	.	Q	.	.	V	.
23.167	1.8356	0.50	.	Q	.	.	V	.
23.183	1.8363	0.50	.	Q	.	.	V	.
23.200	1.8369	0.50	.	Q	.	.	V	.
23.217	1.8376	0.50	.	Q	.	.	V	.
23.233	1.8383	0.50	.	Q	.	.	V	.
23.250	1.8390	0.50	.	Q	.	.	V	.
23.267	1.8397	0.50	.	Q	.	.	V	.
23.283	1.8404	0.50	.	Q	.	.	V	.
23.300	1.8411	0.50	.	Q	.	.	V	.
23.317	1.8418	0.50	.	Q	.	.	V	.
23.333	1.8425	0.50	.	Q	.	.	V	.
23.350	1.8432	0.50	.	Q	.	.	V	.
23.367	1.8438	0.50	.	Q	.	.	V	.
23.383	1.8445	0.50	.	Q	.	.	V	.
23.400	1.8452	0.50	.	Q	.	.	V	.
23.417	1.8459	0.50	.	Q	.	.	V	.
23.433	1.8466	0.50	.	Q	.	.	V	.
23.450	1.8473	0.49	.	Q	.	.	V	.
23.467	1.8479	0.49	.	Q	.	.	V	.
23.483	1.8486	0.49	.	Q	.	.	V	.
23.500	1.8493	0.49	.	Q	.	.	V	.
23.517	1.8500	0.49	.	Q	.	.	V	.
23.533	1.8506	0.49	.	Q	.	.	V	.
23.550	1.8513	0.49	.	Q	.	.	V	.
23.567	1.8520	0.49	.	Q	.	.	V	.
23.583	1.8527	0.49	.	Q	.	.	V	.
23.600	1.8533	0.49	.	Q	.	.	V	.
23.617	1.8540	0.49	.	Q	.	.	V	.
23.633	1.8547	0.49	.	Q	.	.	V	.
23.650	1.8554	0.49	.	Q	.	.	V	.
23.667	1.8560	0.49	.	Q	.	.	V	.
23.683	1.8567	0.49	.	Q	.	.	V	.
23.700	1.8574	0.49	.	Q	.	.	V	.
23.717	1.8580	0.49	.	Q	.	.	V	.
23.733	1.8587	0.48	.	Q	.	.	V	.
23.750	1.8594	0.48	.	Q	.	.	V	.
23.767	1.8600	0.48	.	Q	.	.	V	.
23.783	1.8607	0.48	.	Q	.	.	V	.
23.800	1.8614	0.48	.	Q	.	.	V	.
23.817	1.8620	0.48	.	Q	.	.	V	.
23.833	1.8627	0.48	.	Q	.	.	V	.
23.850	1.8634	0.48	.	Q	.	.	V	.
23.867	1.8640	0.48	.	Q	.	.	V	.
23.883	1.8647	0.48	.	Q	.	.	V	.
23.900	1.8653	0.48	.	Q	.	.	V	.

```
   23.917      1.8660      0.48  .Q        .         .         .      V .
   23.933      1.8667      0.48  .Q        .         .         .      V .
   23.950      1.8673      0.48  .Q        .         .         .      V .
   23.967      1.8680      0.48  .Q        .         .         .      V .
   23.983      1.8686      0.48  .Q        .         .         .      V .
   24.000      1.8693      0.48  .Q        .         .         .      V .
--------------------------------------------------------------------------------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    ======================                 =========
               0%                           1441.0
              10%                           1441.0
              20%                           1425.0
              30%                            755.0
              40%                            580.0
              50%                            505.0
              60%                            365.0
              70%                            270.0
              80%                            195.0
              90%                            140.0
 ================================================================================

   END OF FLOODSCx ROUTING ANALYSIS
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Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Include a copy of the completed Pollutant Sources/Source Control Checklist used to document Source Control BMPs in Section H of this Template.

Attachment 1

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section H of the 2018 SMR WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table H.1 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	**… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE**		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☒ **A.** On-site storm drain inlets	☒ Locations of inlets.	☒ Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	☒ Maintain and periodically repaint or replace inlet markings. ☒ Provide stormwater pollution prevention information to new site owners, lessees, or operators. ☒ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com ☒ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
☐ **B.** Interior floor drains and elevator shaft sump pumps		☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
☐ **C.** Interior parking garages		☐ State that parking garage floor drains will be plumbed to the sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.

Attachment 1
STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
❑ **D1.** Need for future indoor & structural pest control		❑ Note building design features that discourage entry of pests.	❑ Provide Integrated Pest Management information to owners, lessees, and operators.
☒ **D2.** Landscape/ Outdoor Pesticide Use	☒ Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. ❑ Show self-retaining landscape areas, if any. ☒ Show stormwater treatment and hydrograph modification management BMPs.	State that final landscape plans will accomplish all of the following. ❑ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ☒ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. ☒ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. ☒ Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	☒ Maintain landscaping using minimum or no pesticides. ☒ See applicable operational BMPs in "What you should know for…..Landscape and Gardening" at: http://www.rcwatershed.org/about/materials-library/#1450469138395-bb76dd39-d810 ☒ Provide IPM information to new owners, lessees and operators.

Attachment 1
STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☐ **E.** Pools, spas, ponds, decorative fountains, and other water features.	☐ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	☐ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at: http://www.rcwatershed.org/about/materials-library/#1450469201433-f5f358c9-6008
☒ **F.** Food service	☒ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ☐ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	☐ Describe the location and features of the designated cleaning area. ☐ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	☒ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9 Provide this brochure to new site owners, lessees, and operators.
☐ **G.** Refuse areas	☐ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ☐ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. ☐ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	☐ State how site refuse will be handled and provide supporting detail to what is shown on plans. ☐ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	☐ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ **H.** Industrial processes.	❑ Show process area.	❑ If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."	❑ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at: http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9
❑ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	❑ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. ❑ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ❑ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	❑ Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank www.cchealth.org/groups/hazmat/	❑ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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☒ **J.** Vehicle and Equipment Cleaning	☒ Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.	☒ If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): ☒ Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at: http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9 ☐ Car dealerships and similar may rinse cars with water only.

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
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❑ **K.** Vehicle/Equipment Repair and Maintenance	❑ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. ❑ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. ❑ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	❑ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. ❑ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ❑ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the Stormwater Control Plan, note that all of the following restrictions apply to use the site: ❑ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. ❑ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. ❑ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations; "Outdoor Cleaning Activities;" and "Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants. Brochures can be found at: http://www.rcwatershed.org/about/materials-library/#1450389926766-61e8af0b-53a9

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☒ **L.** Fuel Dispensing Areas	☒ Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. ☒ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.		☒ The property owner shall dry sweep the fueling area routinely. ☐ See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

[6] The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

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❑ **M.** Loading Docks	❑ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. ❑ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. ❑ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		❑ Move loaded and unloaded items indoors as soon as possible. ❑ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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❑ **N.** Fire Sprinkler Test Water		❑ Provide a means to drain fire sprinkler test water to the sanitary sewer.	❑ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
O. Miscellaneous Drain or Wash Water or Other Sources ❑ Boiler drain lines ❑ Condensate drain lines ❑ Rooftop equipment ❑ Drainage sumps ❑ Roofing, gutters, and trim. ❑ Other sources		❑ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ❑ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ❑ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ❑ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. ❑ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. ❑ Include controls for other sources as specified by local reviewer.	

Attachment 1
STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

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☒ **P.** Plazas, sidewalks, and parking lots.			☒ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Include the completed Operation and Maintenance Plan in this Appendix along with additional documentation of Finance and Maintenance Recording Mechanisms for the site. Refer to Sections 3.10 and 5 of the SMR WQMP and Section J of this Template.

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

Examples of material to provide in Appendix 10 may include but are not limited to the following:

- BMP Fact Sheets for proposed BMPs form Exhibit C: LID BMP Design Handbook of the SMR WQMP,
- Source control information and training material for site owners and operators,
- O&M training material,
- Other educational/training material related to site drainage and BMPs.

After the Storm

A Citizen's Guide to Understanding Stormwater

WHEN IT RAINS IT DRAINS

EPA 833-B-03-002

January 2003

THE YEAR OF CLEAN WATER
Celebration & Recommitment

EPA United States Environmental Protection Agency

Internet Address (URL) • HTTP://www.epa.gov
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For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

What is stormwater runoff?



Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.



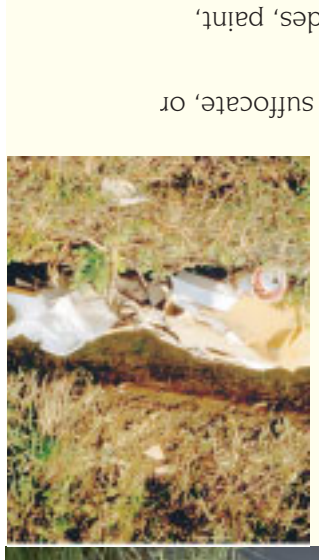
Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.







Stormwater Pollution Solutions



Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care



Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Septic systems



Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Auto care



Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Pet waste



Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.



Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.



Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.



Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.



Commercial

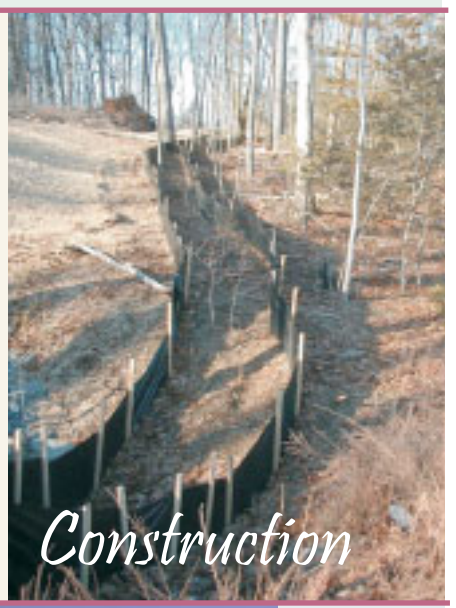
Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Construction

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.





Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.



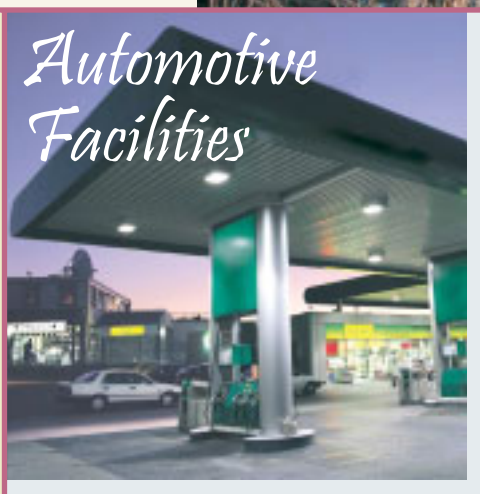
- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.



Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

For Information:

For more information on the General Industrial Storm Water Permit contact:

State Water Resources Control Board (SWRCB)
(916) 657-1146 or www.swrcb.ca.gov/ or, at your Regional Water Quality Control Board (RWQCB).

Santa Ana Region (8)
California Tower
3737 Main Street, Ste. 500
Riverside, CA 92501-3339
(909) 782-4130

San Diego Region (9)
9771 Clairemont Mesa Blvd., Ste. A
San Diego, CA 92124
(619) 467-2952

Colorado River Basin Region (7)
73-720 Fred Waring Dr., Ste. 100
Palm Desert, CA 92260
(760) 346-7491

SPILL RESPONSE AGENCY:
HAZ-MAT: (909) 358-5055
HAZARDOUS WASTE DISPOSAL: (909) 358-5055
RECYCLING INFORMATION: 1-800-366-SAVE
TO REPORT ILLEGAL DUMPING OR A CLOGGED STORM DRAIN: 1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, call:
(909) 955-1111.

StormWater
CleanWater
PROTECTION PROGRAM

Riverside County gratefully acknowledges the State Water Quality Control Board and the American Public Works Association, Storm Water Quality Task Force for the information provided in this brochure.

DID YOU KNOW . . .

YOUR FACILITY MAY NEED A STORM WATER PERMIT?



Many industrial facilities and manufacturing operations must obtain coverage under the Industrial Activities Storm Water General Permit

FIND OUT
IF YOUR FACILITY MUST OBTAIN A PERMIT

StormWater Pollution . . . What you should know

Riverside County has two drainage systems - sanitary sewers and storm drains. The storm drain system is designed to help prevent flooding by carrying excess rainwater away from streets. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.



In recent years, awareness of the need to protect water quality has increased. As a result, federal, state, and local programs have been established to reduce polluted stormwater discharges to our waterways. The emphasis of these programs is to prevent stormwater pollution since it's much easier, and less costly, than cleaning up "after the fact."

National Pollutant Discharge Elimination System (NPDES)

In 1987, the Federal Clean Water Act was amended to establish a framework for regulating industrial stormwater discharges under the NPDES permit program. In California, NPDES permits are issued by the State Water Resources Control Board (SWRCB) and the nine (9) Regional Water Quality Control Boards (RWQCB). In general, certain industrial facilities and manufacturing operations must obtain coverage under the Industrial Activities Storm Water General Permit if the type of facilities or operations falls into one of the several categories described in this brochure.

How Do I Know If I Need A Permit?

Following are ***general descriptions*** of the industry categories types that are regulated by the Industrial Activities Storm Water General Permit. Contact your local Region Water Quality Control Board to determine if your facility/operation requires coverage under the Permit.

➜ Facilities such as cement manufacturing; feedlots; fertilizer manufacturing; petroleum refining; phosphate manufacturing; steam electric power generation; coal mining; mineral mining and processing; ore mining and dressing; and asphalt emulsion;

➜ Facilities classified as lumber and wood products (except wood kitchen cabinets); pulp, paper, and paperboard mills; chemical producers (except some pharmaceutical and biological products); petroleum and coal products; leather production and products; stone, clay and glass products; primary metal industries; fabricated structural metal; ship and boat building and repairing;

➜ Active or inactive mining operations and oil and gas exploration, production, processing, or treatment operations;

➜ Hazardous waste treatment, storage, or disposal facilities;

➜ Landfills, land application sites and open dumps that receive or have received any industrial waste; unless there is a new overlying land use such as a golf course, park, etc., and there is no discharge associated with the landfill;

➜ Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards;

➜ Steam electric power generating facilities, facilities that generate steam for electric power by combustion;

➜ Transportation facilities that have vehicle maintenance shops, fueling facilities, equipment cleaning operations, or airport deicing operations. This includes school bus maintenance facilities operated by a school district;

➜ Sewage treatment facilities;

➜ Facilities that have areas where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water.

How do I obtain coverage under the Industrial Activities Storm Water General Permit?

Obtain a permit application package from your local Regional Water Quality Control Board listed on the back of this brochure or the State Water Resources Control Board (SWRCB). Submit a completed Notice of Intent (NOI) form, site map and the appropriate fee ($250 or $500) to the SWRCB. Facilities must submit an NOI thirty (30) days prior to beginning operation. Once you submit the NOI, the State Board will send you a letter acknowledging receipt of your NOI and will assign your facility a waste discharge identification number (WDID No.). You will also receive an annual fee billing. These billings should roughly coincide with the date the State Board processed your original NOI submittal.

What are the requirements of the Industrial Activities Storm Water General Permit?

The basic requirements of the Permit are:

1. The facility must eliminate any non-stormwater discharges or obtain a separate permit for such discharges.

2. The facility must develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must identify sources of pollutants that may be exposed to stormwater. Once the sources of pollutants have been identified, the facility operator must develop and implement Best Management Practices (BMPs) to minimize or prevent polluted runoff.

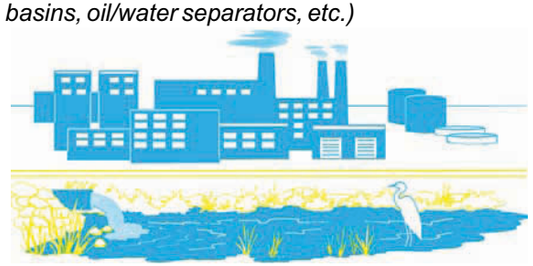
   Guidance in preparing a SWPPP is available from a document prepared by the California Storm Water Quality Task Force called the California Storm Water Best Management Practice Handbook.

3. The facility must develop and implement a Monitoring Program that includes conducting visual observations and collecting samples of the facility's storm water discharges associated with industrial activity. The General Permit requires that the analysis be conducted by a laboratory that is certified by the State of California.

4. The facility must submit to the Regional Board, every July 1, an annual report that includes the results of its monitoring program.

A Non-Storm Water Discharge is... *any discharge to a storm drain system that is not composed entirely of storm water. The following non-storm water discharges are authorized by the General Permit: fire hydrant flushing; potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems; drinking fountain water; atmospheric condensates including refrigeration, air conditioning, and compressor condensate; irrigation drainage; landscape watering; springs; non-contaminated ground water; foundation or footing drainage; and sea water infiltration where the sea waters are discharged back into the sea water source.*

A BMP is . . . *a technique, process, activity, or structure used to reduce the pollutant content of a storm water discharge. BMPs may include simple, non-structural methods such as good housekeeping, staff training and preventive maintenance. Additionally, BMPs may include structural modifications such as the installation of berms, canopies or treatment control (e.g. setting basins, oil/water separators, etc.)*



WARNING*: There are significant penalties for non-compliance: a minimum fine of $5,000 for failing to obtain permit coverage, and, up to $10,000 per day, per violation plus $10 per gallon of discharge in excess of 1,000 gallons.*

For Information:

Local Sewering Agencies in Riverside County:

City of Beaumont	(909) 769-8520
Belair Homeowners Association	(909) 277-1414
City of Banning	(909) 922-3130
City of Blythe	(760) 922-6161
City of Coachella	(760) 391-5008
Coachella Valley Water District	(760) 398-2651
City of Corona	(909) 736-2259
Desert Center, CSA #51	(760) 227-3203
Eastern Municipal Water District	(909) 928-3777
Elsinore Valley MWD	(909) 674-3146
Farm Mutual Water Company	(909) 244-4198
Idyllwild Water District	(909) 659-2143
Jurupa Community Services Dist.	(909) 685-7434
Lake Hemet MWD	(909) 658-3241
Lee Lake Water District	(909) 277-1414
March Air Force Base	(909) 656-7000
Mission Springs Water District	(760) 329-6448
City of Palm Springs	(760) 323-8242
Rancho Caballero	(909) 780-9272
Rancho California Water Dist.	(909) 676-4101
Ripley, CSA #62	(760) 922-4909
Rubidoux Community Services Dist.	(909) 684-7580
City of Riverside	(909) 782-5341
Silent Valley Club, Inc	(909) 849-4501
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(909) 780-4170

Spill Response Agency:
Haz-Mat: (909) 358-5055
Hazardous Waste Disposal: (909) 358-5055
To Report Illegal Dumping or a Clogged Storm Drain: 1-800-506-2555

StormWater CleanWater
PROTECTION PROGRAM

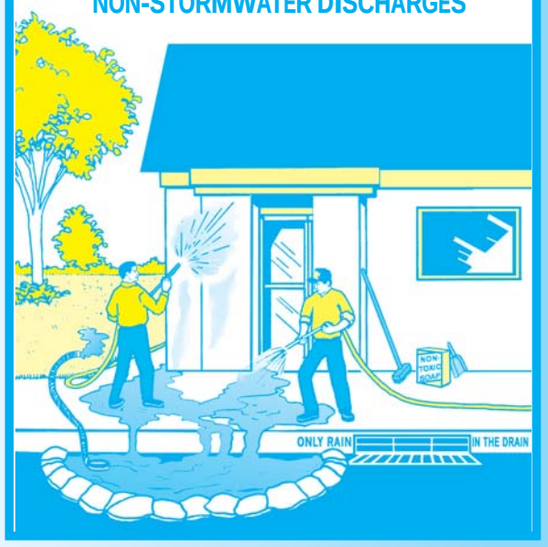
Riverside County gratefully acknowledges the Bay Area Stormwater Management Agencies Association and the Cleaning Equipment Trade Association for information provided in this brochure.

StormWater Pollution

What you should know for...

OUTDOOR CLEANING ACTIVITIES

NON-STORMWATER DISCHARGES



GUIDELINES for disposal of washwater from:

- Sidewalk, plaza or parking lot cleaning
- Vehicle washing or detailing
- Building exterior cleaning
- Waterproofing
- Equipment cleaning or degreasing

Do you know . . . where the water should go?



Riverside County has two drainage systems - sanitary sewers and storm drains. The storm drain system is designed to prevent flooding by carrying excess rainwater away from streets. . . it's not designed to be a waste disposal system. Since the storm drain system does not provide for water treatment, it often serves the unintended function of transporting pollutants directly to our waterways.

Unlike sanitary sewers, storm drains are not connected to a treatment plant - they flow directly to our local streams, rivers and lakes.

Non-stormwater discharges such as washwater generated from outdoor cleaning projects often transport harmful pollutants into storm drains and our local waterways. Polluted runoff contaminates local waterways and poses a threat to groundwater resources.

Soaps, degreasers, automotive fluids, litter, and a host of other materials washed off buildings, sidewalks, plazas, parking areas, vehicles, and equipment can all pollute our waterways.

The Cities and County of Riverside StormWater/CleanWater Protection Program

Since preventing pollution is much easier, and less costly than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses of pollution prevention activities such as those described in this pamphlet.

The Cities and County of Riverside have adopted ordinances for stormwater management and discharge control. In accordance with state and federal law, these local stormwater ordinances **prohibit** the discharge of wastes into the storm drain system or local surface waters. This includes non-stormwater discharges containing oil, grease, detergents, degreasers, trash, or other waste materials.



PLEASE NOTE: The discharge of pollutants into the street, gutters, storm drain system, or waterways - without a Regional Water Quality Control Board permit or waiver - is ***strictly prohibited*** by local ordinances and state and federal law.

Help Protect Our Waterways!

Use These Guidelines For Outdoor Cleaning Activities and Washwater Disposal

DO . . . Dispose of **small amounts** of **washwater from cleaning building exteriors, sidewalks, or plazas** onto landscaped or unpaved surfaces provided you have the owner's permission and the discharge will not cause flooding or nuisance problems, or flow into a storm drain.

DO NOT . . . Discharge **large amounts** of these types of washwater onto landscaped areas or soil where water may run to a street or storm drain. Wastewater from exterior cleaning may be pumped to a sewer line with specific permission from the local sewering agency.

DO . . . Check with your local sewering agency's policies and requirements concerning waste water disposal. **Water from many outdoor cleaning activities** may be acceptable for disposal to the sewer system. See the list on the back of this flyer for phone numbers of the sewering agencies in your area.

DO NOT . . . Pour **hazardous wastes** or toxic materials into the storm drain or sewer system . . . properly dispose of it instead. When in doubt, contact the local sewering agency! The agency will tell you what types of liquid wastes can be accepted.

DO . . . Understand that **water (without soap) used to remove dust from clean vehicles** may be discharged to a street or storm drain. **Washwater from sidewalk, plaza, and building surface cleaning** may go into a street or storm drain if ALL of the following conditions are met:

1) The surface being washed is free of residual oil stains, debris and similar pollutants by using dry cleanup methods (sweeping, and cleaning any oil or chemical spills with rags or other absorbent materials before using water).
2) Washing is done with water only - no soap or other cleaning materials.
3) You have not used the water to remove paint from surfaces during cleaning.

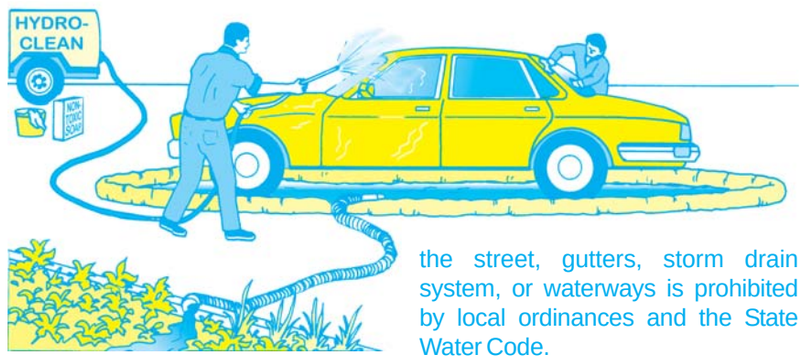
DO NOT . . . Dispose of water containing **soap or any other type of cleaning agent** into a storm drain or water body. This is a direct violation of state and/or local regulations. Because **wastewater from cleaning parking areas or roadways** normally contains metallic brake pad dust, oil and other automotive fluids, it should never be discharged to a street, gutter, or storm drain.

DO . . . Understand that **mobile auto detailers** should divert washwater to landscaped or dirt areas. Note: Be aware that soapy washwater may adversely affect landscaping; consult with the property owner. Residual washwater may remain on paved surfaces to evaporate; sweep up any remaining residue. If there is sufficient water volume to reach the storm drain, collect the runoff and obtain permission to pump it into the sanitary sewer. Follow local sewering agency's requirements for disposal.

DO NOT . . . Dispose of left over cleaning agents into the gutter, storm drain or sanitary sewer.

Regarding Cleaning Agents:

If you must use soap, use biodegradable/phosphate free cleaners. Avoid use of petroleum based cleaning products. Although the use of nontoxic cleaning products is strongly encouraged, ***do*** understand that these products can still degrade water quality and, therefore, the discharge of these products into



the street, gutters, storm drain system, or waterways is prohibited by local ordinances and the State Water Code.

Note: When cleaning surfaces with a high pressure washer or steam cleaning methods, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning, as compared to the use of a low pressure hose, can remove additional materials that can contaminate local waterways.

OTHER TIPS TO HELP PROTECT OUR WATER . . .

SCREENING WASH WATER

A thorough dry cleanup before washing (without soap) surfaces such as building exteriors and decks without loose paint, sidewalks, or plaza areas, *should be sufficient to protect storm drains.* **However**, if any debris (solids) could enter storm drains or remain in the gutter or street after cleaning, washwater should first pass through a "20 mesh" or finer screen to catch the solid material, which should then be disposed of in the trash.

DRAIN INLET PROTECTION/ CONTAINING & COLLECTING WASH WATER

- Sand bags can be used to create a barrier around storm drain inlets.
- Plugs or rubber mats can be used to temporarily seal storm drain openings.
- You can also use vacuum booms, containment pads, or temporary berms to keep wash water away from the street, gutter, or storm drain.

EQUIPMENT AND SUPPLIES

Special materials such as absorbents, storm drain plugs and seals, small sump pumps, and vacuum booms are available from many vendors. For more information check catalogs such as New Pig (800-468-4647), Lab Safety Supply (800-356-0783), C&H (800-558-9966), and W.W. Grainger (800-994-9174); or call the Cleaning Equipment Trade Association (800-441-0111) or the Power Washers of North America (800-393-PWNA).

Helpful telephone numbers and links:

Riverside County Water Agencies

City of Banning	(951) 922-3130
City of Beaumont/Cherry Valley	(951) 845-9581
City of Blythe	(760) 922-6161
City of Coachella	(760) 398-3502
City of Corona	(951) 736-2263
City of Hemet	(951) 765-3710
City of Norco	(951) 270 5607
City of Riverside Public Works	(951) 351-6140
City of San Jacinto	(951) 654-4041
Coachella Valley Water District	(760) 398-2651
Desert Water Agency (Palm Springs)	(760) 323-4971
Eastern Municipal Water District	(951) 928-3777
Elsinore Valley Municipal Water District	(951) 674 3146
Elsinore Water District	(951) 674-2168
Farm Mutual Water Company	(951) 244-4198
Idyllwild Water District	(951) 659-2143
Indio Water Authority	(760) 391-4129
Jurupa Community Services District	(951) 685-7434
Lee Lake Water	(951) 658-3241
Mission Springs Water	(760) 329-6448
Rancho California Water District	(951) 296-6900
Ripley, CSA #62	(760) 922-4951
Riverside Co. Service Area #51	(760) 227-3203
Rubidoux Community Services District	(951) 684-7580
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(951) 789-5000
Yucaipa Valley Water District	(909) 797-5117

REPORT ILLEGAL STORM DRAIN DISPOSAL

1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

Stormwater Pollution

What you should know for...

Outdoor Cleaning Activities and Professional Mobile Service Providers



Storm drain pollution prevention information for:

- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

Do you know where street flows actually go?

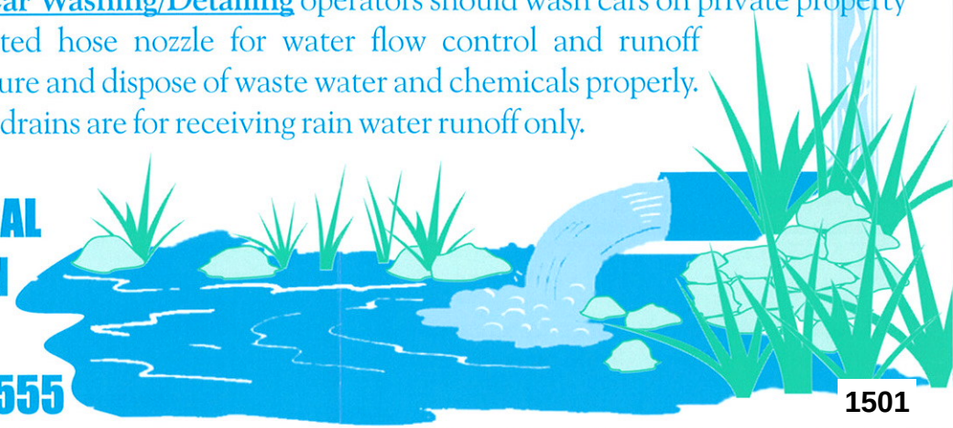
Storm drains are NOT connected to sanitary sewer systems and treatment plants!



The primary purpose of storm drains is to carry rain water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency **Mechanical** repairs should be done in City streets, using drip pans for spills. **Plumbing** should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. **Window/Power Washing** waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled **Carpet Cleaning** wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. **Car Washing/Detailing** operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.

REPORT ILLEGAL STORM DRAIN DISPOSAL 1-800-506-2555



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Help Protect Our Waterways!

Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?

Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. ***Each of us*** can do our part to keep storm water clean by using the suggested BMPs below:

Simple solutions for both light and heavy duty jobs:

Do...consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

Do...prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

Do...use vacuums or other machines to remove and collect loose debris or litter before applying water.

Do...obtain the property owner's permission to dispose of ***small amounts*** of power washing waste water on to landscaped, gravel or unpaved surfaces.

Do...check your local sanitary sewer agency's policies on wash water disposal regulations before disposing wash water to the sewer. (See list on reverse side)

Do...be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

Do...check to see if local ordinances prevent certain activities.

Do not let...wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.



Report illegal storm drain disposal,
Call Toll Free
1-800-506-2555

Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them for being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.



When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlet by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercou



Landscaping and garden maintenance activities can be major contributors to water pollution. Soils, yard wastes, over-watering and garden chemicals become part of the urban runoff mix that winds its way through streets, gutters and storm drains before entering lakes, rivers, streams, etc. Urban runoff pollution contaminates water and harms aquatic life!

1503

In Riverside County, report illegal discharges into the storm drain, call
1-800-506-2555
"Only Rain Down the Storm Drain"

Important Links:

Riverside County Household Hazardous Waste Collection Information
1-800-304-2226 or www.rivcowm.org

Riverside County Backyard Composting Program
1-800-366-SAVE

Integrated Pest Management (IPM) Solutions
www.ipm.ucdavis.edu

California Master Gardener Programs
www.mastergardeners.org
www.camastergardeners.ucdavis.edu

California Native Plant Society
www.cnps.org

The Riverside County "Only Rain Down the Storm Drain" Pollution Prevention Program gratefully acknowledges Orange County's Storm Water Program for their contribution to this brochure.

...Only Rain Down ...the Storm Drain

What you should know for... Landscape and Gardening

Best Management tips for:

- Professionals
- Novices
- Landscapers
- Gardeners
- Cultivators



Tips for Landscape & Gardening

This brochure will help you to get the most of your lawn and gardening efforts and keep our waterways clean. Clean waterways provide recreation, establish thriving fish habitats, secure safe sanctuaries for wildlife, and add beauty to our communities. NEVER allow gardening products or waste water to enter the street, gutter or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.



- Plant native vegetation to reduce the amount of water, fertilizers and pesticides applied to the landscape.
- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro-spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.



- Consider recycling your green waste and adding "nature's own fertilizer" to your lawn or garden.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.
- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains or sewers. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting.
- Try natural long-term common sense solutions first. Integrated Pest Management (IPM) can provide landscaping guidance and solutions, such as:
  - **Physical Controls** - Try hand picking, barriers, traps or caulking holes to control weeds and pests.
  - **Biological Controls** - Use predatory insects to control harmful pests.
  - **Chemical Controls** - Check out www.ipm.ucdavis.edu before using chemicals. Remember, all chemicals should be used cautiously and in moderation.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Waste Collection Center to be recycled.
- *Dumping toxics into the street, gutter or storm drain is illegal!*

www.bewaterwise.com Great water conservation tips and drought tolerant garden designs.

www.ourwaterourworld.com Learn how to safely manage home and garden pests.

Additional information can also be found on the back of this brochure.

IRRIGATION RUNOFF

STORMWATER FACT SHEET

RIVERSIDE COUNTY
WATERSHED PROTECTION

Report Irrigation Runoff or Stormwater Pollution:
800.506.2555

OVERWATERING

Overwatering causes irrigation runoff that may contain pollutants such as pesticides, herbicides, fertilizers, pet waste, yard waste, and sediments which can be hazardous to residents and harmful to our environment. Runoff can also serve as a transport mechanism for other pollutants already on the ground or in the curb gutter. Irrigation runoff entering the storm drain system is an illicit discharge.

BEST PRACTICES

Urban runoff begins when yards and landscaped areas are over-irrigated. Irrigation systems require regular maintenance and visual inspection of the system should be performed to prevent over-spray, leaks, and other problems that result in runoff to storm drains, curbs and gutters.

You can **prevent pollution** by conserving water on your property. Water during cooler times of the day (before 10am and after 6pm).

- Adjust sprinklers to stop overspray and runoff.
- Make needed repairs immediately.
- Use drip irrigation, soaker hoses, or micro-spray systems.
- Use an irrigation timer to pre-set watering times.
- Use a control nozzle or similar mechanism when watering by hand.
- Switch to a water-wise landscape - native plants need less fertilizers, herbicides, pesticides and water.







PROTECT OUR WATERSHED

Many people think that when water flows into a storm drain it is treated, but the storm drain system and the sanitary sewer system are not connected. Everything that enters storm drains flows untreated directly into our creeks, rivers, lakes, beaches and ultimately the ocean. Storm water often contains pollutants, including chemicals, trash, and automobile fluids, all of which pollute our watershed and harm fish and wildlife.

Whether at home or work, you can help reduce pollution and improve water quality by using the above Best Management Practices (BMP's) as part of your daily clean up and maintenance routine.

HOME & GARDEN



Yard waste and household toxics such as paints, solvents, and pesticides often make their way into the San Bernardino County storm drain system and DO NOT GET TREATED before reaching the Santa Ana River. These wastes pollute our drinking water and make our waters unhealthy and unsafe for people and wildlife.

Follow these practices to help prevent stormwater pollution...

In Your Home...

Household products such as paints, paint thinners, drain openers, motor oil, wood polishes, insecticides & herbicides, oven cleaners, and many other general cleaners frequently get dumped on the ground, or into a gutter, street or storm drain. Instead of polluting our stormwaters, take these items to a household hazardous waste collection facility. Call 1-800-OILY-CAT for a facility in your area.



Fertilizers and Pesticides...

Fertilizers and pesticides are often carried into our storm drains by sprinkler runoff. To minimize stormwater pollution, use organic or non-toxic pesticides and fertilizers as directed, and keep them away from ditches, gutters and storm drains. Store them in a covered area, off the ground, to prevent contact with water. For additional gardening questions, call the San Bernardino Master Gardeners at 387-2182.



Trimmin' the Garden...

Decaying organic materials that enter our storm drains, such as grass, leaves, yard clippings, and pet waste, will use up oxygen in nearby streams, stressing aquatic life. Prevent stormwater pollution by not blowing, sweeping, raking or hosing yard waste into the street, gutter, or storm drain. Alternatively, leave grass clippings on your lawn after mowing, or compost your clippings and yard waste. Pet waste should not be composted, but rather disposed of in the trash to prevent the potential spread of diseases.



Planting In The Yard

Produce less yard waste and save water by planting low maintenance trees and shrubs. Also, conserve water and minimize unwanted runoff by using drip irrigation, soaker hoses, or micro-spray systems to water vegetation.



For more information, call your city's stormwater representative

HOME REPAIR & REMODELING

Paints, solvents, adhesives, dusts, sediments, pesticides and household toxics commonly associated with home repair and remodeling activities often make their way into the San Bernardino County storm drain system and DO NOT GET TREATED before reaching the Santa Ana River. These wastes pollute our drinking water, and make our waters unhealthy and unsafe for people and wildlife.



Follow these practices to help prevent stormwater pollution...

Household Hazardous Wastes...

Common household cleaners, paint products, and wallpaper & tile adhesives contain toxic substances. Dispose of these products properly. REMEMBER: Toxic wastes should never enter the storm drain system. For disposal information, call 1-800-OILY-CAT.



Construction...

Keep all construction debris away from the street, gutter and storm drain, and if possible, schedule grading and excavation projects for dry weather. Cover excavated material and stockpiles of asphalt, sand, etc. with plastic tarps, and prevent erosion by planting fast-growing annual and perennial grasses, which will shield and bind the soil.

Landscape & Gardening...

Use fertilizers and pesticides as directed. Keep them away from ditches, gutters and storm drains, and store them in a covered area to prevent contact with rain water. Also, minimize runoff and conserve water by using drip irrigation, soaker hoses, or micro-spray systems. REMEMBER: Do not deposit leaves into the street, gutter, or storm drain.



Painting...

CLEANUP... Avoid cleaning brushes or rinsing paint containers into a street, gutter, or storm drain. For water-based paints, “brush out” as much paint as possible, and rinse in the sink. For oil-based paints, “brush out” as much paint as possible, clean with thinner, and then filter and reuse thinner or solvent.



REMOVAL... Paint stripping residue, chips & dust from marine paints, and paints containing lead or tributyl tin are hazardous wastes. Sweep them up and call 1-800-OILY-CAT for disposal information.

RECYCLING... Recycle or reuse leftover paint by using it for touch-ups, or by giving it to someone who can us it, such as a theatre group, school, city or other community organization. If you’re unable to give it away, contact 1-800-OILY-CAT for disposal information.

Concrete & Masonry...

Store bags of cement and plaster away from gutters and storm drains, and under cover, protected from rainfall, runoff and wind. REMEMBER: Never dispose of cement washout or concrete dust onto driveways, streets, gutters or storm drains.

For more information, call your city’s stormwater representative



PAINTING

Paints, solvents, adhesives, and toxic chemicals from painting operations often make their way into the San Bernardino County storm drain system and DO NOT GET TREATED before reaching the Santa Ana River. These wastes pollute our drinking water, and make our waters unhealthy and unsafe for people and wildlife.

Follow these practices to help prevent stormwater pollution...

General Business Practices...

Keep all paint products and wastes away from the street, gutter, and storm drains. Reuse paint thinner by setting used thinner aside in a closed, labeled jar to settle out paint particles, and then pouring off the clear liquid for future use. Wrap dried paint residue in newspaper and dispose of it in the trash.

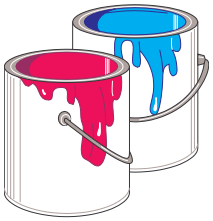
Water-Based Paints...

Purchase water-based paints whenever possible. Look for products labeled “latex” or “clean up with water.”

Recycle or Reuse Paints...

Recycle/reuse leftover paint by using it for touch-ups, or by giving it to someone who can use it, such as a theatre group, school, city or other community organization. If you’re unable to give it away, contact 386-8401 for information on hazardous waste pick-up.

Paint Cleanup...



Avoid cleaning brushes and rinsing paint containers in a street, gutter, or storm drain. For water-based paints, “brush out” as much paint as possible and and rinse in the sink. For oil-based paints, “brush out” as much paint as possible, clean with thinner, and then filter and reuse thinner or solvent.

Paint Removal...

Chemical paint stripping residue, chips & dust from marine paints, and paints containing lead or tributyl tin are hazardous wastes. For disposal information, call 386-8401. Also, when stripping or cleaning building exteriors with high-pressure water, block storm drains and divert the washwater onto a designated dirt area. Check with your local wastewater treatment authority to find out if you can collect building cleaning water and discharge it to the sewer.



For more information, call your city’s stormwater representative

Saltwater Pools

- Salt water pools, although different from regular pools, are in fact, sanitized using chlorine. A salt-chlorine generator separates the chlorine and sodium molecules in salt and reintroduces them into the pool water. The same harmful effects of chlorine still apply.
- A salt water pool is still maintained with chemicals such as Muriatic acid, soda ash and sodium carbonate to help keep a proper pH, total Alkalinity, Calcium Hardness and Stabilizer levels.



- It may be illegal to discharge salt water to land. The salt may kill plants and the build-up of salt in soil puts animals, plants, and groundwater at risk. Consult your city representatives to determine local requirements regarding salt water drainage.

NEVER put unused chemicals into the trash, onto the ground or down a storm drain.

IMPORTANT: The discharge of pollutants into the street, gutter, storm drain system or waterways - without a permit or waiver - is strictly prohibited by local ordinances, state and federal law. Violations may result in monetary fines and enforcement actions.

Helpful telephone numbers and links

Riverside County Water Agencies:

City of Banning	(951) 922-3130
City of Beaumont/Cherry Valley	(951) 845-9581
City of Blythe	(760) 922-6161
City of Coachella	(760) 398-3502
City of Corona	(951) 736-2263
City of Hemet	(951) 765-3710
City of Norco	(951) 270 5607
City of Riverside Public Works	(951) 351-6140
City of San Jacinto	(951) 654-4041
Coachella Valley Water District	(760) 398-2651
Desert Water Agency (Palm Springs)	(760) 323-4971
Eastern Municipal Water District	(951) 928-3777
Elsinore Valley Municipal Water District	(951) 674 3146
Elsinore Water District	(951) 674-2168
Farm Mutual Water Company	(951) 244-4198
Idyllwild Water District	(951) 659-2143
Indio Water Authority	(760) 391-4129
Jurupa Community Services District	(951) 685-7434
Lee Lake Water	(951) 658-3241
Mission Springs Water	(760) 329-6448
Rancho California Water District	(951) 296-6900
Ripley, CSA #62	(760) 922-4951
Riverside Co. Service Area #51	(760) 227-3203
Rubidoux Community Services District	(951) 684-7580
Valley Sanitary District	(760) 347-2356
Western Municipal Water District	(951) 789-5000
Yucaipa Valley Water District	(909) 797-5117

CALL 1-800-506-2555 to:

- Report clogged storm drains or illegal storm drain disposal from residential, industrial, construction and commercial sites into public streets, storm drains and/or water bodies.
- Find out about our various storm drain pollution prevention materials.
- Locate the dates and times of Household Hazardous Waste (HHW) Collection Events.
- Request adult, neighborhood, or classroom presentations.
- Locate other County environmental services.
- Receive grasscycling information and composting workshop information.

Or visit our
Riverside County Flood Control and Water Conservation District
website at: www.rcflood.org

Other links to additional storm drain pollution information:

- County of Riverside Environmental Health: www.rivcoeh.org
- State Water Resources Control Board: www.waterboards.ca.gov
- California Stormwater Quality Association: www.casqa.org
- United States Environmental Protection Agency (EPA): www.epa.gov/compliance/assistance (compliance assistance information)

Riverside County's, "Only Rain Down the Storm Drain" Pollution Prevention Program gratefully acknowledges the Bay Area Stormwater Management Agencies Association and the Cleaning Equipment Trade Association for information provided in this brochure.

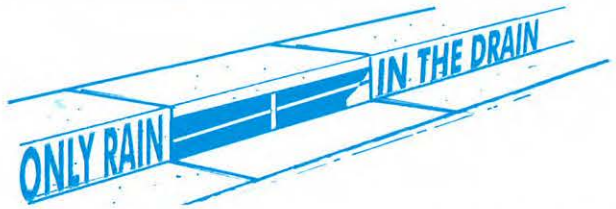
Guidelines for Maintaining your...



Swimming Pool, Jacuzzi and Garden Fountain

1509

Where does the water go?



Pool, Jacuzzi and Fountain wastewater and rain water runoff (also called stormwater) that reach streets can enter the storm drain and be conveyed directly into local streams, rivers and lakes.



A storm drain's purpose is to prevent flooding by carrying rain water away from developed areas. Storm drains are not connected to sanitary sewers systems and treatment plants!

Wastewater, from residential swimming pools, Jacuzzis, fishponds and fountains, often contains chemicals used for sanitizing or cleansing purposes. Toxic chemicals (such as chlorine or copper-based algaecides) may pollute the environment when discharged into a storm drain system.

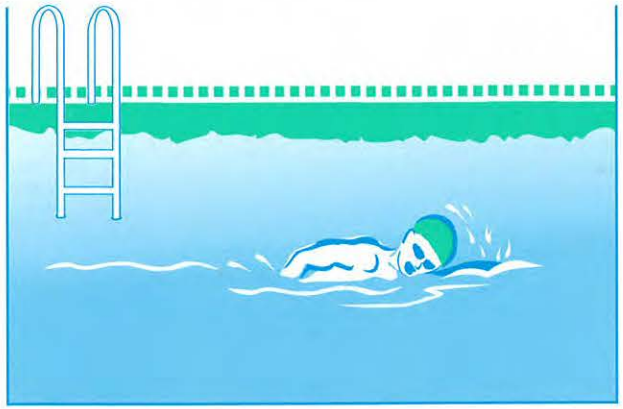
The Cities and County of Riverside have adopted ordinances that prohibit the discharge of wastewater to the street and storm drain system.



Discharge Regulations

Regulatory requirements for discharging wastewater from your pool may differ from city to city. Chlorinated water should not be discharged into the street, storm drain or surface waters. Check with your water agency to see if disposal to the sanitary sewer line is allowed for pool discharges (see reverse for Riverside County sewer agencies).

If allowed, a hose can be run from the pool Jacuzzi, or fountain to the private sewer cleanout, washing machine drain or a sink or bathtub.



If you cannot discharge to the sewer, you may drain your fountain, pool, or jacuzzi to your landscaping by following these guidelines:

First, reduce or eliminate solids (e.g. debris, leaves or dirt) in the pool water and allow the chemicals in the pool water to dissipate before draining the pool (this could take up to 7 days, verify using a home pool test kit).

Second, slowly drain to a landscaped area away from buildings or structures. Control the flow to prevent soil erosion; it may take more than one day to empty. Do not allow sediment to enter the street, gutter or storm drain.

Maintenance & Chemicals



Cleaning Filters

Filter rinse water and backwash must be discharged to the sanitary sewer, on-site septic tank and drain field system (if properly designed and adequately sized), or a seepage pit. Alternatively, rinse water or backwash may be diverted to landscaped or dirt areas. Filter media and other non-hazardous solids should be picked up and disposed of in the trash.

Algaecides

Avoid using copper-based algaecides unless absolutely necessary. Control algae with chlorine, organic polymers or other alternatives to copper-based pool chemicals. Copper is a heavy metal that can be toxic to aquatic life when you drain your pool.

Chemical Storage and Handling

- Use only the amount indicated on product labels
- Store chlorine and other chemicals in a covered area to prevent runoff. Keep out of reach of children and pets.
- Chlorine kits, available at retail swimming pool equipment and supply stores, should be used to monitor the chlorine and pH levels before draining your pool.
- Chlorine and other pool chemicals should never be allowed to flow into the gutter or storm drain system.

Take unwanted chemicals to a Household Hazardous Waste (HHW) Collection Event. There's no cost for taking HHW items to collection events – it's FREE! Call **1-800-506-2555** for a schedule of HHW events in your community.



1510

Adopt a pet from your local animal shelter or adoption centers at pet stores. A variety of animals, from purebred tomixe d breed are waiting for loving arms and good homes. Consider volunteering at your local animal shelters. Volunteers, donations, food, newspapers, old towels and linens are needed to help the animals.



RIVERSIDE COUNTY
ANIMAL SHELTER LOCATIONS:

BLYTHE
16450 West Hobson Way
Blythe, CA 92225
760-921-7857

HEMET
800 South Sanderson
Hemet, CA 92545
909 925-8025

INDIO
45-355 Van Buren
Indio, CA 92201
760-347-2319

RIVERSIDE
5950 Wilderness Avenue
Riverside, CA 92504
909-358-7387

FOR ALL OTHER AREAS
CALL 1-888-636-7387

Riverside County gratefully acknowledges the City of Los Angeles Stormwater Program for the design concept of this brochure.

What's the Scoop?



TIPS FOR A HEALTHY PET AND A HEALTHIER ENVIRONMENT

CREATE A HEALTHY ENVIRONMENT in and around your home by following these simple pet practices. Your pet, family and neighbors will appreciate their clean comfortable surroundings.

HOUSEHOLD PETS

We all love our pets, but pet waste is a subject everyone likes to avoid. Pet waste left on trails, sidewalks, streets, and grassy areas is immediately flushed into the nearest waterway when it rains. Even if you can't see water near you, the rain or waste water WASHES all that PET WASTE and BACTERIA INTO THE STORMDRAIN, where it travels to your neighborhood creek or lake untreated. These animal droppings also contain nutrients that can promote the growth of algae, if they enter our streams and lakes. The risk of STORMWATER CONTAMINATION INCREASES, if pet wastes is allowed to accumulate in animal pen areas or left on sidewalks, streets, or driveways where runoff can carry them to storm sewers.

Some of the DISEASES THAT CAN SPREAD from pet waste are:
Campylobacteriosis — a bacterial infection that causes diarrhea in humans.
Salmonellosis — the most common bacterial infection transmitted to humans from animals.
Toxocarisis — roundworms transmitted from animals to humans.

Flies and other pest insects can also increase when pet waste is disposed of improperly, becoming a nuisance and adding yet another vector for disease transmission.

WHAT CAN YOU DO?

- SCOOP up pet waste and flush it down the toilet.
- NEVER DUMP pet waste into a storm drain or catch basin.
- USE the complimentary BAGS or mutt mitts offered in dispensers at local parks.
- CARRY EXTRA BAGS when walking your dog and make them available to other pet owners who are without.
- TEACH CHILDREN how to properly clean up after a pet.
- TELL FRIENDS AND NEIGHBORS about the ill effects of animal waste on the environment. Encourage them to clean up after pets.

Did You Know . . .
that Californians illegally dump about 80 million gallons of motor oil each year?



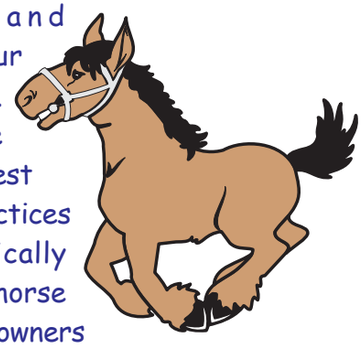
Many communities have "Scoop the Poop" laws that govern pet waste cleanup. Some of these laws specifically require anyone who walks an animal off of their property to carry a bag, shovel, or scooper. Any waste left by the animal must be cleaned up immediately. CALL YOUR LOCAL CODE ENFORCEMENT OFFICER to find out more about pet waste regulations.

Pets are only one of the many fixtures of suburban America that add to water pollution. Lawn fertilizers, rinse water from driveways and motor oil commonly end up in streams and lakes. **CALL 1-800-506-2555 FOR HOUSEHOLD HAZARDOUS WASTE COLLECTION LOCATION AND DATES.** Maintain your automobile to avoid leaks. Dispose of used vehicle fluids properly. Your pets can be poisoned if they ingest gas, oil or antifreeze that drips onto the pavement or is stored in open containers.

NEVER HOSE VEHICLE FLUIDS into the street or gutter. USE ABSORBENT MATERIALS such as cat litter to clean-up spills. SWEEP UP used absorbent materials and place in the trash.

HORSES AND LIVESTOCK

Fortunate enough to own a horse or livestock? You, too, can play a part in protecting and cleaning up our water resources. The following are a few simple Best Management Practices (BMPs) specifically designed for horse owners and landowners with horses.



- STORE your manure properly. Do not store unprotected piles of manure in places where runoff may enter streams, or flood waters may wash the manure away. Place a cover or tarp over the pile to keep rainwater out.
- CHECK with your local conservation district to design manure storage facilities to protect water quality. These structures usually consist of a concrete pad to protect ground water and a short wall on one or two sides to make manure handling easier.
- TRY composting – A vegetative cover placed around buildings or on steeper slopes can help minimize erosion and absorb nutrients while improving the appearance of your property. In addition, avoid costlier erosion controls, vegetative covers will provide animals with better traction during wet or icy conditions.



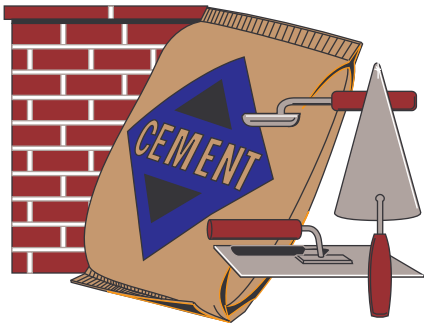
- KEEP animals out of steams – Designed stream crossings provide a safe, easy way for horses and livestock to ford streams. Fencing encourages the use of the crossing instead of the streambed to navigate streams. This will allow vegetation to stabilize stream banks and reduce sediment pollution.
- MOW pastures to proper height, six inches is typically recommended.
- Material STORAGE SAFETY TIPS – Many of the chemicals found in barns require careful handling and proper disposal. When using these chemicals, be certain to follow these common sense guidelines:
  - Buy only what you need.
  - Treat spills of hoof oils like fuel spill. Use kitty litter to soak up the oil and dispose in a tightly sealed plastic bag.
  - Store pesticides in a locked, dry, well-ventilated area.
  - Protect stored fertilizer and pesticides from rain and surface water.

Call 1-800-506-2555 to locate your local conservation district to find out what to do with your current backyard manure pile, how to re-establish a healthy pasture, what to do about weeds, and what grasses grow best in your soils.

Thank you for doing your part to protect your watershed, the environment, and the equestrian way of life in your community!



FRESH CONCRETE & MORTAR APPLICATION



Cement, cement wash, gravel, asphalt, solvents, and motor oil from fresh concrete and mortar activities often make their way into the San Bernardino County storm drain system and DO NOT GET TREATED before reaching the Santa Ana River. These wastes pollute our drinking water, and make our waters unhealthy and unsafe for people and wildlife.

Follow these practices to help prevent stormwater pollution...

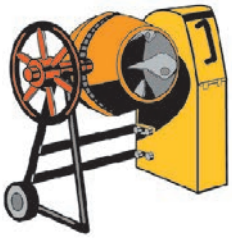
General Business Practices...

Schedule excavation and grading work during dry weather, and in case it rains, prevent materials from contacting stormwater by storing them under cover. Also, secure open bags of cement to keep wind-blown cement powder away from streets, gutters and storm drains.



During Construction...

Prevent mortar and cement from entering the storm drains by placing erosion controls (i.e., berms or temporary vegetation) down-slope to capture runoff. When breaking up paving, be sure to pick up all pieces and recycle them at a crushing company; small amounts of excess dry concrete, grout and mortar can be disposed of in the trash. Setup small mixers on tarps or heavy drop cloths to allow for easy cleanup of debris. REMEMBER: Never bury waste material -- recycle or dispose of it as hazardous waste. Call 386-8401 for recycling and disposal information.



Handling Materials & Wastes...

Minimize wastes when ordering materials by ordering only the amounts needed to complete the job. Whenever possible, use recycled or recyclable materials. Recycle broken asphalt, concrete, wood, and cleared vegetation. Unrecyclable materials must be taken to an appropriate landfill or disposed of as hazardous waste. For recycling and disposal information, call 386-8401.

Cleaning up...

When cleaning up after driveway or sidewalk construction, wash concrete dust onto designated dirt areas, not down the driveway or into the street or storm drain. Also, wash out concrete mixers and equipment only in specified wash-out areas, where the water flows into containment ponds. Cement washwater can be recycled by pumping it back into cement mixers for reuse. REMEMBER: Never dispose of cement washout into driveways, streets, gutters, storm drains or drainage ditches.



For more information, call your city's stormwater representative

Appendix 10

Cherry Outpost Project Acoustical Analysis Report

Cherry Outpost Project

Acoustical Analysis Report

August 2024 | 03491.00013.001

Prepared for:

Cherry Outpost, LP
P.O. Box 1958
Corona, CA 92878

Prepared by:

HELIX Environmental Planning, Inc.
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ACRONYMS AND ABBREVIATIONS

µPa	micro-Pascals
ADT	average daily trips
ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CBC	California Building Code
CEQA	California Environmental Quality Act
City	City of Wildomar
CNEL	Community Noise Equivalent Level
County	Riverside County
dB	decibel
dBA	A-weighted decibel
FTA	Federal Transit Administration
HVAC	heating, ventilation, and air conditioning
Hz	hertz
I-	Interstate
in/sec	inches per second
kHz	kilohertz
L_{DN}	Day Night sound level
L_{EQ}	time-averaged noise level
NSLU	noise-sensitive land use
PPV	peak particle velocity
project	Cherry Outpost Project
RCNM	Roadway Construction Noise Model
SPL	sound pressure level
STC	Sound Transmission Class
USDOT	U.S. Department of Transportation
VFD	variable frequency drive

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EXECUTIVE SUMMARY

This report presents an assessment of potential noise and vibration impacts associated with the proposed Cherry Outpost Project (project), which proposes the construction of a car wash, a convenience store, a gas station, two drive-through restaurants, and an 72-key hotel in the City of Wildomar (City). Off-site improvements including widening of Bundy Canyon Road, street improvements to Cherry Street, and installation of a storm drain pipe would also be constructed.

Anticipated construction activities would generate temporary elevated noise levels for nearby residences; however, construction activity would occur during the exempt hours and would not result in a substantial temporary increase in the ambient noise level. In addition, the project would not result in groundborne vibration or noise levels exceeding thresholds for building damage or human response. Impacts during construction would be less than significant.

At residences in the project area, noise levels due to project-generated traffic off-site would not increase by a perceptible amount and impacts would be less than significant. On-site stationary noise sources are anticipated to include rooftop heating, ventilation, and air conditioning systems; drive-through speakers, car wash blowers; and car wash vacuums. These sources would generate noise levels that comply with the City's noise limits during the nighttime hours and during daytime hours at the commercial property lines to the east and south as well as the proposed hotel property line.

However, the anticipated noise levels generated by on-site sources would not comply with the City's daytime noise limits at the residential property line north of the project site or the proposed property lines of the car wash parcel, resulting in potentially significant impacts. Mitigation measure NOI-1 would require installation of a 12-foot-high, solid barrier with a roof at the exit of the car wash and a 6-foot-high noise barrier at the northern property line be installed. With implementation of mitigation measure NOI-1, noise levels at the residential property line north of the project site and at the proposed property line of the drive-through restaurant northwest of the car wash would comply with the City's daytime noise limits. The project would require an exception in accordance with Wildomar Municipal Code Section 9.48.070 for noise levels exceeding City noise limits at gas station and quick-serve restaurant property lines; however, as these are commercial land uses, no adverse effects from the noise would occur. With implementation of mitigation measure NOI-1 and approval of a continuous-events exception, impacts would be less than significant.

Persons working or residing in the project area would not be exposed to excessive airport or aircraft noise and would comply with adopted airport land use compatibility plans. Project buildings would be exposed to traffic noise from Interstate 15 and other local roadways. In accordance with the General Plan Noise Element, the proposed commercial land uses would be exposed to noise levels in the conditionally acceptable range and conventional construction is anticipated to provide sufficient attenuation. For the proposed hotel land use, the exterior noise level is anticipated to be in the normally unacceptable range and further analysis of construction materials required to achieve acceptable interior noise levels would be required in accordance with the California Building Code. Mitigation measure NOI-2 specifies the requirement for an exterior-to-interior analysis to be completed to ensure interior noise levels are reduced to the required level. With implementation of this mitigation measure, the project would comply with General Plan and statewide land use compatibility requirements.

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report analyzes potential noise and vibration impacts associated with the proposed Cherry Outpost Project (project). The analysis includes a description of existing conditions in the project vicinity and an assessment of potential impacts associated with project implementation.

1.2 PROJECT LOCATION

The approximately 6.64-acre project site is located in the City of Wildomar (City) in western Riverside County (County), California, and is generally located east of Interstate (I-) 15 and west of I-215 (Figure 1, *Regional Location*). Specifically, the project site is located at the northwest intersection of Bundy Canyon Road and Cherry Street and is bordered to the west by the I-15 northbound onramp (Figure 2, *Aerial Photograph*). The project site comprises two undeveloped parcels with Assessor's Parcel Numbers 366-290-008 and -007. Off-site areas within the existing paved right-of-way along Bundy Canyon Road and Cherry Street would also be altered as part of the project.

1.3 PROJECT DESCRIPTION

The proposed project consists of a commercial development split among four proposed parcels (see Figure 3, *Site Plan*). The first parcel would contain a 5,724-square-foot car wash building in the southern portion of the project site. The second parcel located on the east side of the project site would contain a 14-pump gas station, 4,176-square-foot convenience store, and 2,375-square foot quick-serve restaurant with a drive through. A quick-serve restaurant with a drive-through is also proposed on parcel 3 at the western edge of the site and would comprise approximately 4,425 square feet of building space. The fourth parcel at the northern edge of the project site would contain an 72-key, four story hotel totaling 45,571 square feet of floor area. Access to the site would be provided by two driveways along Cherry Street. Off-site project components include widening of Bundy Canyon Road, street improvements to Cherry Street, and installation of a storm drain pipe. See Figure 4, *Conceptual Grading Plan*.

The project site is currently zoned as Commercial within the Scenic Highway Commercial Zone. The General Plan Land Use Element designates the project site for Commercial Retail use. The proposed project uses are consistent with the existing zoning and land use designations for the site with approval of a Conditional Use Permit and no changes to these designations are proposed. A Continuous-Events Exception in accordance with Section 9.48.070 of the Wildomar Municipal Code would also be required for operation of the proposed car wash.

1.4 NOISE AND VIBRATION DESCRIPTORS AND TERMINOLOGY

1.4.1 Noise Descriptors

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, with a specified duration, while maximum noise levels are represented by the symbol L_{MAX}. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels

during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level (L_{DN}), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

1.4.2 Noise Terminology

1.4.2.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

1.4.2.2 Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

1.4.2.3 Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (µPa). One µPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 µPa. Because of this wide range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of dBA. The threshold of hearing for the human ear is about 0 dBA, which corresponds to 20 µPa.

1.4.2.4 Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than from one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dBA changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz to 8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dBA in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness.

No known studies have directly correlated the ability of a healthy human ear to discern specific levels of change in traffic noise over a 24-hour period. Many ordinances, however, specify a change of 3 CNEL as the significant impact threshold. This is based on the concept of a doubling in noise energy resulting in a 3 dBA change in noise, which is the amount of change in noise necessary for the increase to be perceptible to the average healthy human ear.

1.4.3 Vibration Descriptors and Terminology

Groundborne vibration consists of rapidly fluctuating motions or waves transmitted through the ground with an average motion of zero. Sources of groundborne vibrations include natural phenomena and anthropogenic causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Vibration effects can be described by peak and root mean square amplitudes. Building damage is often discussed in terms of peak velocity, or peak particle velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration signal. PPV is related to the stresses that are experienced by buildings; For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

1.5 NOISE- AND VIBRATION- SENSITIVE LAND USES

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors are individual locations that may be affected by noise. NSLUs in the project vicinity include residences located adjacent to the project site to the north and east of the project site across Cherry Street.

People, structures, and equipment are the three primary categories of receivers that are sensitive to groundborne vibration. Thus, land uses sensitive to vibration include residences, hospitals, research laboratories, or similar facilities where people live, old structures are present, or vibration-sensitive equipment is used. Vibration-sensitive land uses in the project vicinity include residences located north and east of the project site. Based on the age of these structures, they may not be constructed in accordance with current building codes and are, therefore, considered more sensitive to vibration than modern residential structures.

1.6 REGULATORY FRAMEWORK

1.6.1 California Noise Control Act

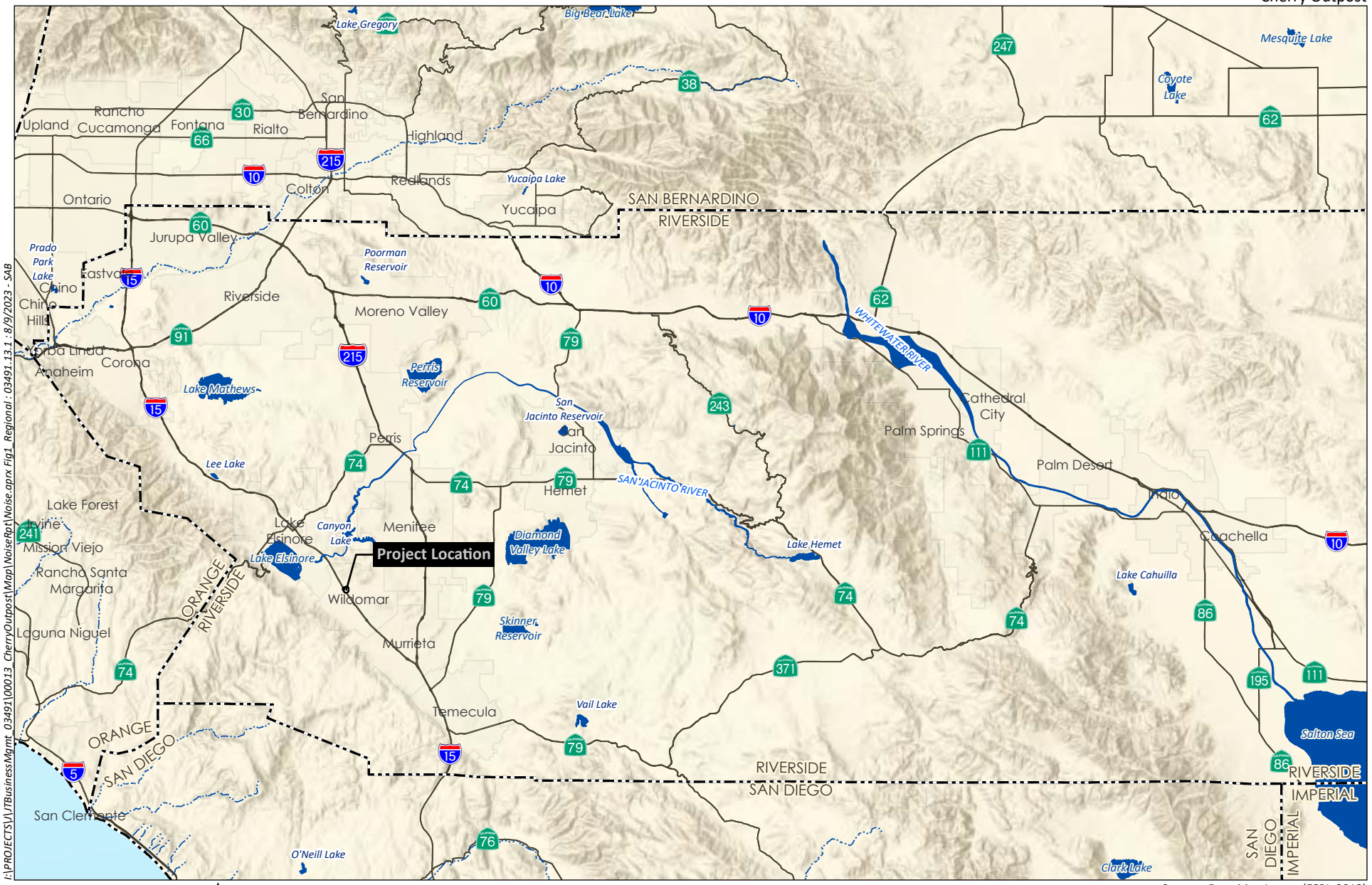
The California Noise Control Act is a section within the California Health and Safety Code that describes excessive noise as a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

1.6.2 California Building Code

The California Building Code (CBC) sets forth building design and construction requirements relating to fire and life safety, structural safety, and access compliance. Title 24, Part 2, Section 1206, Sound Transmission, requires interior noise levels in habitable rooms not to exceed 45 dB. The 45 dB requirement may be measured as either the L_{DN} or CNEL, as used in the applicable general plan noise element.

1.6.3 County of Riverside General Plan Noise Element

The City of Wildomar adopted the County of Riverside's 2003 General Plan, which includes a Noise Element that establishes noise compatibility guidelines for various land uses, as shown in Table 1, *Land Use Noise Compatibility Guidelines*. As shown in Table 1, for the project's hotel land use, the Noise Element specifies exterior noise levels up to 65 CNEL as normally acceptable, between 60 CNEL and 70 CNEL as conditionally acceptable, between 70 CNEL and 80 CNEL as normally unacceptable and over 80 CNEL as clearly unacceptable. For the other commercial land uses, exterior noise levels of up to 70 CNEL are considered normally acceptable, between 67.5 CNEL and 77.5 CNEL are considered conditionally acceptable, and above 75 CNEL are considered clearly unacceptable.



0 10 Miles

Source: Base Map Layers (ESRI, 2013)

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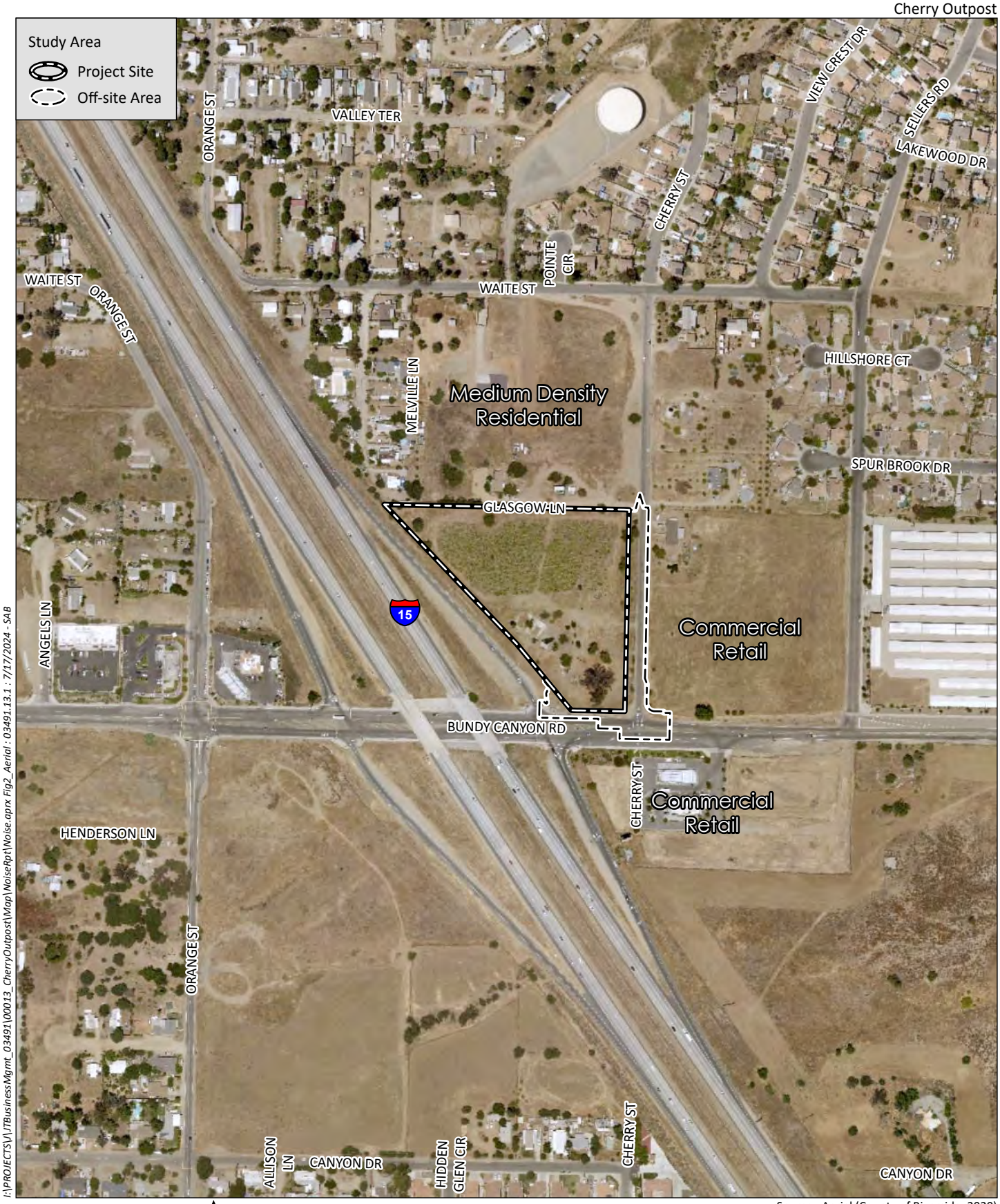
Regional Location

Figure 1



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Source: Aerial (County of Riverside, 2020)

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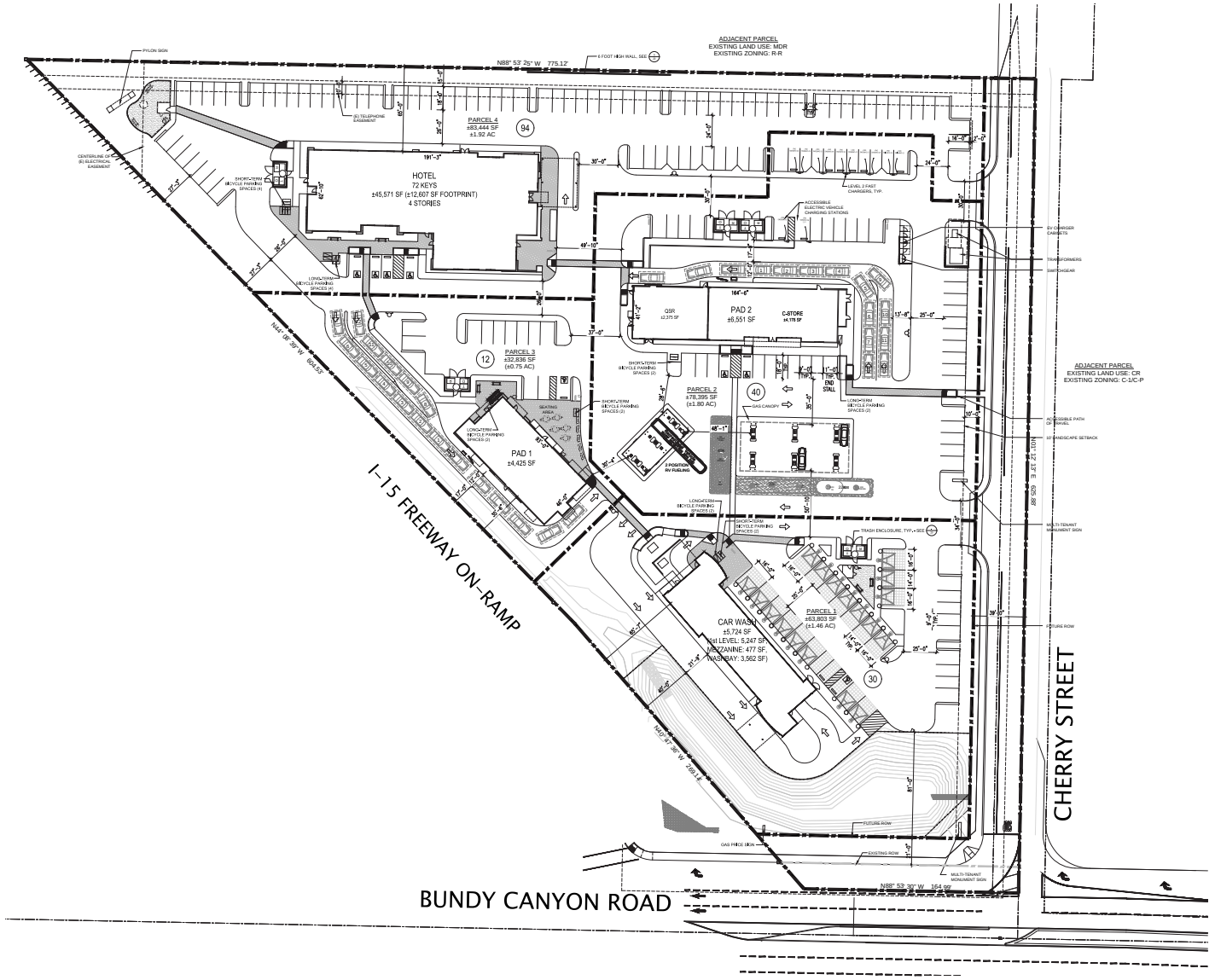
Aerial Photograph

Figure 2



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Source: KGTY, 2024

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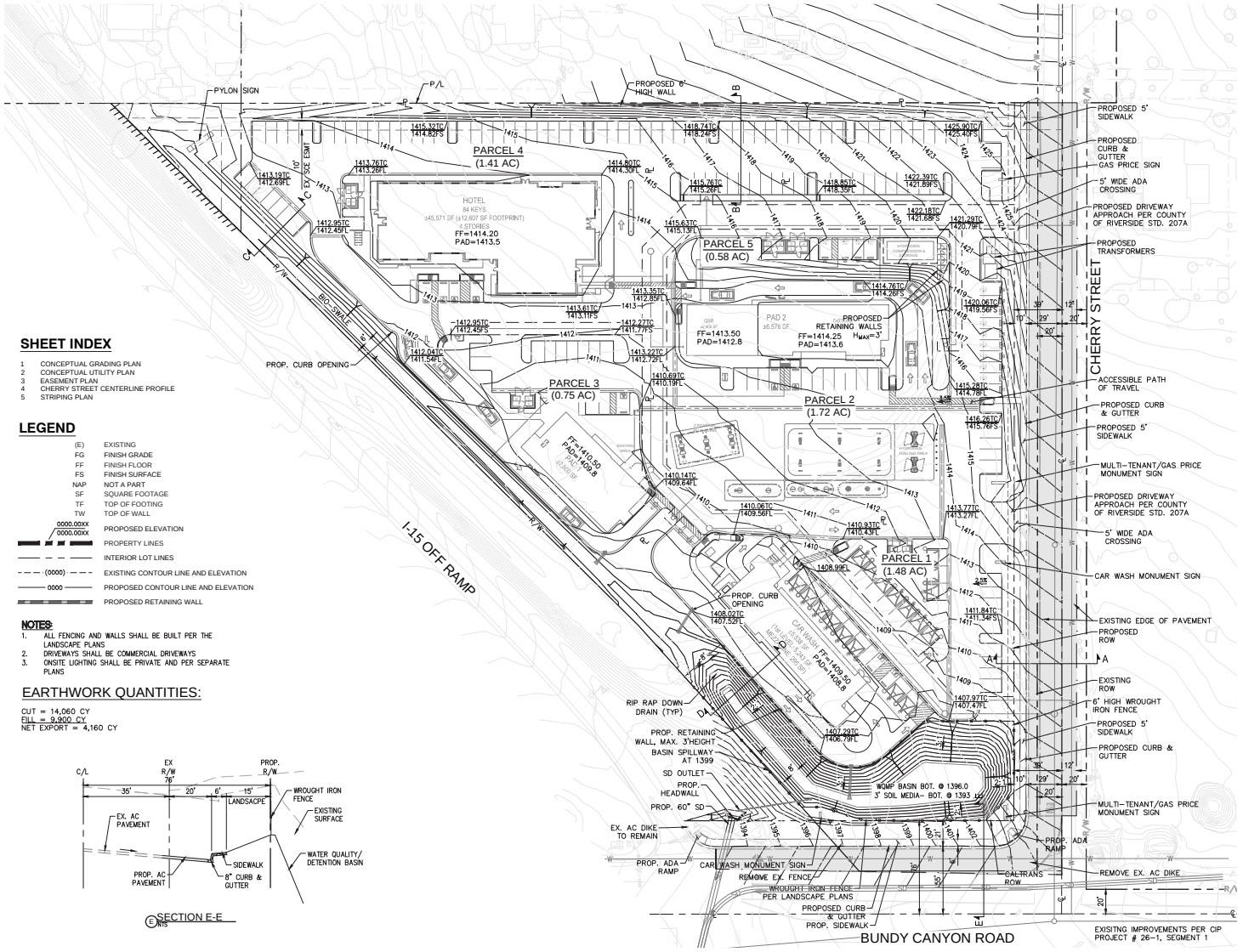
Site Plan

Figure 3



Source: Tait & Associates, 2024

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Conceptual Grading Plan

Figure 4

Table 1
LAND USE NOISE COMPATIBILITY GUIDELINES

Land Use Category	Exterior Noise Exposure (CNEL)						
	50-55	55-60	60-65	65-70	70-75	75-80	80+
Residential – Low Density Single Family, Duplex, Mobile Homes							
Residential – Multiple Family							
Transient Lodging – Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Businesses, Commercial, and Professional							
Industrial Manufacturing, Utilities, Agriculture							
Normally Acceptable[1]	**Conditionally Acceptable[2]**		**Normally Unacceptable[3]**		**Clearly Unacceptable[4]**		

Source: County 2003

[1] Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

[2] Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.

[3] Normally Unacceptable: New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.

[4] Clearly Unacceptable: New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

CNEL = Community Noise Equivalent Level.

1.6.4 City of Wildomar Municipal Code

1.6.4.1 Section 9.48.020 – Exemptions

Sound emanating from the following sources is exempt from the provisions of this chapter:

H. Private construction projects located one-quarter of a mile or more from an inhabited dwelling

I. Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that:

    1. Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September, and

    2. Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May

J. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.

K. Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems

L. Heating and air conditioning equipment

1.6.4.2 Section 9.48.040 – General Sound Level Standards

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 2, *Sound Level Standards*.

Table 2
SOUND LEVEL STANDARDS

General Plan Foundation Component	General Plan Land Use Designation (Density)	Maximum Decibel Level 7:00 am – 10:00 pm (dBA L_{MAX})	Maximum Decibel Level 10:00 pm – 7:00 am (dBA L_{MAX})
Community Development	EDR – Estate Density Residential (2 AC)	55	45
	VLDR – Very Low Density Residential (1 AC)	55	45
	LDR –Low Density Residential (1/2 AC)	55	45
	MDR – Medium Density Residential (2-5)	55	45
	MHDR – Medium High Density Residential (5-8)	55	45
	HDR – High Density Residential (8-14)	55	45
	VHDR – Very High Density Residential (14-20)	55	45
	HTDR – Highest Density Residential (20+)	55	45
	CR – Retail Commercial	65	55
	CO – Office Commercial	65	55
	CT – Tourist Commercial	65	55
	CC – Community Center	65	55
	LI – Light Industrial	75	55
	HI – Heavy Industrial	75	75
	BP – Business Park	65	45
	PF – Public Facility	65	45
	SP – Specific Plan Residential	55	45
	SP – Specific Plan Commercial	65	55
	SP – Specific Plan Light Industrial	75	55
	SP – Specific Plan Heavy Industrial	75	75
Rural Community	EDR – Estate Density Residential (2 AC)	55	45
	VLDR – Very Low Density Residential (1 AC)	55	45
	LDR –Low Density Residential (1/2 AC)	55	45
Rural	RR – Rural Residential (5 AC)	45	45
	RM – Rural Mountainous (10 AC)	45	45
	RD – Rural Desert (10 AC)	45	45
Agriculture Open Space	AG – Agriculture (10 AC)	45	45
	C – Conservation	45	45
	CH – Conservation Habitat	45	45
	REC – Recreational	45	45
	RUR – Rural (20 AC)	45	45
	W – Watershed	45	45
	MR – Mineral Resources	75	45

Source: City of Wildomar Municipal Code, Section 9.48.040, Table 1
dBA = A-weighted decibel; L_{MAX} = maximum decibel level

1.6.4.3 Section 9.48.070 – Exceptions

Exceptions may be requested from the standards set forth in Section 9.48.040 or 9.48.060 of this chapter and may be characterized as construction-related, single-event or continuous-events exceptions.

A. Application and Processing.

1. Construction-Related Exceptions. An application for a construction-related exception shall be made to and considered by the Director of Building and Safety on forms provided by the Building and Safety Department and shall be accompanied by the appropriate filing fee. No public hearing is required.

2. Single-Event Exceptions. An application for a single-event exception shall be made to and considered by the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. No public hearing is required.

3. Continuous-Events Exceptions. An application for a continuous-events exception shall be made to the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous-events exception, the Planning Director shall set the matter for public hearing before the Planning Commission, notice of which shall be given as provided in Title 17. Notwithstanding the above, an application for a continuous-events exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

B. Requirements for Approval. The appropriate decision-making body or officer shall not approve an exception application unless the applicant demonstrates that the activities described in the application would not be detrimental to the health, safety, or general welfare of the community. In determining whether activities are detrimental to the health, safety or general welfare of the community, the appropriate decision-making body or officer shall consider such factors as the proposed duration of the activities and their location in relation to sensitive receptors. If an exception application is approved, reasonable conditions may be imposed to minimize the public detriment, including, but not limited to, restrictions on sound level, sound duration and operating hours.

C. Appeals. The Director of Building and Safety's decision on an application for a construction-related exception is considered final. The Planning Director's decision on an application for a single-event exception is considered final. After making a decision on an application for a continuous-events exception, the appropriate decision-making body or officer shall mail notice of the decision to the applicant. Within 10 calendar days after the mailing of such notice, the applicant or an interested person may appeal the decision to the City Council. Upon receipt of an appeal and payment of the appropriate appeal fee, the City Clerk shall set the matter for hearing not less than five days nor more than 30 days thereafter and shall give written notice of the hearing in the same manner as notice of the hearing was given by the appropriate hearing officer or body. The City Council shall render its decision within 30 days after the appeal hearing is closed.

D. Effect of a Pending Continuous-Events Exception Application. For a period of 180 days from the effective date of the ordinance codified in this chapter, no person creating any sound prohibited by this chapter shall be considered in violation of this chapter if the sound is related to a use that is operating pursuant to an approved land use permit, if an application for a continuous-events exception has been filed to sanction the sound and if a decision on the application is pending.

2.0 ENVIRONMENTAL SETTING

The project site is currently vacant and contains abandoned palm trees from prior nursery operations. The parcel is currently zoned as Commercial, specifically within the Scenic Highway Commercial Zone, and designated in the General Plan for Commercial Retail use.

2.1 SURROUNDING LAND USES

Adjacent land uses surrounding the project site include residential uses zoned Rural Residential to the north; a non-conforming residential land use on the parcel zoned Commercial across Cherry Street to the east; a gas station with a convenience store and car wash on the parcel zoned Commercial across Bundy Canyon Road to the south; and the northbound on-ramp to I-15 to the west. Parcels north of the project site have General Plan Land Use designations of Medium Density Residential and the parcels east and south of the project site have General Plan Land Use designations of Commercial Retail. See Figure 2.

2.2 EXISTING NOISE ENVIRONMENT

The existing noise environment is dominated by traffic noise from I-15, Bundy Canyon Road, and Cherry Boulevard. There is some more distant noise from aircraft in the project area; however, the project site is not within an airport noise contour where substantial aircraft noise occurs (County 2023).

2.2.1 Noise Survey

Two noise measurements were taken near the project site to document existing conditions in the vicinity. The first noise measurement was recorded along I-15 at the western edge of the gas station south of the project site. The second measurement was taken along Bundy Canyon Road, east of the project site and away from I-15. The measured noise levels are shown in Table 3, *Noise Measurement Results.* Measurement locations are shown on Figure 5, *Measurement and Traffic Receiver Locations*.

Table 3
NOISE MEASUREMENT RESULTS

Measurement 1	
Date:	April 7, 2023
Time:	4:20 p.m. – 4:35 p.m.
Location:	Eastern edge of gas station property. Approximately 180 feet south of Bundy Canyon Road centerline and 325 feet east of eastern edge of I-15.
Measured Noise Level:	70.6 dBA L_{EQ}
Notes:	Predominant noise source is I-15 and associated northbound offramp.
Measurement 2	
Date:	April 7, 2023
Time:	4:39 p.m. – 4:54 p.m.
Location:	Approximately 35 feet north of Bundy Canyon Road centerline.
Measured Noise Level:	67.4 dBA L_{EQ}
Notes:	Primarily Bundy Canyon Road traffic noise, limited traffic on Canyon Ranch Road.

dBA = A-weighted decibel; L_{EQ} = time-averaged noise level

A 15-minute traffic count was conducted during the second measurement (location M2) to estimate the breakdown of heavy trucks (three or more axles), medium trucks (double tires/two axles), and automobiles along Bundy Canyon Road. Traffic counts for the timed measurement and the one-hour equivalent volume are shown in Table 4, *Recorded Traffic Volume and Vehicle Mix*.

Table 4
RECORDED TRAFFIC VOLUME AND VEHICLE MIX

Location	Roadway	Traffic	Autos	MT[1]	HT[2]
M2	Bundy Canyon Road	15-minute count	258	3	1
		One-hour equivalent	1,032	12	4
		Percent	98.5%	1.1%	0.4%

[1] Medium Trucks (double tires/two axles)
[2] Heavy Trucks (three or more axles)

3.0 ANALYSIS, METHODOLOGY, AND ASSUMPTIONS

3.1 METHODOLOGY

3.1.1 Ambient Noise Survey

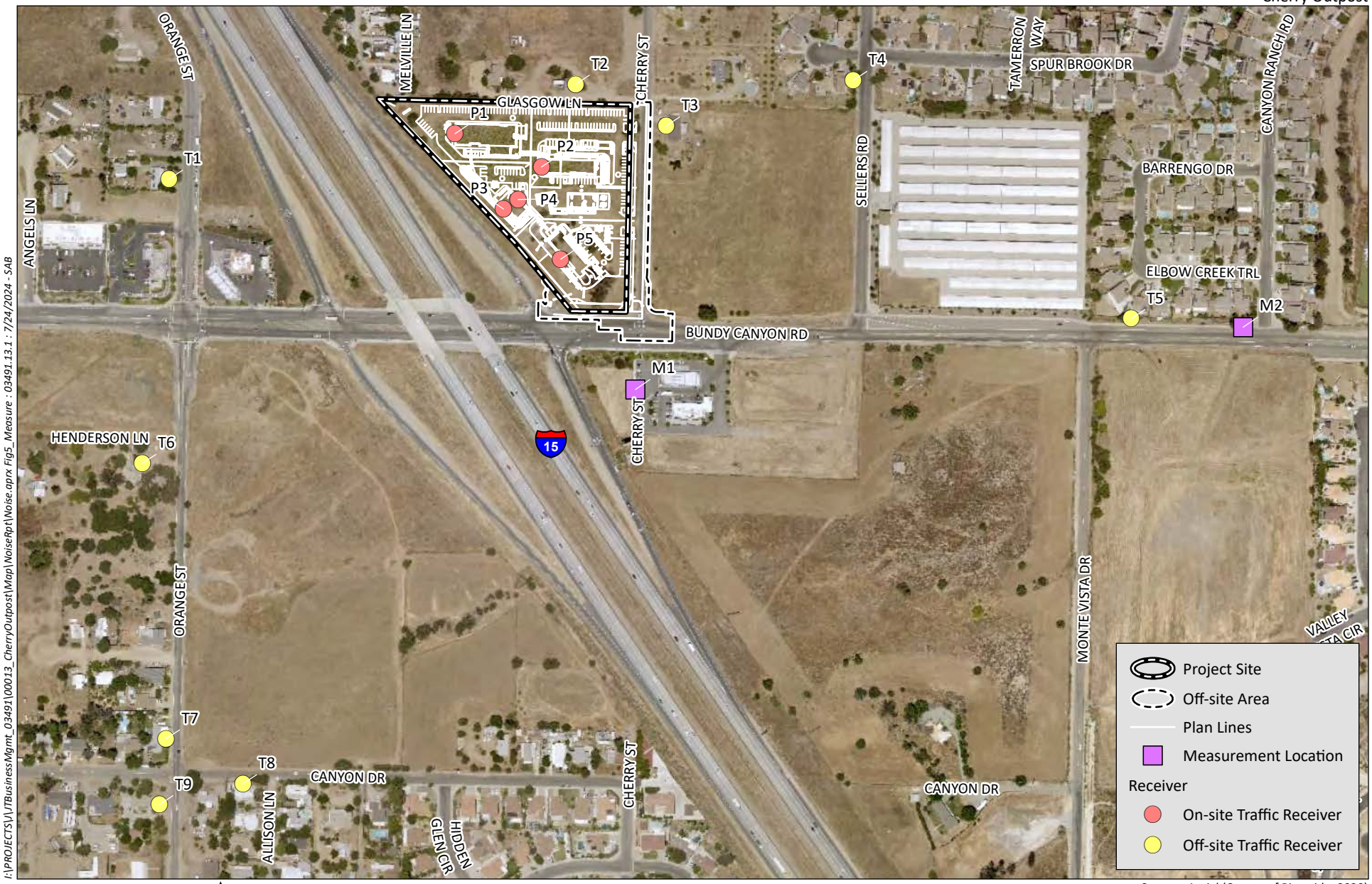
The following equipment was used to measure existing noise levels at the project site:

- Piccolo II Noise Meter
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the noise meter

The sound level meter was calibrated prior to the noise measurements to ensure accuracy. All sound level measurements conducted and presented in this report were made with a sound level meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983 R2006). All instruments were maintained with National Institute of Standards and Technology traceable calibration per the manufacturers' standards.

3.1.2 Noise Modeling Software

Modeling of the exterior noise environment for this report was accomplished using Computer Aided Noise Abatement (CadnaA) version 2022. CadnaA is a model-based computer program developed by DataKustik for predicting noise impacts in a wide variety of conditions. CadnaA assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project related information, such as noise source data, barriers, structures, and topography to create a detailed model, and uses the most up-to-date calculation standards to predict outdoor noise impacts. The latest grading plan provided by the project applicant, as shown on Figure 4, was used for on-site topography. CadnaA traffic noise prediction is based on the data and methodology used in the Traffic Noise Model released by the U.S. Department of Transportation (USDOT).



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Source: Aerial (County of Riverside, 2020)

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Measurement and Traffic Receiver Locations

Figure 5

Peak-hour traffic volumes were estimated based on the assumption that approximately 10 percent of the average daily traffic would occur during a peak hour. The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic. Peak hour L_{EQ} can be converted to CNEL using the following equation, where $L_{EQ}(h)pk$ is the peak hour L_{EQ}, *P* is the peak hour volume percentage of the average daily trips (ADT), *d* and *e* are divisions of the daytime fraction of ADT to account for daytime and evening hours, and *N* is the nighttime fraction of ADT:

$$CNEL = L_{EQ}(h)pk + 10log10\ 4.17/P + 10log10(d + 4.77e + 10N)$$

The model-calculated one-hour L_{EQ} noise output is therefore approximately equal to the CNEL when peak-hour traffic volumes are approximately 10 percent of ADT (California Department of Transportation [Caltrans] 2013). Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment.

3.2 ASSUMPTIONS

3.2.1 Construction

Construction would require the use of equipment throughout the site and off-site improvement areas for the full term of construction. General project construction activities would include site preparation, grading, utility undergrounding, physical building construction, paving, and application of architectural coatings. Since the equipment required for project construction has not been determined at this phase of project planning, this analysis included modeling of construction equipment required for similar projects. According to the project applicant, no blasting would be required.

3.2.2 Operations

The proposed project's operational noise sources are anticipated to include heating, ventilation, and air conditioning (HVAC) systems, drive-through restaurant speakers, car wash equipment, and vehicular traffic. During operations, the project would also be exposed to vehicular traffic noise.

3.2.2.1 Heating, Ventilation, and Air Conditioning Units

Specific planning for future HVAC systems is not available at this point in project design. A typical rooftop commercial HVAC unit was analyzed for the project buildings. The unit used in this analysis is a Carrier Centurion Model 50PG12 with a sound rating of 80 dBA sound power. The manufacturer's noise data is provided below in Table 5, *Carrier 50PG12 Condenser Noise*, and in Appendix A, *HVAC Sound Data*.

Table 5
CARRIER 50PG12 CONDENSER NOISE

Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies								Overall Noise Level (dBA)[1]
63 Hz	125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
90.4	83.1	80.9	77.8	75.2	70.0	66.1	57.6	80.0

[1] Sound Power Level (S_{WL})
HZ = Hertz; KHz = kilohertz

A single ton of HVAC capacity is commonly required for every 350 square feet of habitable space. Using this calculation, 11 units for the hotel, 1 unit for the stand-alone restaurant building, 2 units for the convenience store and quick-serve restaurant building, and 1 unit for the car wash would be required.

3.2.2.2 Drive-through Speakers

Specific speaker system data is not available at this point in project design. Therefore, a noise level measurement from a speaker at another drive-through restaurant was used as a reference source for this analysis. The reference measurement was made at the In-N-Out Burger restaurant located at 7160 Broadway in Lemon Grove, which is similarly located adjacent to a highway exit, during the 12:00 p.m. lunch hour (HELIX 2016). The sound level meter was set to take data samples at 1-octave band, 20-millisecond intervals and held just outside the car window while an order was placed, approximately four feet from the speaker and at an elevation of approximately four feet. The 20-second summed measurement time period data (the order period) are shown in octave format in Table 6, *Measured Drive-through Speaker Noise Data.* It was assumed that a single automobile would be present when the speaker is operating and that both drive-through restaurants would be open 24 hours per day.

Table 6
MEASURED DRIVE-THROUGH SPEAKER NOISE DATA

Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies								Overall Noise Level (dBA)[1]
63 Hz	125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
79.9	75.8	72.8	75.4	85.4	80.6	61.7	52.5	86.4

Source: HELIX 2016

[1] Measured at five feet from source.

HZ = Hertz; KHz = kilohertz

3.2.2.3 Car Wash

The major noise sources that would be installed for the car wash include blowers in the car wash tunnel and vacuums in the parking area. The car wash would be open during the daytime hours only. The project applicant provided two noise studies conducted at existing car wash locations designed by the same company as the currently proposed car wash (ABD Engineering & Design 2020; Tommy Car Wash Systems 2021). The first noise study included measurements at various locations throughout the car wash facility that were used to replicate noise levels emanating from vacuums in CadnaA (ABD Engineering & Design 2020). The second noise study provided measurement information at various distances from the exit of the car wash tunnel that was used to model noise levels from the blowers in CadnaA. The blowers in this study were adjusted to operate at different frequencies (60 Hz to 10 Hz) to document the resulting noise levels (Tommy Car Wash Systems 2021). The proposed car wash is anticipated to install a variable frequency drive (VFD) to operate the blowers at a frequency of 50 Hz. See Appendix B, *Car Wash Sound Data*, for more detail.

3.2.2.4 Vehicular Traffic

Information related to the project's trip generation and existing traffic environment was provided by Trames Solutions Inc. (2024). The project is estimated to generate 8,897 ADT; however, 1,171 of these trips are anticipated to result from existing pass-by trips, resulting in net trip generation of 7,726 ADT. Access to the project site would be provided via the two driveways on the eastern edge of the project site off Cherry Street. Traffic volumes analyzed herein consider the Cherry Street/Bundy Canyon Road

intersection to be restricted to right-in/right-out/left-in turning movements as initially proposed (Trames Solutions Inc. 2024). Table 7, *Roadway Segment Traffic Volumes*, summarizes the ADT data for the roadway segments that would carry project-generated traffic. Future traffic information represents existing conditions and anticipated increases in trips due to ambient growth and cumulative projects identified in the area for the year 2025. Based on typical traffic distributions and the traffic counts conducted during the noise survey, a traffic distribution of 96 percent automobiles, 3 percent medium trucks, and 1 percent heavy trucks was used in this analysis for local roadways.

Table 7
ROADWAY SEGMENT TRAFFIC VOLUMES

Roadway Segment	Project ADT	Existing (2023) ADT	Future (2025) ADT	Future (2025) + Project ADT
Bundy Canyon Road				
West of Almond Street	400	11,500	13,900	14,300
Almond Street to Orange Street	400	12,600	15,700	16,100
Orange Street to I-15 Southbound Ramps	1,900	19,900	25,200	27,100
I-15 Southbound Ramps to I-15 Northbound Ramps	3,700	21,300	29,300	33,000
I-15 Northbound Ramps to Cherry Street	5,400	21,500	32,200	37,600
Cherry Street to Sellers Road	500	20,500	30,100	30,600
Sellers Road to Monte Vista Drive	1,200	19,200	27,700	28,900
Monte Vista Drive to Canyon Ranch Road	800	20,500	26,100	26,900
East of Canyon Ranch Road	400	19,900	24,900	25,300
Orange Street				
North of Bundy Canyon Road	400	4,400	4,800	5,200
Bundy Canyon Road to Canyon Drive	1,200	6,000	7,700	8,900
South of Canyon Drive	400	4,200	5,000	5,400
Canyon Drive				
West of Orange Street	400	2,100	2,500	2,900
East of Orange Street	400	700	1,300	1,700
Cherry Street				
North of Project Site	1,800	2,000	2,300	4,100
North Project Driveway to South Project Driveway	4,400	1,700	1,800	6,200
South Project Driveway to Bundy Canyon Road	7,000	1,700	1,800	8,800
Sellers Road				
North of Bundy Canyon Road	1,000	3,000	4,000	5,000
Waite Street				
West of Cherry Street	800	2,500	2,800	3,600
Monte Vista Drive				
South of Bundy Canyon Road	400	2,400	10,100	10,500
Canyon Ranch Road				
North of Bundy Canyon Road	400	1,300	1,900	2,300

Source: Trames Solutions Inc. 2024
ADT = average daily traffic

The project traffic study did not provide information related to I-15 traffic volumes. Therefore, modeling of the existing noise environment on-site was achieved using data provided by Caltrans for daily traffic and traffic breakdowns. According to the 2021 traffic census, I-15 adjacent to the project site carries

approximately 118,000 ADT during the peak month, consisting of approximately 4 percent medium trucks and 5 percent heavy trucks (Caltrans 2021).

3.3 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

Thresholds used to evaluate potential noise impacts are based on applicable criteria in the State's California Environmental Quality Act (CEQA) Guidelines Appendix G Noise (Thresholds 1-3) and Land Use sections (Threshold 4). A significant noise impact could occur if the project would result in:

Threshold 1: *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.*

In accordance with the Wildomar Municipal Code, construction noise is exempt from typical noise level limits provided construction activities do not occur between 6:00 p.m. and 6:00 a.m. during the months of June through September or between 6:00 p.m. and 7:00 a.m. during the months of October through May. Construction noise impacts would be considered significant if project construction would result in a 10 dB increase in ambient noise levels, which is perceived as a doubling of loudness (Caltrans 2013).

A significant impact related to proposed stationary noise sources would occur if the sources would generate noise levels at the property line that exceed the limits contained in the City's Noise Ordinance (provided in Table 2 of this report). For the project site, the applicable limits at the northern property are 55 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{MAX} from 10:00 p.m. to 7:00 a.m. At the properties to the east and south of the project site, across Cherry Street and Bundy Canyon Road, respectively, the applicable limits are 65 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 55 dBA L_{MAX} from 10:00 p.m. to 7:00 a.m.

For traffic-related noise, in the absence of a City-adopted threshold, impacts would be considered significant if the project would result in a perceptible (3 dBA) increase in noise levels at nearby NSLUs.

Threshold 2: *Generation of excessive groundborne vibration or groundborne noise levels.*

Excessive ground-borne vibration would occur if construction-related ground-borne vibration exceeds the "severe" vibration annoyance potential criteria for human receptors of 0.4 in/sec PPV specified by Caltrans (2020) or the damage potential criteria to non-engineered timber and masonry buildings of 0.2 inch per second PPV established by the Federal Transit Administration (FTA; 2018).

Threshold 3: *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.*

Excessive noise exposure from airport activity is defined as noise levels that exceed the standards in the City General Plan Noise Element or applicable airport land use compatibility plan for the associated land use.

Threshold 4: *Conflicts with land use compatibility criteria for new land uses.*

The City's General Plan Noise Element specifies exterior noise levels up to 65 CNEL as normally acceptable, between 60 CNEL and 70 CNEL as conditionally acceptable, between 70 CNEL and 80 CNEL as normally unacceptable and over 80 CNEL as clearly unacceptable for hotel land uses.

For commercial land uses, exterior noise levels of up to 70 CNEL are considered normally acceptable, between 67.5 CNEL and 77.5 CNEL are considered conditionally acceptable, and above 75 CNEL are considered clearly unacceptable.

In accordance with the CBC, habitable interior spaces, including hotel rooms must have noise levels of 45 CNEL or less.

4.0 IMPACT ANALYSIS

4.1 THRESHOLD 1: INCREASE IN AMBIENT NOISE LEVELS

Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

4.1.1 Impact Analysis

4.1.1.1 Construction Noise Generation

The project site is located within one-quarter mile of occupied residential dwellings; therefore, in accordance with Wildomar Municipal Code Section 9.48.020.H, construction noise is exempt from noise level limits provided construction activities do not occur between 6:00 p.m. and 6:00 a.m. during the months of June through September or between 6:00 p.m. and 7:00 a.m. during the months of October through May. The project is anticipated to be constructed during these hours and would require an exception from the City Director of Building and Safety if construction is proposed outside of these hours. Therefore, project construction is not anticipated to result in conflicts with local noise standards. As the City does not have a quantitative construction noise limit, estimated noise levels for project construction activities are evaluated for a potential increase in ambient noise levels rather than a standard established by the City.

The magnitude of construction noise would depend on the type of construction activity, equipment, duration of each construction phase, distance between the noise source and receiver, and any intervening structures. Construction could occur as close as 50 feet from residences north and east of the project site. However, the vast majority of construction would occur well over 100 feet from these residences and may occur up to 800 feet from the residences. Typical construction equipment for the proposed development type was modeled in RCNM at a distance of 100 feet and the results are provided in Table 8, *Construction Equipment Noise Levels*. The full modeling results can be found in Appendix C, *Construction Noise Model Output.*

Table 8
CONSTRUCTION EQUIPMENT NOISE LEVELS

Unit	Percent Operating Time	L_{MAX} at 100 feet	dBA L_{EQ} at 100 feet
Backhoe	40	71.5	67.6
Compactor (Ground)	20	77.2	70.2
Compressor (Air)	40	71.6	67.7
Concrete Mixer Truck	40	72.8	68.8
Crane	16	74.5	66.6
Dozer	40	75.6	71.7
Dump Truck	40	70.4	66.5
Excavator	40	74.7	70.7
Front End Loader	40	73.1	69.1
Generator	50	74.6	71.6
Grader	40	79.0	75.0
Paver	50	71.2	68.2
Pumps	50	74.9	71.9
Roller	20	74.0	67.0
Scraper	40	77.6	73.6
Tractor	40	78.0	74.0
Welder	40	68.0	64.0

Source: RCNM; Appendix C
L_{MAX} = maximum noise level; dBA = A-weighted decibel; L_{EQ} = time-averaged (1-hour) sound level

A grader and dozer were modeled together as two of the loudest pieces of equipment and the possibility of them working concurrently in close proximity. Together a grader and dozer would generate a noise level of 76.7 dBA L_{EQ} at 100 feet. Existing noise levels from I-15 and roadways in the project vicinity were calculated to be between 69.0 dBA L_{EQ} and 74.8 dBA L_{EQ} at the residences north and east of the project site. Therefore, construction noise levels would not increase ambient noise levels at these residences by 10 dBA and a substantial increase in noise levels would not occur.

Construction of the project is proposed during the hours exempt per Wildomar Municipal Code Section 9.48.020.H. Therefore, the project would not conflict with City noise limits during construction. In addition, construction would not result in substantial increases in ambient noise levels at sensitive receptors and would occur temporarily during the approximately nine-month construction period. Impacts would be less than significant.

4.1.1.2 Operational On-site Noise Generation

The properties east and south of the project site have General Plan Land Use designations of Commercial Retail with noise level limits of 65 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 55 dBA L_{MAX} 10:00 p.m. to 7:00 a.m. After approval of the proposed parcel split, on-site property lines would also be subject to the Commercial Retail noise limits. The properties north of the project site have General Plan Land Use designations of Medium Density Residential, which have noise level limits of 55 dBA L_{MAX} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{MAX} 10:00 p.m. to 7:00 a.m.

The project's primary on-site operational noise sources would include rooftop HVAC units, drive-through speakers, and car wash equipment. Since model specifications for these units were not available, noise sources were modeled as described in Section 3.2.2. in CadnaA. In order to identify the maximum noise

level for comparison with the City noise limits, all sources were modeled in constant operation with the exception of vacuums, half of which would be able to be in use at one time. As previously described, the car wash would only be open during the daytime hours while HVAC and drive-through speakers were assumed to be in use throughout the night. Noise receivers were placed at on-site and neighboring property lines at a height of five feet. Specific receiver locations are depicted on Figure 6, *On-site Operation Noise Receiver Locations*, and the calculated noise levels are shown in Table 9, *Unmitigated Operational Noise Levels at Surrounding Land Uses*.

Table 9
UNMITIGATED OPERATIONAL NOISE LEVELS AT SURROUNDING LAND USES

Receiver	Land Use	City Exterior Noise Limit (Day/Night) (dBA L_{MAX})	Maximum Daytime Noise Level (dBA L_{MAX})	Maximum Nighttime Noise Level (dBA L_{MAX})	Direct Impact?[1]
R1	Medium Density Residential	55/45	**58.0**	41.4	**Yes**
R2	Medium Density Residential	55/45	53.8	41.0	No
C1	Retail Commercial	65/55	55.8	35.5	No
C2	Retail Commercial	65/55	58.5	24.5	No
C3	Retail Commercial	65/55	51.3	31.2	No
PL1	Retail Commercial	65/55	51.9	48.8	No
PL2	Retail Commercial	65/55	63.0	35.8	No
PL3	Retail Commercial	65/55	**67.9**	34.2	**Yes**
PL4	Retail Commercial	65/55	**73.2**	34.7	**Yes**

Source: CadnaA

[1] A direct impact would occur if the project would conflict with the property line noise level limits. Exceedances are indicated by bold font.

dBA = A-weighted decibel; L_{MAX} = maximum noise level

As shown in Table 9, the project would not conflict with any nighttime noise limits. The project would exceed the City's daytime noise limit at the residential property line north of the site and at the proposed on-site property lines north of the car wash parcel (quick-serve restaurant and gas station parcels). The daytime noise limit would not be exceeded at off-site commercial land uses or at the proposed hotel property line.

4.1.1.3 Operational Off-site Transportation Noise

The project would generate vehicular traffic in the area and have the potential to increase traffic noise levels at NSLUs. The City does not specify a threshold related to off-site traffic noise generation. A 3 dBA increase is typically considered perceptible. Therefore, the following analysis considers whether project-generated traffic would result in traffic noise increases of more than 3 CNEL at a NSLU in the vicinity.

The project is expected to generate a net increase of 7,726 ADT and the distribution of these trips is detailed in Table 7. CadnaA was used to model the expected traffic environment for the project's opening year (2025) with and without project-generated traffic (Trames Solutions Inc. 2024). Noise receivers were placed at NSLUs in the project area at a height of 5 feet. Specific receiver locations are shown on Figure 5. The traffic noise modeling did not include noise generated by I-15 or consider shielding provided by existing structures. The resulting noise levels at NSLUs under the with and without project scenarios are provided in Table 10, *Off-site Traffic Noise* Levels.

Table 10
OFF-SITE TRAFFIC NOISE LEVELS

Receiver	2025 Scenario (CNEL)	2025 with Project Scenario (CNEL)	Change with Project (CNEL)	Direct Impact?[1]
T1	61.7	62.0	+0.3	No
T2	58.9	60.2	+1.3	No
T3	61.8	63.8	+2.0	No
T4	63.6	64.5	+0.9	No
T5	71.6	71.8	+0.2	No
T6	62.1	62.6	+0.5	No
T7	66.0	66.6	+0.6	No
T8	59.6	60.4	+0.8	No
T9	63.2	63.6	+0.4	No

Source: CadnaA; Trames Solutions Inc. 2024
[1] A direct impact to off-site uses would occur if the project would increase noise levels by 3 CNEL or more.
CNEL = Community Noise Equivalent Level

As shown in Table 10, traffic noise levels at NSLUs in the project area would increase by up to 2.0 CNEL. With this increase in traffic noise levels, NSLUs would not be subject to perceptible increases in traffic noise with the addition of project traffic. Therefore, the project would not result in a substantial increase in ambient noise levels in the project vicinity and impacts would be less than significant.

4.1.2 Significance of Impacts

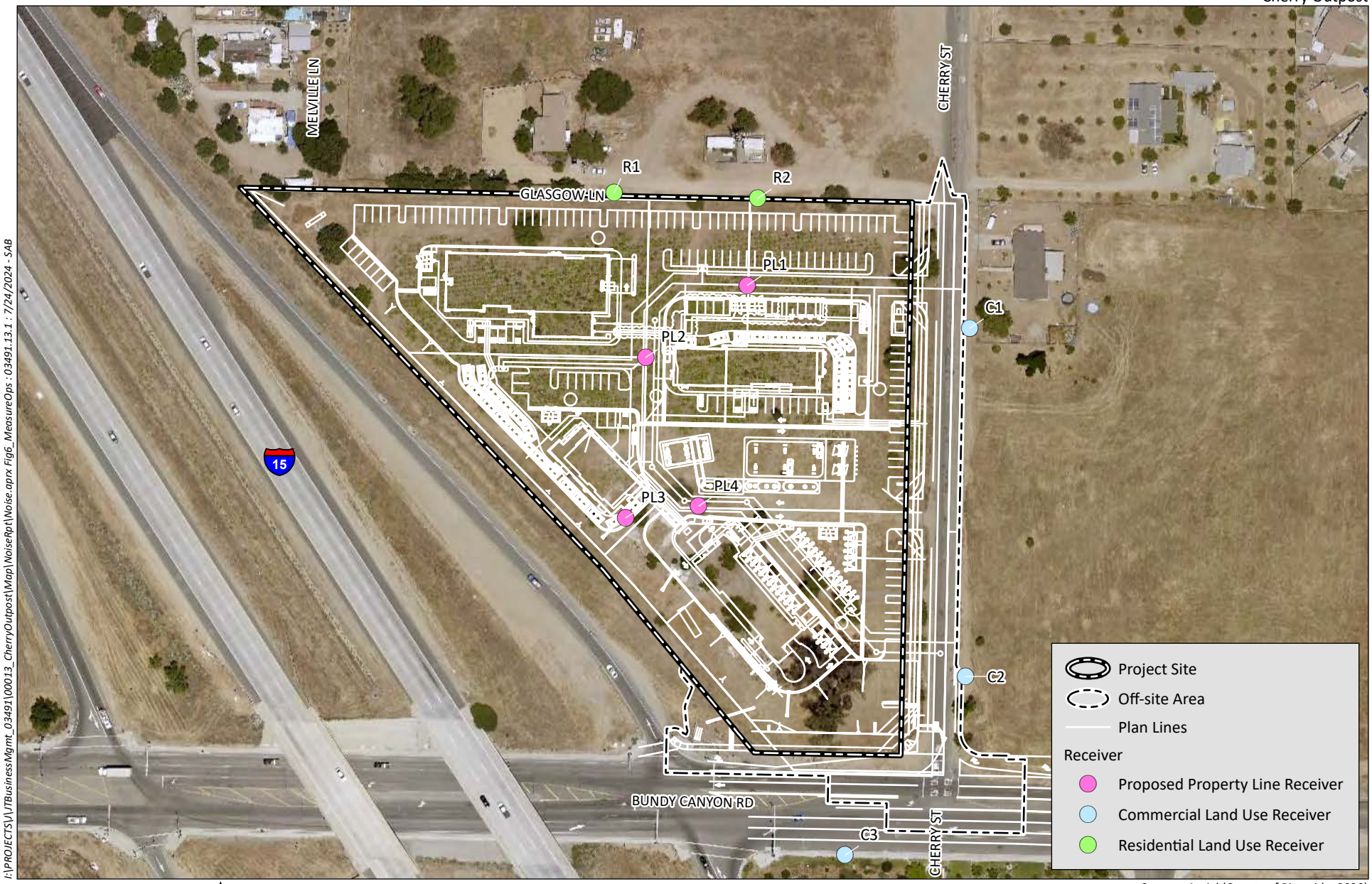
As described above, impacts associated with construction noise, operational traffic generation, and nighttime operational noise would be less than significant. On-site operational noise would comply with the Wildomar Municipal Code noise level limits at off-site commercial land uses and the proposed hotel property line during the daytime hours, and impacts would be less than significant.

Operation of the car wash would result in noise levels exceeding the daytime Wildomar Municipal Code limits at the internal gas station and quick-serve restaurant property lines (PL4); however, a continuous-events exception would be required as part of the project and would excuse the project from this limit at these internal property lines. In accordance with Section 9.48.070.B, approval of an exception to the City's noise limits must not be detrimental to the health, safety, or general welfare of the community. Given the proposed land uses at these property lines are a gas station and quick-serve restaurant which are not NSLUs, the project would not result in adverse effects related to noise. With approval of a continuous-events exception by the City Planning Commission, impacts would be less than significant.

During the daytime hours at the proposed car wash property line abutting the proposed drive-through restaurant (PL3) and the off-site residential property line (R1), project operation would result in conflicts with the City's noise limits and impacts would be potentially significant.

4.1.3 Mitigation Framework

To comply with the daytime noise limits at residential land uses and the proposed property line between the car wash and drive-through restaurant, mitigation measure NOI-1 would require the project to include an enclosure at the exit of the car wash and a six-foot-tall wall along the residential property line



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Source: Aerial (County of Riverside, 2020)

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On-site Operation Noise Receiver Locations

Figure 6

north of the project site. The locations of the proposed barriers are shown in Figure 7, *Noise Barrier Locations*.

NOI-1 **Noise Reduction Features**. Noise reduction at the residentially zoned property line north of the project site shall demonstrate compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB L_{MAX}. Noise reduction at the drive-through restaurant's commercial property line shall demonstrate compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB L_{MAX}. The following measures shall be included as part of the final project design plans submitted to the City:

1. Construction of an enclosure at the car wash exit and an on-site sound barrier (wall) at the northern property line. The enclosure at the exit of the car wash shall consist of a 12-foot-tall sound wall parallel to the car wash exit and 28 feet in length at 25 feet from the exit of the car wash. At the southern side of the 28-foot-long wall, a 12-foot-long wall shall extend perpendicularly towards the car wash exit. A roof shall cover the 25-foot by 28-foot area between the car wash exit tunnel and these walls.

   A second noise wall shall be constructed at the northern property line of the project site. This noise wall shall be 6 feet in height and extend approximately 100 feet, breaking the line-of-sight between the car wash and the residential property line.

   All noise barriers (wall and roof) must be solid. They can be constructed of any combination of standard building materials, including masonry, wood, plastic, fiberglass, or steel, so long as there are no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked. All noise barriers shall have a Sound Transmission Class (STC) rating of at least 22.

2. The addition of a layer noise absorption material with a minimum Noise Reduction Coefficient of 0.80 shall be mounted along the interior surface of the car wash tunnel from the approximate centerline of the blow dryers in the tunnel to the tunnel exit continuing to the tunnel exit ceiling and support walls. The material shall provide a minimum of 80 percent coverage vertically and cover the wall from 1 foot above the floor to 1 foot below the ceiling. Horizontally (on the ceiling), the material shall be mounted from the ceiling to within 1-foot of the walls.

3. Installation of a variable frequency drive (VFD) that would operate car wash blowers at a frequency of 50 Hz.

4. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.

4.1.4 Significance After Mitigation

With implementation of mitigation measure NOI-1, daytime noise levels at receivers R1 and PL3 would be reduced to 53.4 and 62.3 dBA L_{MAX}, respectively. Daytime noise levels at these locations would

comply with the Wildomar Municipal Code noise level limits and impacts would be less than significant with mitigation incorporated.

4.2 THRESHOLD 2: GROUNDBORNE VIBRATION

Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

4.2.1 Construction Vibration

The nearest vibration-sensitive land uses to the project site are residences located north and east of the project site. Construction of the project, including improvements to Cherry Street, could occur approximately 50 feet from these residential structures. While the majority of project construction would occur more than 50 feet from nearby residences, vibration impacts are assessed at 50 feet. Ground-borne vibration levels resulting from construction activities within the project area were estimated using data provided by Caltrans and compared to applicable Caltrans and FTA thresholds.

As the structural integrity of the nearby residences is unknown, this analysis considers the structural damage threshold for non-engineered timber and masonry buildings of (FTA 2018). Significant vibration impacts to structures would occur if vibration levels at residential structures exceed 0.2 in/sec PPV (FTA 2018) and a significant impact to human receptors would occur if vibration levels would exceed the severe human response threshold of 0.4 in/sec PPV from a continuous/frequent intermittent source (Caltrans 2020).

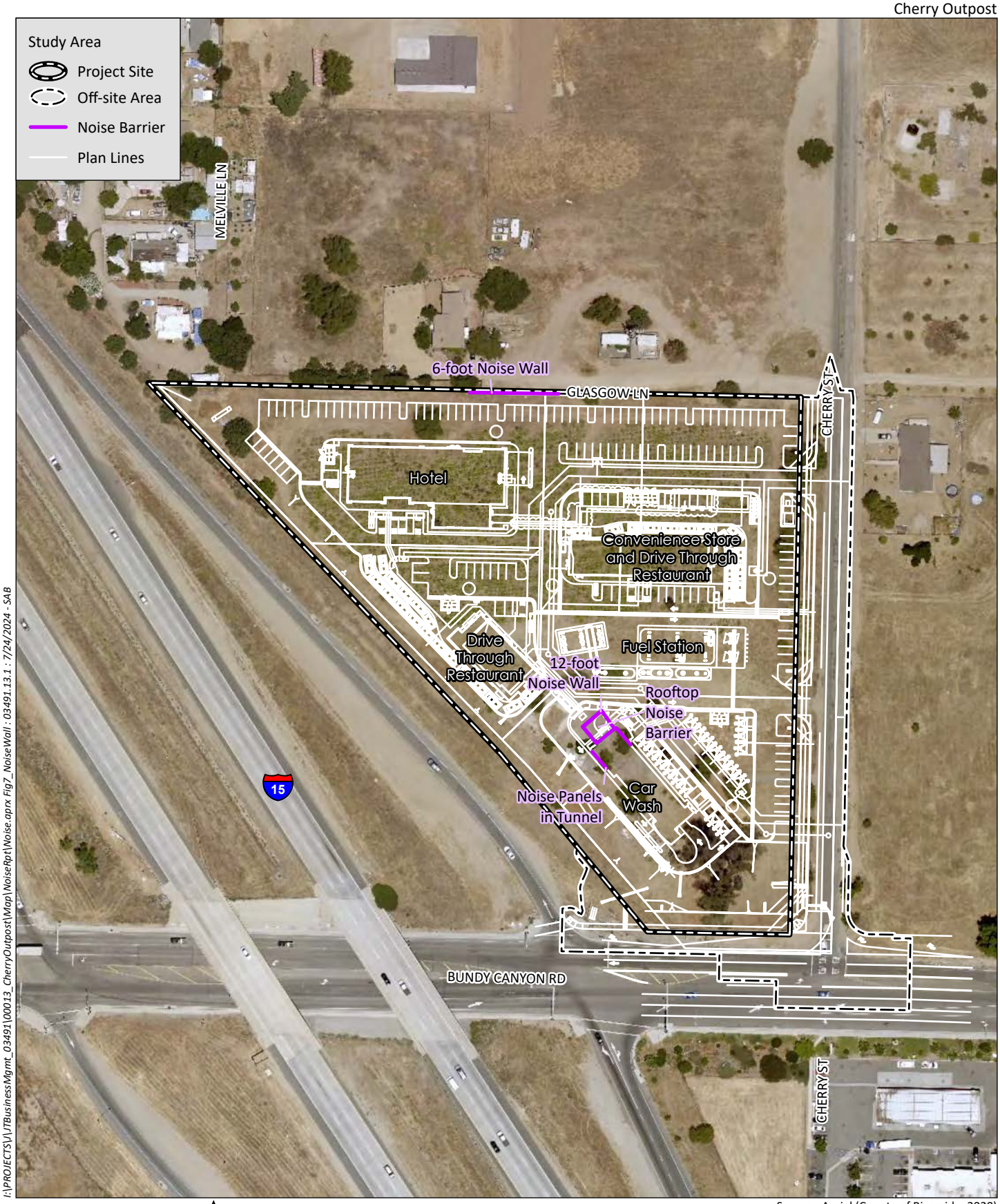
Vibration from construction equipment can be estimated using the equation $PPV_{Equipment} = PPV_{Ref} (25/D)^n$ where PPV_{REF} is the PPV generated at 25 feet, D is the distance from the equipment to the receiver in feet, and n is 1.1 (Caltrans 2020). A vibratory roller is anticipated to be the piece of construction equipment with the highest vibration potential required for project construction and has a reference PPV of 0.210 in/sec at 25 feet. At 50 feet, the distance from the nearest residences, the use of a vibratory roller is estimated to generate vibration levels of 0.098 in/sec PPV. This is far below both the structural damage threshold of 0.2 in/sec PPV and severe human response threshold of 0.4 in/sec PPV. Therefore, the project would not result in excessive temporary groundborne vibration or noise levels and impacts would be less than significant.

4.2.2 Operational Vibration

The project does not propose equipment that is anticipated to generate substantial groundborne vibration. Given the distance between operational equipment and nearby residential land uses, perceptible vibration levels are not anticipated to occur at residences surrounding the project site. Therefore, a less than significant impact related to vibration during project operation would occur.

4.3 THRESHOLD 3: AIRCRAFT NOISE

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?



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0 150 Feet

Source: Aerial (County of Riverside, 2020)

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Noise Barrier Locations

Figure 7

4.3.1 Aircraft Noise

The Skylark Airport located approximately 1.3 miles west of the project site is a private airstrip used primarily for skydiving. The project site is outside of the airport influence area for this airport (County 2023). The Skylark Airport does not have an adopted land use compatibility plan; however, as it is not a commercial airport, the project site would not be subject to substantial air traffic that would result in excessive noise levels for people residing or working in the project area. In addition, the project is outside of the noise contours and airport influence areas for larger airports in the region (County 2023). Therefore, the project would not be subject to excessive aircraft noise and the impact would be less than significant.

4.4 THRESHOLD 4: LAND USE COMPATIBILITY

Would the project result in conflicts with land use compatibility criteria for new land uses?

Section XI, Land Use, of Appendix G of the State CEQA Guidelines includes a threshold regarding whether a project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Noise Element of the General Plan establishes policies and limits of acceptable exterior and interior noise exposure for placement of new land uses. CBC Title 24, Part 2, Section 1206, requires interior noise levels in habitable rooms not to exceed 45 dB CNEL. Therefore, the following analysis is provided for planning purposes and analysis of compliance with General Plan and state standards.

4.4.1 Impact Analysis

4.4.1.1 Exterior Noise Levels

As shown in Table 1, for the project's hotel land use, the Noise Element specifies exterior noise levels up to 65 CNEL as normally acceptable, between 60 CNEL and 70 CNEL as conditionally acceptable, between 70 CNEL and 80 CNEL as normally unacceptable and over 80 CNEL as clearly unacceptable. For the other commercial land uses, exterior noise levels of up to 70 CNEL are considered normally acceptable, between 67.5 CNEL and 77.5 CNEL are considered conditionally acceptable, and above 75 CNEL are considered clearly unacceptable.

CadnaA was used to model the anticipated traffic noise environment on the project site post-construction. Future traffic volumes with project traffic from the project traffic study were used to model local roadway noise and traffic volumes from Caltrans were used to model noise from I-15 (Trames Solutions Inc. 2024; Caltrans 2021). Receivers were placed at the facades facing I-15 for each of the proposed structures and a receiver was placed in the proposed outdoor seating area associated with one of the restaurants. All receivers were placed at a height of 5 feet and their specific locations are shown on Figure 5. The calculated traffic noise levels at these receivers are provided in Table 11, *Calculated Exterior Noise Levels*.

Table 11
CALCULATED EXTERIOR NOISE LEVELS

Receiver	Description	Noise Level (CNEL)
P1	Hotel	72.5
P2	Quick-Serve Restaurant and Convenience Store	68.2
P3	Quick-Serve Restaurant	73.9
P4	Restaurant Outdoor Seating	60.5
P5	Car Wash	73.2

Source: CadnaA
CNEL = Community Noise Equivalent Level

As shown in Table 11, traffic noise levels at the hotel land use would be within the normally unacceptable range. The General Plan specifies that if new construction does proceed where a "normally unacceptable" noise level is identified, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. The project would be required to comply with statewide requirements related to interior noise attenuation, as described in more detail below.

For the proposed commercial land uses, traffic noise levels were calculated to be between 60.5 CNEL and 73.9 CNEL. At the outdoor seating area, where noise levels were modeled to be 60.5 CNEL, exterior noise levels would be considered normally acceptable for commercial uses. At the building façades facing I-15, noise levels would be within the conditionally acceptable range.

The General Plan specifies that where noise levels in the conditionally acceptable range are identified, new construction should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. The General Plan further states that conventional construction, with closed windows and fresh air supply systems or air conditioning, would normally suffice in this noise environment. The proposed commercial uses of quick-serve restaurants, a gas station, a convenience store, and a car wash are not noise-sensitive. Therefore, conventional construction is anticipated to achieve acceptable noise levels for the proposed commercial uses.

4.4.1.2 Interior Noise Levels

No interior noise standard applies to the proposed commercial land uses; however, as described above, the interior environment is anticipated to be acceptable for commercial uses. Hotels are subject to statewide standards for interior noise, which require habitable rooms to achieve interior noise levels of no greater than 45 CNEL.

Traditional architectural materials can be conservatively assumed to reduce interior noise levels by 15 dBA; therefore, as noise levels at the hotel façade exceed 60 CNEL, more detailed modeling of the interior noise environment is required to ensure the project is designed to reduce interior noise levels below 45 CNEL. In accordance with CBC regulations related to interior noise, an exterior-to-interior acoustical analysis would be required when further building plans are available to demonstrate how interior noise levels of 45 CNEL will be achieved by project construction. The building materials required by an exterior-to-interior analysis may include enhanced window and wall constructions, which can attenuate noise to the level required by the CBC.

4.4.2 Significance of Impacts

With the installation of traditional architectural materials, interior noise levels may exceed 45 CNEL and conflict with the CBC regulations for interior noise levels in habitable spaces.

4.4.3 Mitigation Framework

NOI-2 **Demonstration of Interior Noise Standard**. Once specific building plan information is available, an exterior-to-interior analysis shall be performed for habitable hotel rooms. The exterior-to-interior analysis shall demonstrate that interior noise levels do not exceed 45 CNEL.

The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels for the planned hotel rooms. If predicted noise levels are found to exceed 45 CNEL, the analysis shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in hotel rooms. Standard measures such as windows with glazing and appropriate STC ratings, as well as walls with appropriate STC ratings, should be considered. Final plans shall demonstrate that interior noise levels do not exceed 45 CNEL for proposed hotel rooms.

4.4.4 Significance After Mitigation

With implementation of mitigation measure NOI-2, interior noise levels would comply with CBC regulations for habitable spaces.

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Appendix A

HVAC Sound Data

50PG03–28
Ultra High Efficiency Single Package Electric Cooling with Optional Electric Heat Commercial Rooftop Units with PURON® (R–410A) Refrigerant, Optional EnergyX™ (Energy Recovery Ventilator)

Carrier®
Turn to the Experts.℠

Product Data

CENTURION



EnergyX model shown

DEALER DESIGN AWARDS
theNEWS | GOLD

BUILDINGS magazine
Editors' Choice
TOP 100 PRODUCTS
2005

Puron
the environmentally sound refrigerant

Operation Air Quantity Limits

50PG03-16 Units

UNIT 50PG	COOLING (cfm)		HEATING (cfm) ELECTRIC HEAT	
	Min	Max	Min	Max
03	600	1000	600	1000
04	900	1500	900	1500
05	1200	2000	1200	2000
06	1500	2500	1500	2500
07	1800	3000	1800	3000
08	2250	3750	2250	3750
09	2550	4250	2550	4250
12	3000	5000	3000	5000
14	3750	6250	3750	6250
16	4500	7500	4500	7500

50PG20-28 Units

50PG	COOLING		ELECTRIC HEAT	ELECTRIC HEAT (Vertical)	ELECTRIC HEAT (Horizontal)
	Minimum Cfm	Maximum Cfm		Minimum Cfm	Minimum Cfm
20	5000	9,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750
24	5500	10,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750
28	6500	12,000	High Heat (75 kW)	4,500	5,400
			Medium Heat (50 kW)	3,750	4,800
			Low Heat (25 kW)	3,750	3,750

Outdoor Sound Power (Total Unit)

UNIT 50PG	A-WEIGHTED* (dB)	OCTAVE BAND LEVELS dB							
		63	125	250	500	1000	2000	4000	8000
03	75.0	82.6	79.9	75.7	73.3	70.0	64.3	58.4	50.5
04	73.2	79.8	77.2	74.1	70.1	68.0	63.6	58.4	51.9
05	71.9	79.7	79.6	72.6	69.6	66.0	61.4	56.4	48.5
06	78.5	82.2	82.6	79.5	75.7	73.9	68.6	64.0	56.3
07	78.5	87.5	83.0	78.5	76.3	73.8	68.4	63.8	56.5
08	80.0	91.7	83.6	81.0	77.9	75.0	69.9	66.0	59.3
09	79.9	89.1	82.7	80.0	77.7	75.0	70.2	66.3	57.8
12	80.0	90.4	83.1	80.9	77.8	75.2	70.0	66.1	57.6
14	83.3	86.4	85.9	85.3	81.8	78.2	72.2	67.9	59.9
16	84.0	90.3	85.2	83.5	81.1	79.0	73.7	70.5	65.4
20	81.7	90.2	84.8	80.7	79.0	77.6	71.4	66.7	60.7
24	84.9	90.0	86.3	83.6	82.9	80.3	74.9	71.4	66.5
28	84.9	90.0	86.3	83.6	82.9	80.3	74.9	71.4	66.5

LEGEND

db – Decibel

*Sound Rating ARI or Tone Adjusted, A–Weighted Sound Power Level in dB. For sizes 03–12, the sound rating is in accordance with ARI Standard 270–1995. For sizes 14–28, the sound rating is in accordance with ARI 370–2001.

Outdoor Sound Power (Total Unit)
with High CFM EnergyX

UNIT 50PG w/ERV	A–WEIGHTED* (dB)	OCTAVE BAND LEVELS dB							
		63	125	250	500	1000	2000	4000	8000
03	83.0	82.8	81.4	79.7	78.1	77.9	76.5	72.5	70.1
04	82.7	80.2	79.6	79.1	77.3	77.6	76.5	72.5	70.1
05	82.6	80.1	81.1	78.8	77.2	77.4	76.4	72.4	70.0
06	83.8	82.4	83.4	81.6	79.1	78.8	76.9	72.9	70.2
07	83.8	87.6	83.8	81.1	79.3	78.8	76.9	72.9	70.2
08	87.3	92.0	86.8	84.5	82.4	81.8	80.5	78.0	74.2
09	87.2	89.6	86.4	84.1	82.4	81.8	80.5	78.1	74.2
12	87.3	90.8	86.5	84.5	82.4	81.8	80.5	78.0	74.2
14	88.2	87.2	88.0	87.0	84.2	82.7	80.8	78.2	74.3
16	91.4	93.2	92.8	88.2	86.3	85.5	84.4	83.4	78.4
20	91.2	93.1	92.7	87.4	85.8	85.2	84.2	83.3	78.3
24	91.7	93.0	93.0	88.2	86.9	85.8	84.5	83.5	78.5
28	91.7	93.0	93.0	88.2	86.9	85.8	84.5	83.5	78.5

LEGEND
dB – Decibel
***** Sound Rating ARI or tone Adjusted, A–Weighted Sound Power Level in dB. For sizes 03–12, the sound rating is in accordance with ARI Standard 270–1995. For sizes 14–28, the sound rating is in accordance with ARI 370–2001.

Appendix B

Car Wash Sound Data

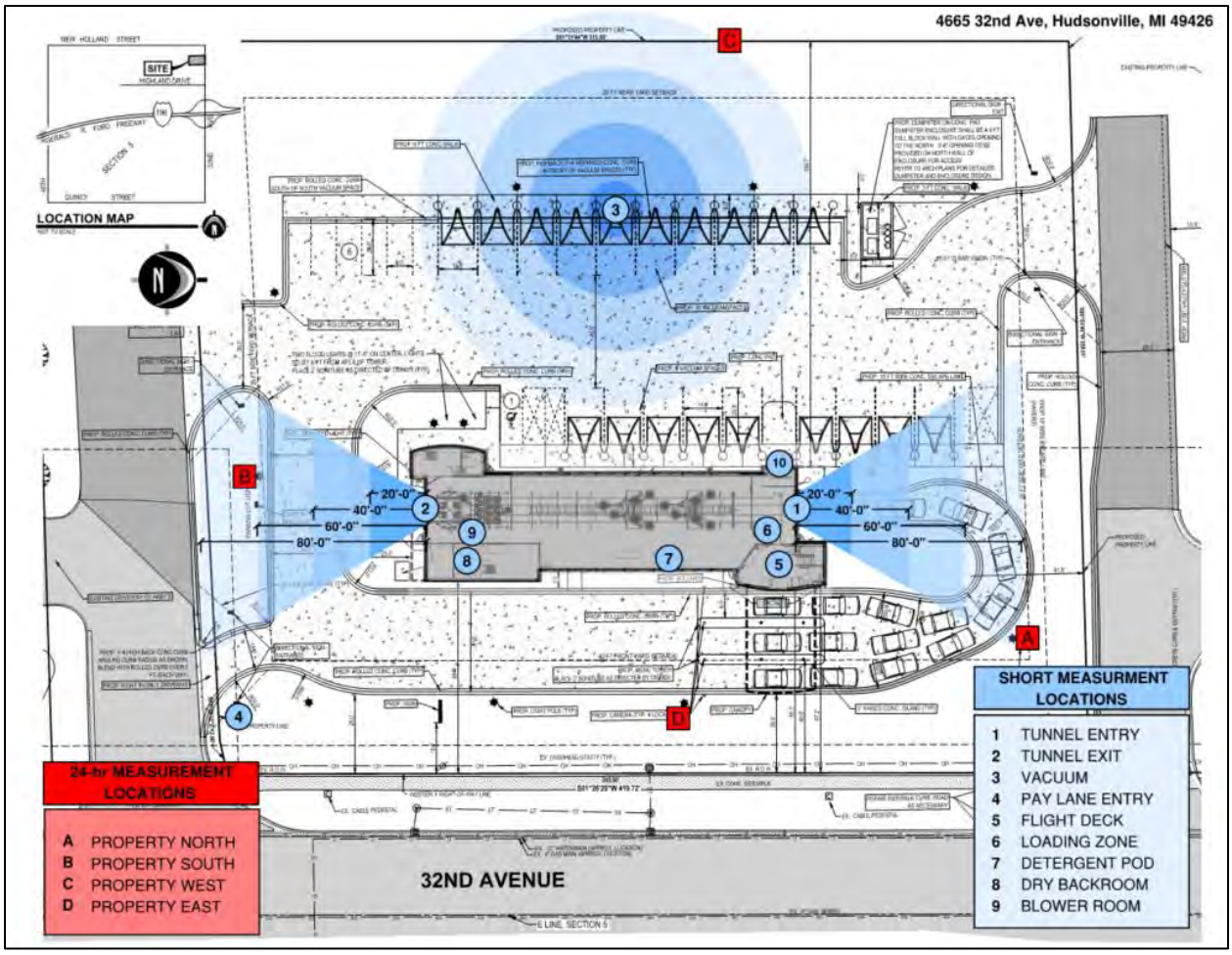

Figure 1: Site Plan with Measurement Locations

Short-Term Measurements

A description of each measurement location is provided for clarity. The short-term measurements (1-10) were taken with the Larson Davis Model 831 hand-held meter.

1) Tunnel Entry: This position is the vehicular entry location to the car-wash structure. Measurements were also taken at the vehicle entry to the building and at 20', 40' and 60' from the entrance towards the north of the building. All measurements were in-line with the vehicle path as it moves through the car-wash process.

2) Tunnel Exit: This position is the vehicular exit location to the car-wash structure. Measurements were also taken at the vehicle's exit location at distances of 20', 40', 60', and 80' from the exit towards the south of the building. All measurements were in-line with the vehicle path as it exits the car-wash process.

3) Vacuum: This position is intended to capture the operational noise of a single vacuum unit for which Vacuum #12 was selected. It was observed that on this unit with both hose nozzles stowed, there was a significant whistling noise being generated by the air-flow

leakage at the storage pocket. Since typical use would involve using at least one of the hoses, one hose was removed from its pocket and placed on the ground during measurements.

Measurements were also taken relative to this vacuum station at distances of 20', 40', 60', and 80' to the west of the vacuum bay. These measurements of vacuum operational noise at these distances to the west were completed with all vacuum units within this bay operating simultaneously. This was in order to capture the loudest operating condition.

4) Pay Lane Entry: This location is the vehicle entry point to the property, for users who proceed through the car wash process.
5) Flight Deck: This location was to capture the noise within the enclosed office area where employees interact with customers through the drive-through window.
6) Loading Zone: This is the position where vehicles are transitioned onto the conveyer system for shuttling the car through the car-wash mechanism.
7) Detergent Pod: This position is located behind the bank of car-wash detergent chemical storage and delivery tanks.
8) Dry Backroom: This position is located within a separate closed room behind the blower bay of the car-wash facility. Chemical pumping equipment was observed within this room.
9) Blower Room: This space is the area where the air-blowers are used to dry the vehicles after being washed and rinsed, it is near the vehicular exit of the car-wash structure.
10) Mat Washer: This position is the location of two separate, self-service car mat-washer machines. Three measurements were taken at this position with one (1) of the mat washers on and operating, but no floor mat was being conveyed into the machine. The specific measurement locations are as follows: 3 ft. in front of door with the door closed, 6' in front of the door with the door closed, and 3' in front of the door with the door open.

It should be noted that noise measurements on the interior of the car wash were collected at these various locations, and during multiple operating conditions for the car wash. This was done to provide a general understanding of the noise generated within the car wash, as requested by Tommy Car Wash. It should be understood that the noise measurements that were collected are strictly informational. To understand regulations for OSHA's allowable noise exposure, please refer to the OSHA standard. For compliance to this standard, noise dosimetry testing should be performed on individual employees that spend significant amounts of time in high noise areas that are identified in the following results. Listed in Table 3 are the results of these short-term measurements. Reported here are the loudest measured levels at each measurement location over the various operating conditions evaluated.

Table 3: Short-term Measurement Results

Short-term Measurement Locations	Measured Sound Pressure Level dB(A)[1]
(1) Tunnel Entry	86
(2) Tunnel Exit	95
(3) Vacuum	90
(4) Pay Lane Entry	67
(5) Flight Deck	66
(6) Loading Zone	91
(7) Detergent Pod	93
(8) Dry Backroom	92
(9) Blower Room	104
(10) Mat Washer	86

Utilizing the short-term measurement results, we have projected how noise generated by Tommy Car Wash will propagate over the property; these results are shown in Figure 2. Please note that our measurements at distances away from the vacuum include the noise levels with all vacuums in operation (worst case scenario). This "all-vacuums on" condition was projected onto the entire property for the sound map. It should be noted that noise contribution from the vacuums dominated the noise levels at the entrance, so the results shown at the entrance on the sound map exceed the short term measurements taken in these locations with no vacuum in operation.

[1] Reported values are for the loudest operating condition captured during the measurement session.



Figure 2: Sound Map of Tommy's Car Wash Property

Tommy Car Wash Systems | 581 Ottawa Ave. | Holland, MI 49423 | tommycarwash.com.com

Sound Level Testing – Hudsonville 5/18/21

Introduction

Measurements of sound levels were collected on site to record noise levels generated by the standard 18 blower motor configuration at the wash exit. Measurements were taken between 10:00pm and 12:00am on May 18th at the Hudsonville Location.

Instrumentation & Procedure

Measurements were recorded using an Extech Instruments Model 407730 Sound Level Meter. This meter is calibrated and meets the standards of the National Institute of Standards and Technology and conforms with ISO 10012 and ANSI Z540-1-1994. Sound levels were recorded both at ground level as well as at a height of 5 feet off the surface. Measurements were recorded as an average of a 5 second period at each point. Samples were recorded with minimum possible ambient noise pollution when applicable and with the standard blower motor configuration. Procedure was repeated with blower motor frequency adjusted in 10Hz increments from 60Hz to 10Hz.

Atmospheric & Ambient Conditions

Atmospheric data is taken from the weather station at Gerald R. Ford International Airport and is shown in Table 1. Ambient sound levels were recorded at the maximum distance from the tunnel exit with all wash functions turned off. Ambient sound levels ranged from a minimum of 50dB to a maximum of 60dB. It should be noted that while efforts were made to prevent contamination of data from ambient conditions, some noise pollution from the environment was unavoidable.

Table 1: Environmental Conditions During Test Period

Time & Date	Average Temp (F)	Avg. Relative Humidity	Wind Direction	Avg. Wind Speed (MPH)	Precipitation (in)	Ambient Sound Level (dB)
10:00pm-12:00am May 18th, 2021	67	64.5%	E	4.6mph	0	50-60dB

Table 2: Measured Sound Levels at Ground Height						
Distance (ft)	**60hz**	**50hz**	**40hz**	**30hz**	**20hz**	**10hz**
0	104.8	99.1	94.5	86.9	77.4	64.1
5	102.8	97.2	91.2	84.6	75.1	60.7
10	98.9	93.3	87.6	80.7	71.9	60.4
15	97.0	91.6	85.7	78.4	70.8	59.1
20	95.6	89.6	84.1	76.3	68.3	58.2
25	92.9	88.3	81.9	75.9	65.7	54.2
30	92.3	87.1	80.8	73.6	65.1	55.9
35	89.9	86.4	78.9	72.6	63.2	54.2
40	88.4	84.0	77.8	71.5	62.0	52.6
45	86.2	83.2	76.7	70.5	60.5	54.5
50	86.0	82.1	75.4	69.2	59.3	55.9
55	85.1	81.4	74.5	67.7	58.6	53.3
60	82.6	78.2	72.4	66.6	55.6	50.5
65	78.4	73.9	69.3	62.8	54.5	50.9
70	77.6	74.8	68.5	61.9	54.2	52.2
75	77.6	73.3	67.4	61.0	53.6	53.3
80	76.4	72.5	67.2	59.9	52.8	53.6
85	73.6	70.5	64.2	60.8	52.3	53.6

Table 3: Measured Sound Levels at 5ft Height						
Distance (ft)	**60hz**	**50hz**	**40hz**	**30hz**	**20hz**	**10hz**
0	103.4	98	92.7	85.4	76.8	62.7
5	99.9	94.5	88.5	82	73.6	60.5
10	96.1	91.2	85.2	78.8	70.2	57.8
15	94.2	88.6	82.7	75.6	68.8	58.8
20	92.3	86.8	81.2	74.2	65.5	54.8
25	91.1	85.6	79.1	72.7	63.3	52.9
30	89	83.8	77.6	71.1	62.9	53.9
35	87.4	83.5	76.6	70.7	60.4	53
40	87.2	82.6	75.9	70.1	59.8	52.9
45	86.5	81.2	75.1	69.7	59.5	56.1
50	85.7	80.5	73.6	67.6	58.1	56.1
55	84.9	79.4	72.8	67.1	57	52.9
60	83.5	78.2	71.9	64.7	56.3	52.6
65	80.8	75.6	70	62.1	55.1	50.7
70	80.4	75.9	69.1	62.3	54.2	53.9
75	79.3	74.5	69.1	61.5	53.3	52.5
80	77.8	73.8	67.5	59.8	53.3	52.1
85	75.6	71	64.8	59.1	54.5	51.7

Appendix C

Construction Noise Model Output

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/31/2024
Case Description: Cherry Outpost

		---- Receptor #1 ---- Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences	Residential	70	70	70

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	100	0
Compactor (ground)	No	20		83.2	100	0
Compressor (air)	No	40		77.7	100	0
Concrete Mixer Truck	No	40		78.8	100	0
Crane	No	16		80.6	100	0
Dozer	No	40		81.7	100	0
Dump Truck	No	40		76.5	100	0
Excavator	No	40		80.7	100	0
Front End Loader	No	40		79.1	100	0
Generator	No	50		80.6	100	0
Grader	No	40	85		100	0
Paver	No	50		77.2	100	0
Pumps	No	50		80.9	100	0
Roller	No	20		80	100	0
Scraper	No	40		83.6	100	0
Tractor	No	40	84		100	0
Welder / Torch	No	40		74	100	0

Results
Calculated (dBA)

Equipment	*Lmax	Leq
Backhoe	71.5	67.6
Compactor (ground)	77.2	70.2
Compressor (air)	71.6	67.7
Concrete Mixer Truck	72.8	68.8
Crane	74.5	66.6
Dozer	75.6	71.7
Dump Truck	70.4	66.5
Excavator	74.7	70.7

Front End Loader		73.1	69.1
Generator		74.6	71.6
Grader		79	75
Paver		71.2	68.2
Pumps		74.9	71.9
Roller		74	67
Scraper		77.6	73.6
Tractor		78	74
Welder / Torch		68	64
	Total	79	82.9

*Calculated Lmax is the Loudest value.

Appendix 11

Cherry Outpost Traffic Impact Analysis

CHERRY OUTPOST
TRAFFIC IMPACT ANALYSIS
CITY OF WILDOMAR, CALIFORNIA

December 2, 2024

Prepared for:

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TRAMES SOLUTIONS INC.

(0265-0006-03)

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1.0 INTRODUCTION AND SUMMARY

A. Purpose of the TIA and Study Objectives

The purpose of this traffic impact analysis (TIA) is to evaluate the traffic impacts of the proposed Cherry Outpost development. The project is proposed to be developed with an 72 room hotel, C-store (14 fueling positions), 2 fast food restaurants w/drive-thru (6,800 sf total), and a car wash with a 130 foot tunnel. The site is located east of I-15 and north of Bundy Canyon Road in the City of Wildomar.

Study objectives include the following:

Existing (2023) Traffic. Existing traffic will be counted to determine current conditions. This constitutes the environmental setting for a CEQA analysis at the time that the hearing body reviews the project. Traffic count data shall be new or recent. In some cases, data up to one year old may be acceptable with the approval of the City of Wildomar Engineering Department. Any exception to this must be requested prior to approval of the scoping agreement

Existing (2023) Plus Project Traffic. Traffic generated by the proposed project will be added to existing traffic counts to identify and analyze impacts on the circulation system.

Existing + Ambient + Project (EAP 2025). Traffic conditions prior to the time that the proposed development is completed will be estimated by increasing the existing traffic counts by an appropriate growth rate to be provided by City of Wildomar Engineering Department staff, projected to the year that the project is estimated to be completed. Traffic generated by the proposed project will then be added, and the impacts on the circulation system will be analyzed. This will be the basis for determining project-specific impacts, mitigation, and conditions of approval.

Existing + Ambient + Project + Cumulative (EAPC 2025). Traffic generated by other approved projects in the study area shall be identified and added to the Project Completion traffic identified in Scenario 3. This may also include projects that are proposed and in the review process, but not yet fully approved. This scenario will be analyzed, and a determination made if improvements funded through an approved funding mechanism (TUMF, DIF, CFD, RBBD etc.) can accommodate the cumulative traffic at the target Level of Service (LOS) identified in the General Plan. If the "funded" improvements can provide the target LOS, payment into the fee program will be

considered as cumulative mitigation through the conditions of approval. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF facilities) should be identified as such.

B. Site Location and Study Area

The site is located east of I-15 and north of Bundy Canyon Road in the City of Wildomar. Figure 1-A illustrates the site location and the traffic analysis study area.

In general, the study area shall include any intersection of Collector or higher classification street with another Collector roadway or higher classification street, at which the proposed project will add 50 or more peak hour trips. Pursuant to the attached scoping agreement (see Appendix "A"), the study area includes the following intersections:

STUDY AREA INTERSECTIONS	
1.	Almond Street / Bundy Canyon Rd.
2.	Orange Street / Bundy Canyon Rd.
3.	I-15 SB Ramps / Bundy Canyon Rd.
4.	I-15 NB Ramps / Bundy Canyon Rd.
5.	Cherry Street / Bundy Canyon Rd.
6.	Sellers Road / Bundy Canyon Rd.
7.	Monte Vista Dr. / Bundy Canyon Rd.
8.	Canyon Ranch Rd. / Bundy Canyon Rd.
9.	Orange Street / Canyon Dr.
10.	Cherry Street / N. Project Driveway
11.	Cherry Street / S. Project Driveway
12.	Cherry Street / Waite Street
13.	Sellers Road / Waite Street
14.	Orange Street / Lemon Street
15.	Almond Street / Lemon Street
16	Almond Street / Waite Street

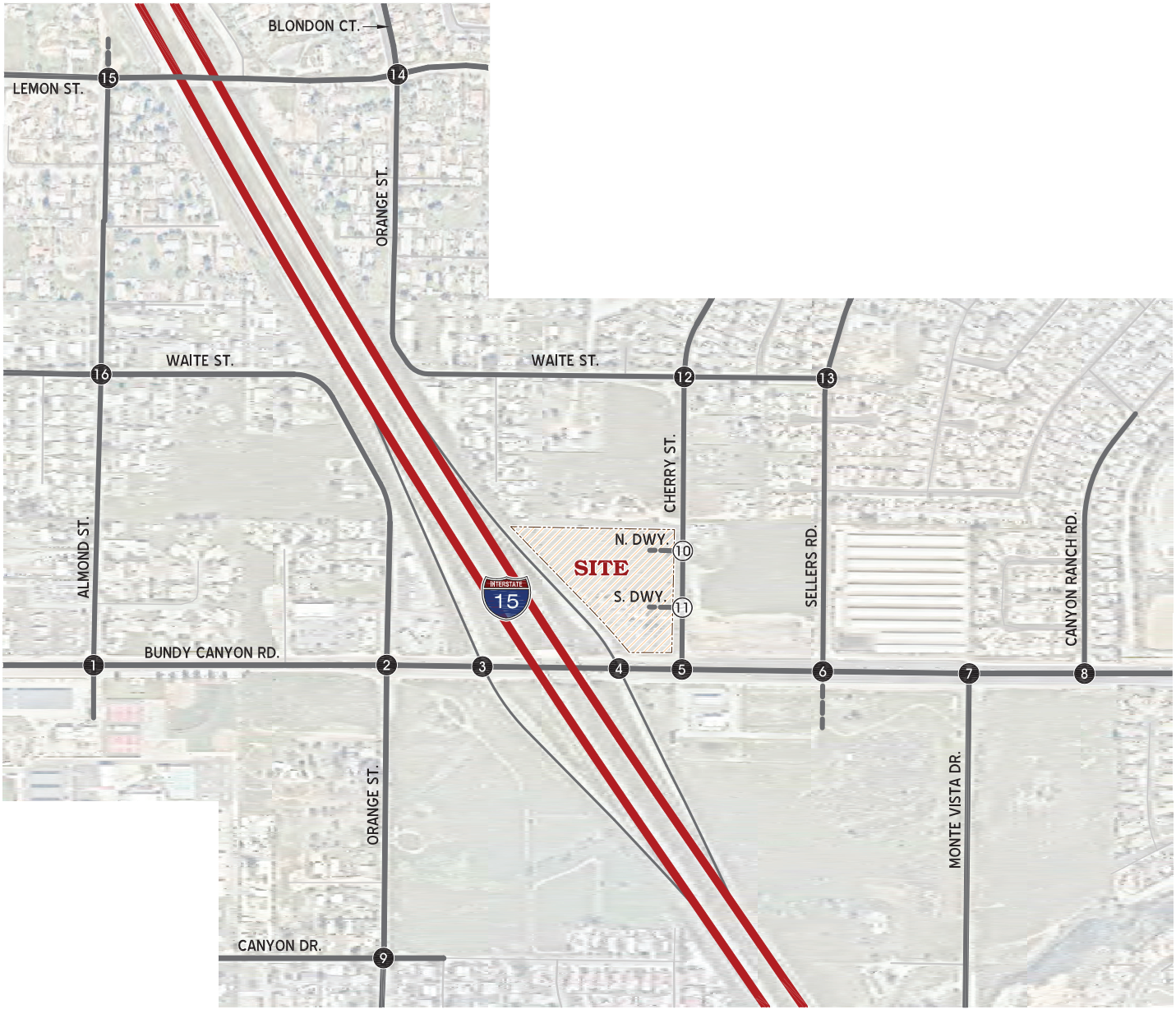
C. Development Project Identification

1. Project Size and Description

The Cherry Outpost Site is proposed to be developed in a single development phase by 2025. The following uses are proposed as indicated below:

- 72 room hotel
- C-store (14 fueling positions)
- 2 fast food restaurants w/drive-thru (6,800 sf total)
- Car wash with a 130 foot tunnel

FIGURE 1-A
STUDY AREA



LEGEND:

14 = EXISTING INTERSECTION ANALYSIS LOCATION

(2) = FUTURE INTERSECTION ANALYSIS LOCATION

= FUTURE ROADWAY/DIRT ROAD

N

2. Existing Land Use

The project site is currently vacant. Adjacent uses include the following:

- North – Vacant/Residential
- South – Vacant/Commercial
- East – Vacant/Residential
- West – I-15

3. Proposed Land Use

Proposed Land Use: Commercial Retail with a Scenic Highway Commercial zoning. No changes to the land use or zoning designations are proposed.

4. Site Plan of Proposed Project

Figure 1-B illustrates the conceptual land use plan. As shown in Figure 1-B, the project is proposed to have two driveways along Cherry Street.

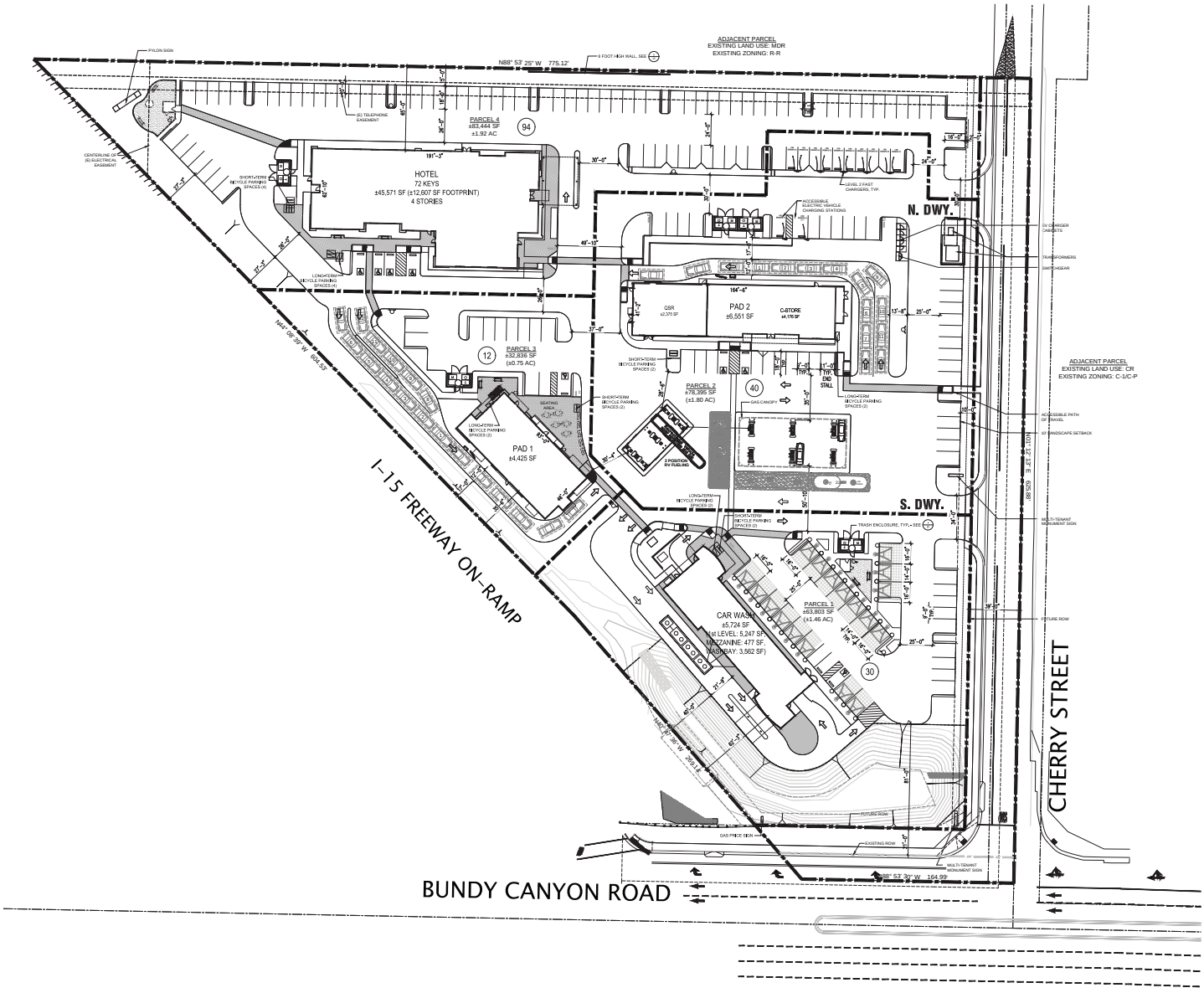
5. Proposed Project Opening Year

The proposed project is anticipated to be completed by 2025. Future traffic analysis has assumed a background (ambient) growth of 2% per year, along with traffic generated by other future developments in the surrounding area.

6. Proposed Project Phasing

The project is expected to be completed in a single phase. Therefore, all traffic recommendations included in this report have been based on the buildout of the proposed project.

FIGURE 1-B
SITE PLAN



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2.0 TRAFFIC ANALYSIS METHODOLOGIES

Traffic operations are quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an infrastructure facility (intersection) representing progressively worsening traffic conditions. This section presents the LOS definition, LOS criteria and methodologies for the Intersection Operations.

A. Level of Service Definition

The definitions of Level of Service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A": Completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. Maneuverability within the traffic stream is good. Minor disruptions to flow are easily absorbed without a change in travel speed.

- LOS "B": Free flow conditions, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS "A", but drivers have slightly less freedom to maneuver. Minor disruptions are still easily absorbed, although local deterioration in LOS will be more obvious.

- LOS "C": The influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant traffic disruption.

- LOS "D": The ability to maneuver is restricted due to traffic congestion. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.

- LOS "E": Operations at or near capacity, an unstable level. Vehicles are operating with the minimum spacing for maintaining uniform flow.

- LOS "F": Forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Although operations at these points – and on sections immediately downstream – appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

B. City of Wildomar Level of Service Criteria

The City of Wildomar has established Level of Service (LOS) "D" as the city-wide target for the study intersections. Therefore, LOS "E" or "F" is considered unacceptable and requires improvements measures. Furthermore, the City also identifies an impact if a project proposes uses or intensities above that contained in the General Plan, a significant impact is caused when the additional project trips degrade the intersection by the following criteria:

- LOS A/B = By 10.0 seconds or more
- LOS C = By 8.0 seconds or more
- LOS D = By 5.0 seconds or more
- LOS E = By 2.0 seconds or more
- LOS F = By 1.0 seconds or more

Since the project is consistent with the General Plan use and zoning designations, no additional intensities are anticipated.

C. Intersection Operations Analysis Methodology

The City of Wildomar requires the use of the Transportation Research Board - Highway Capacity Manual (HCM), 6th Edition. The HCM defines level of service as a qualitative measure, which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate Level of Service (LOS) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The Levels of Service results in this study are determined using the HCM methodology.

For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service.

The study area intersections which are stop sign controlled with stop control on the minor street only have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area locations; the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle for the worst minor street movement(s).

For all way stop (AWS) controlled intersections, the ability of vehicles to enter the intersection is not controlled by the occurrence of gaps in the flow of the main street. The AWS controlled intersections have been evaluated using the HCM methodology for this type of multi-way stop controlled intersection configuration. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle.

The levels of service are defined for the various analysis methodologies as follows:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	0 to 10.00	0 to 10.00
B	10.01 to 20.00	10.01 to 15.00
C	20.01 to 35.00	15.01 to 25.00
D	35.01 to 55.00	25.01 to 35.00
E	55.01 to 80.00	35.01 to 50.00
F	80.01 and up	50.01 and up

Levels of service at the study area intersections have been evaluated using the following HCM intersection analysis program: Synchro.

Peak hour factors (PHF), where known from existing traffic counts, have been used to assess intersection operations.

D. Traffic Signal Warrant Analysis Methodology

This traffic impact analysis utilizes the Peak Hour Volume Based Warrant 3 for existing and future analysis scenarios per the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD).

For future intersections, future average daily traffic (ADT) volumes have been utilized to evaluate traffic signal warrants per Caltrans planning level ADT-based signal warrant criteria.

It should be noted that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted and that meeting this threshold does not require that a traffic control signal should be installed. Other traffic factors and conditions be should be evaluated in order to determine whether the installation of a signal is justified. In addition, a deficient intersection does not necessarily mean that a signal is warranted. An intersection may meet a signal warrant condition and operate at an acceptable LOS (LOS "D" or better) or operate at deficient LOS (LOS "E" or worse) and not meet a signal warrant.

E. Freeway Merge/Diverge Ramp Analysis

The merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS 7 software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on-ramps and off-ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. The merge/diverge area level of service descriptions for each density range are as follows:

Level of Service	Density Range (pc/mi/ln)1
A	≤10.0
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand Exceeds Capacity

1 pc/mi/ln = passenger cars per mile per lane. Source: HCM, 6th Edition

The I-15 Freeway mainline volume data were obtained from the Caltrans Performance Measurement System (PeMS) website for the segments of the I-15 Freeway interchanges at Bundy Canyon Road. The existing ramp data (see Appendix B – Counts) were then utilized to flow conserve the mainline volumes to determine the remaining I-15 Freeway mainline segment volumes. The data was obtained from May 2023.

3.0 AREA CONDITIONS

A. Study Area Intersections

In general, the minimum area to be studied shall include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour. The City of Wildomar Engineering Department may require deviation from these requirements based on area conditions. The study area includes the following intersections (shown previously on Figure 1-A):

STUDY AREA INTERSECTIONS	
1.	Almond Street / Bundy Canyon Rd.
2.	Orange Street / Bundy Canyon Rd.
3.	I-15 SB Ramps / Bundy Canyon Rd.
4.	I-15 NB Ramps / Bundy Canyon Rd.
5.	Cherry Street / Bundy Canyon Rd.
6.	Sellers Road / Bundy Canyon Rd.
7.	Monte Vista Dr. / Bundy Canyon Rd.
8.	Canyon Ranch Rd. / Bundy Canyon Rd.
9.	Orange Street / Canyon Dr.
10.	Cherry Street / N. Project Driveway
11.	Cherry Street / S. Project Driveway
12.	Cherry Street / Waite Street
13.	Sellers Road / Waite Street
14.	Orange Street / Lemon Street
15.	Almond Street / Lemon Street
16	Almond Street / Waite Street

B. Area Roadway System

Figure 3-A identifies the existing roadway conditions for study area roadways. The existing intersection traffic controls and geometrics are identified.

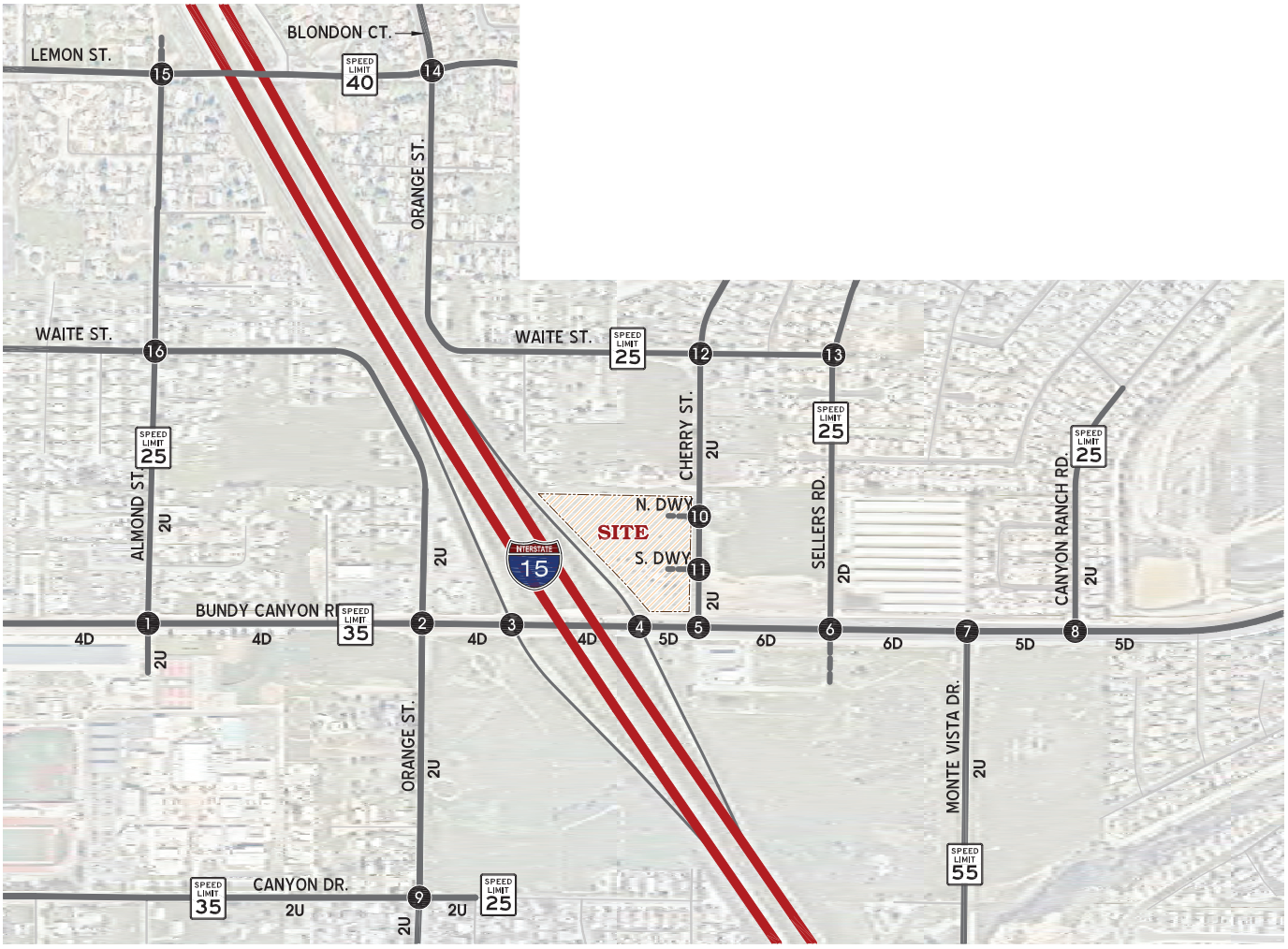
The City of Wildomar Circulation Element and Roadway Cross-Sections is depicted on Figure 3-B.

C. Existing Traffic Volumes

Existing intersection level of service calculations are based upon manual AM and PM peak hour turning movement counts made for Trames Solutions, Inc. in May 2023 and April 2024. Existing AM and PM peak hour intersection turning movement volumes are shown on Figure 3-C. It should be noted that schools were in session during the time that the traffic counts were conducted.

The traffic count worksheets are included in Appendix "B".

FIGURE 3-A
EXISTING TRAFFIC CONTROLS AND INTERSECTION GEOMETRICS



1. Almond St. / Bundy Cyn. Rd.	2. Orange St. / Bundy Cyn. Rd.	3. I-15 SB Ramps / Bundy Cyn. Rd.	4. I-15 NB Ramps / Bundy Cyn. Rd.	5. Cherry St. / Bundy Cyn. Rd.	6. Sellers Rd. / Bundy Cyn. Rd.	7. Monte Vista Dr. / Bundy Cyn. Rd.
DEF, DEF	DEF			TWLTL		
8. Cyn. Ranch Rd. / Bundy Cyn. Rd.	**9. Orange St. / Canyon Dr.**	**10. Cherry St. / N. Dwy.**	**11. Cherry St. / S. Dwy.**	**12. Cherry St. / Waite St.**	**13. Sellers Rd. / Waite St.**	**14. Orange St. / Lemon St.**
		Future Intersection	Future Intersection			DEF
15. Almond St. / Lemon St.	**16. Almond St. / Waite St.**					
DEF						

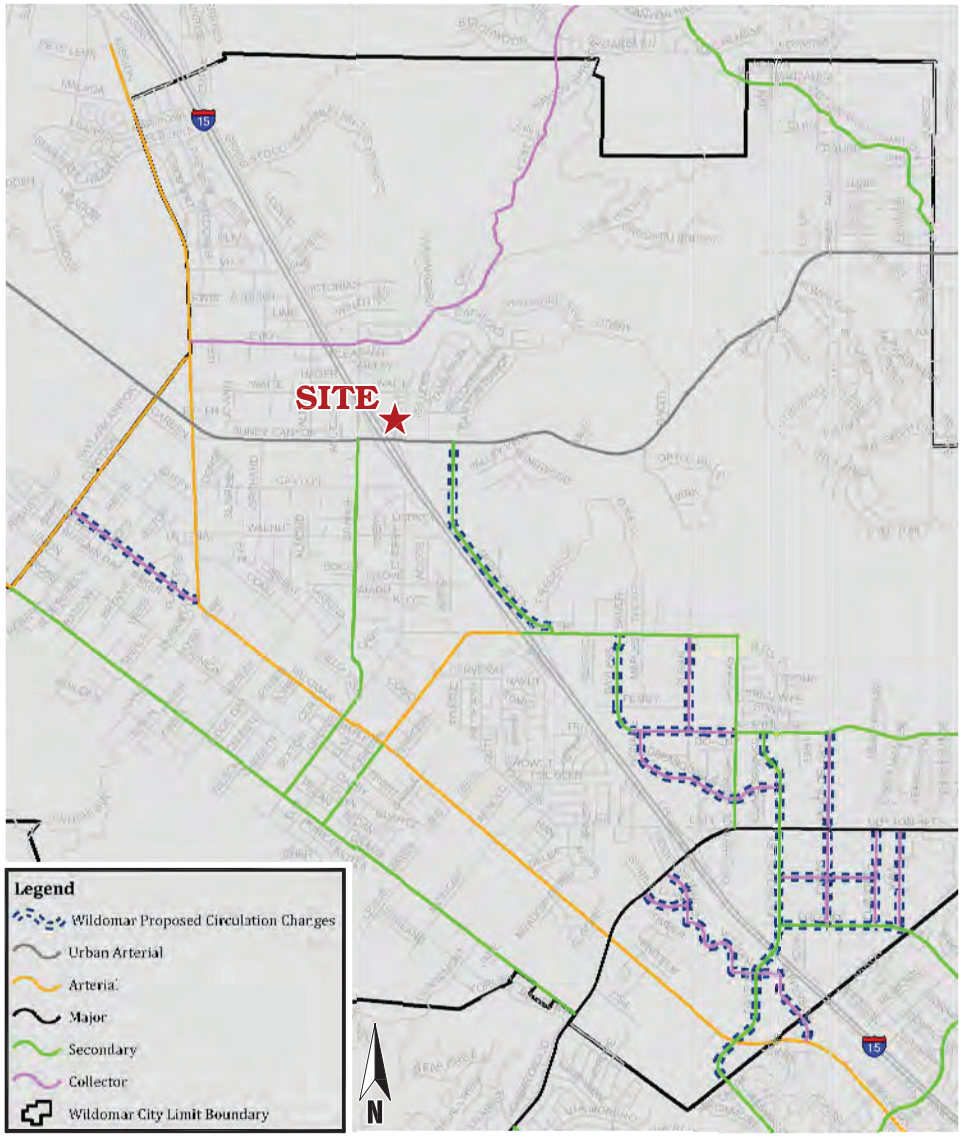
LEGEND:

#	= INTERSECTION ID	4	= NUMBER OF LANES
	= TRAFFIC SIGNAL	D	= DIVIDED
S	= ALL WAY STOP	U	= UNDIVIDED
	= STOP SIGN		= FUTURE ROADWAY/DIRT ROAD
DEF	= DEFACTO RIGHT TURN LANE	TWLTL	= LEFT TURN WITHIN TWO-WAY LEFT TURN LANE (TWLTL) STRIPED MEDIAN

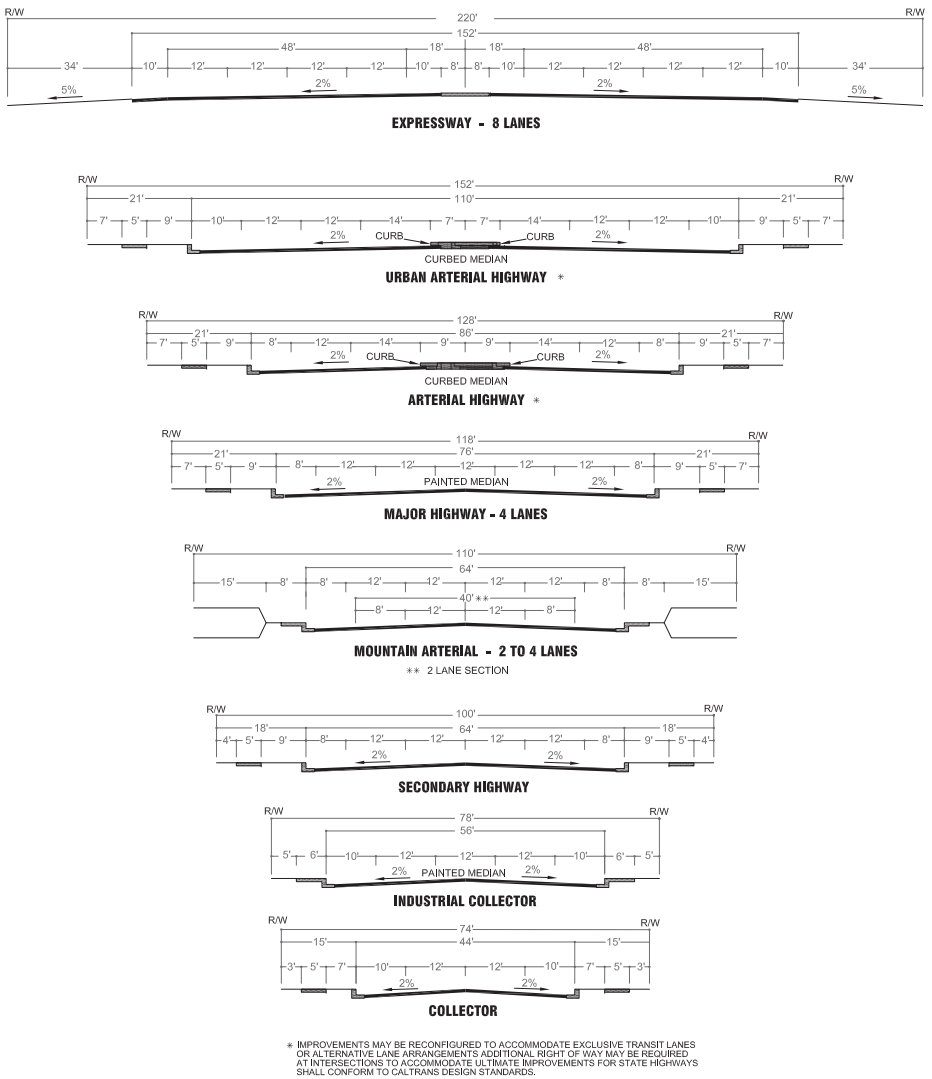
FIGURE 3-B

CITY OF WILDOMAR GENERAL PLAN CIRCULATION ELEMENT AND ROADWAY CROSS-SECTIONS

CIRCULATION MAP



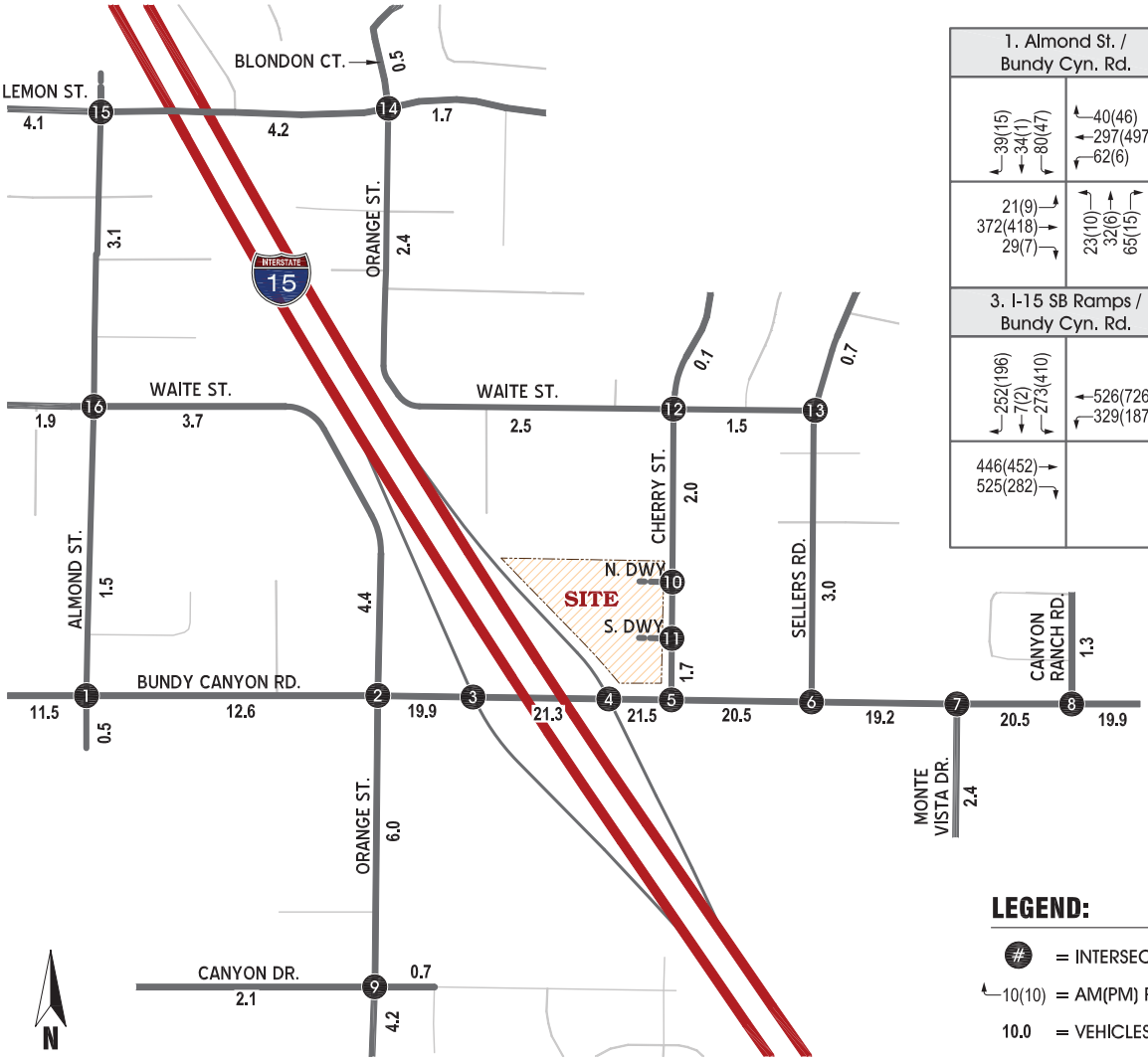
ROADWAY CROSS-SECTIONS



* IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

NOTE: THE CITY OF WILDOMAR HAS ADOPTED THE COUNTY'S GENERAL PLAN AND STANDARDS

FIGURE 3-C
EXISTING TRAFFIC VOLUMES



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
39(15) 34(1) 80(47)	40(46) 297(497) 62(6)	7(19) 45(30) 179(111)	63(143) 382(532) 288(192)
21(9) 372(418) 29(7)	23(10) 32(6) 65(15)	24(22) 455(437) 23(24)	9(15) 56(40) 337(186)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
252(196) 7(2) 273(410)	526(726) 329(187)		313(224) 576(479)
446(452) 525(282)		217(134) 502(728)	279(434) 0(3) 191(360)

LEGEND:

- (#) = INTERSECTION ID
- 10(10) = AM(PM) PEAK HOUR TURN VOLUME
- 10.0 = VEHICLES PER DAY (1000'S)

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.
65(47) 13(5)	6(21) 824(656)	92(59) 45(34)	26(39) 758(567)	749(587) 170(50)		69(24) 12(9)	8(18) 850(613)	253(62) 101(161) 9(30)	35(18) 9(4) 2(1)	Future Intersection
43(65) 650(1023)		53(122) 568(959)		520(969) 93(24)	35(19) 77(106)	26(56) 571(1019)		198(73) 2(7) 74(17)	152(11) 170(154) 4(2)	
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**
Future Intersection		3(1) 4(3) 4(1)	3(1) 88(45) 24(15)	18(8) 29(8)		18(9) 12(3) 1(1)	1(1) 84(44) 15(12)	1(1) 3(1) 1(1)	1(1) 113(81) 149(71)	3(8) 134(39) 111(71)	124(107) 33(73) 8(1)
		1(1) 77(41) 39(33)	15(87) 3(5) 3(25)	19(6) 62(39)	70(45) 10(38)	12(13) 36(61) 86(73)	108(70) 2(13) 5(25)	1(1) 82(140) 77(52)	77(70) 2(1) 153(59)	11(2) 46(49) 14(9)	17(15) 80(30) 6(8)

D. Existing Delay, Level of Service, and Traffic Signal Warrants Analysis

The City of Wildomar has established Level of Service (LOS) “D” as the maximum allowable threshold for the intersection operations. Therefore, LOS “E” or “F” is considered unacceptable and requires improvements measures.

The results of the existing conditions intersection analysis are summarized in Table 3-1. The existing condition operations analysis worksheets are provided in Appendix "C". The intersection of Orange Street / Bundy Canyon Road (#2) is currently operating at an unacceptable levels of service (LOS “E” or worse) during the peak hours with the existing geometry and traffic controls.

Traffic signal warrants for Existing traffic conditions are based on 2023 peak hour intersection volumes (also provided in Appendix “C”). For Existing traffic conditions, none of the unsignalized study intersections currently meet traffic signal warrants.

E. Freeway Merge/Diverge Ramp Analysis

Ramp merge and diverge operations were also evaluated for Existing conditions and the results of this analysis are presented in Table 3-2. As shown in Table 3-2, the I-15 Freeway ramp merge and diverge areas at Bundy Canyon Road currently operate at LOS D or better during the peak hours under Existing traffic conditions. Existing freeway ramp junction operations analysis worksheets are provided in Appendix 3.2.

F. Transit Service

The nearest Riverside Transit Agency (RTA) Route is route 8 which currently serves Mission Trail, located west of the study area. There are currently no RTA routes serving the study area.

TABLE 3-1

INTERSECTION ANALYSIS FOR EXISTING CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Almond St. / Bundy Cyn. Rd.	AWS	0	1!	0	0	1!	0	0.5	1.5	d	0.5	1.5	d	14.5	12.4	B	B
2	Orange St. / Bundy Cyn. Rd.	TS	0.5	0.5	1	0.5	0.5	1	1	2	d	1	2	0	>80	73.0	F	E
3	I-15 SB Ramps / Bundy Cyn. Rd.	TS	0	0	0	1	1	0	0	2	0	1	2	0	25.6	24.3	C	C
4	I-15 NB Ramps / Bundy Cyn. Rd.	TS	1	1	0	0	0	0	1	2	0	0	2	0	24.8	26.3	C	C
5	Cherry St. / Bundy Cyn. Rd.	CSS	0	0	0	0	1!	0	1*	3	0	0	2	1	14.2	11.9	B	B
6	Sellers Rd. / Bundy Cyn. Rd.	TS	0	0	0	1	0	1	1	3	0	0	2	1	7.7	9.6	A	A
7	Monte Vista Dr. / Bundy Cyn. Rd.	TS	2	0	1	0	0		0	3	1	1	2	0	11.9	7.2	B	A
8	Cyn. Ranch Rd. / Bundy Cyn. Rd.	CSS	0	0	0	0	1!	0	1	3	0	0	2	0	14.5	13.1	B	B
9	Orange St. / Canyon Dr.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	19.1	9.1	C	A
10	Cherry St. / N. Dwy.	-	Future Intersection												-	-	-	-
11	Cherry St. / S. Dwy.	-	Future Intersection												-	-	-	-
12	Cherry St. / Waite St.	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.5	10.2	B	B
13	Sellers Rd. / Waite St.	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	9.3	8.7	A	A
14	Orange St. / Lemon St.	AWS	0	1!	0	0	1!	0	0	1!	0	0.5	0.5	d	8.5	8.1	A	A
15	Almond St. / Lemon St.	CSS	0	1!	0	0	1!	0	0.5	0.5	d	0	1!	0	14.6	12.0	B	B
16	Almond St. / Waite St.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.5	8.4	A	A

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 1! = Shared Left/Through/Right Lane;

* = Left Turn within Two-Way Left Turn Lane Median; d = Defacto right turn lane

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

TABLE 3-2

FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS FOR
EXISTING CONDITIONS

Freeway	Direction	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Volume		Density [1]		LOS [2]	
						AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	SB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	532	608	27.6	24.5	C	C
		SB On Ramp at Bundy Canyon Rd.	Merge	3	1	861	471	27.5	20.7	C	C
	NB	NB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	470	797	22.3	27.4	C	C
		NB On Ramp at Bundy Canyon Rd.	Merge	3	1	530	361	18.7	19.8	B	B

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7: Ramps and Ramp Junction software, Version 7.90

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4.0 PROJECTED FUTURE TRAFFIC

This section of the report quantifies the number of trips generated by the proposed project and other known developments in the area.

A. Project Traffic

1. Ambient Growth Rate

Some traffic volume increases on roadways can be attributed to vehicles originating outside of the study area. These types of trips either end up within the study area or pass-through onto an outside destination. Therefore, to account for these trips (termed "ambient growth"), a growth rate can be applied to existing traffic volumes.

A 2% ambient growth rate that has been used in this study to account for traffic not attributed to the project or other planned developments within the study area. The City of Wildomar Transportation Department staff has previously reviewed and approved this rate.

2. Project Trip Generation

Trip generation represents the amount of traffic which is attracted and produced by a development. The trip generation for the project is based upon the specific land use which has been planned for this development. For the purpose of this analysis, the following land use assumption is evaluated:

- 72 room hotel
- C-store (14 fueling positions)
- 2 fast food restaurants w/drive-thru (6,800 sf total)
- Car wash with a 130 foot tunnel

It should be noted that RV fueling positions have been added to the site to accommodate larger vehicles but will operate similarly to regular car fueling positions.

Trip generation rates for the proposed development are shown in Table 4-1. The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE).

The land uses are comprised of primary and "pass-by" traffic. Primary traffic refers to trips that are intending to go to the project as their primary destination. Pass-by trips are not new trips but those that are already on the roadway system but are anticipated to "pass-by" the project on their way to a primary destination.

The proposed project is located near the I-15 Freeway. Therefore, in order to be consistent with the Caltrans guidelines, a 15% pass-by rate has been assumed for the C-store and fast-food use. For the car wash use, the City has provided specific pass-by percentages based on an empirical study at a similar facility.

The daily and peak hour trip generations for the proposed project are shown on Table 4-2. The project is estimated to generate a total of approximately 7,726 new trip-ends per day with 690 new vehicle trips per hour during the AM peak hour and 612 new vehicle trips per hour during the PM peak hour.

3. Project Trip Distribution and Assignment

Trip distribution represents the directional orientation of traffic to and from the project site. The project's trip distribution patterns are based on the proximity of the residential units to the proposed driveway locations, the surrounding trip attractors (residential communities, commercial opportunities, etc.), and the regional freeway interchanges.

It should be noted that, Cherry Street/Bundy Canyon Road (#5) intersection has been evaluated based on the following configurations:

- Full Access. No restriction.
- Restricted to a right-in/right-out/left-in (RIRO/LI) only configuration.
- Restricted to Right-in/right-out only (RIRO) intersection.

The trip distribution patterns for the project are illustrated on Figures 4-A through 4-F. Outbound and inbound trip distribution without restriction at Cherry Street/Bundy Canyon Road (#5) are shown on Figures 4-A and 4-B. Figures 4-C and 4-D shows the outbound and inbound distribution with RIRO/LI configuration at Cherry Street/Bundy Canyon Road. Figures 4-E and 4-F shows the outbound and inbound distribution with RIRO configuration at Cherry Street/Bundy Canyon Road.

4. Project Peak Hour Turning Movement Traffic

The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distribution, proposed arterial highway and local street systems, which would be in place by the time of initial occupancy of the site. Based on the identified project traffic generation and distribution, Project AM and PM peak hour intersection traffic volumes are shown on Figures 4-G (Full Access), 4-H (RIRO/LI configuration), and 4-I (RIRO configuration).

TABLE 4-1

PROJECT TRIP GENERATION RATES[1]

Land Use	Quantity[2]		Peak Hour Trip Rates						Daily
			AM			PM			
			IN	OUT	Total	IN	OUT	Total	
Hotel	72	RM	0.26	0.20	0.46	0.30	0.29	0.59	7.99
Convenience Store/Gas Station - GFA (4-5.5k)	14.0	VFP	13.52	13.52	27.04	11.38	11.38	22.76	257.13
Fast-Food Restaurant w/ Drive-Through	6.8	TSF	22.75	21.86	44.61	17.18	15.85	33.03	467.48
Car Wash[3]	130	Feet	0.38	0.28	0.66	0.63	0.63	1.25	11.87

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] RM = Room; VFP = Vehicle Fueling Position; TSF = Thousand Square Feet; Feet = Linear Feet of the Tunnel

[3] NEC I-15/Clinton Keith Traffic Impact Analysis, January 2023, TJW Engineers, Inc.

TABLE 4-2

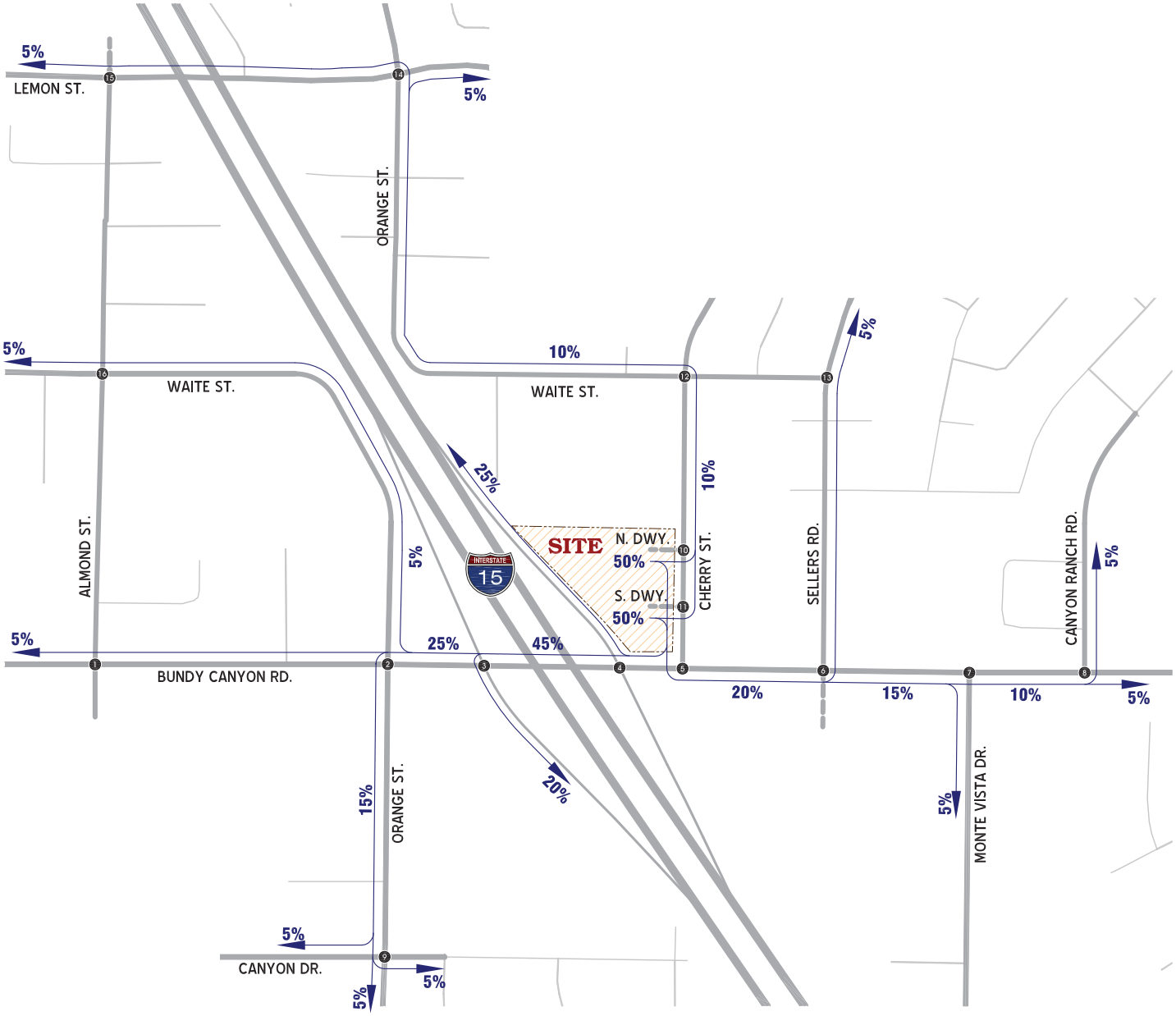
PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity[1]		Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Hotel	72	RM	19	14	33	22	21	43	575
Convenience Store/Gas Station - GFA (4-5.5k)	14.0	VFP	189	189	378	159	159	318	3,600
Pass-By (15%)			*-28*	*-28*	*-56*	*-24*	*-24*	*-48*	*-540*
Fast-Food Restaurant w/ Drive-Through	6.8	TSF	155	149	304	117	108	225	3,179
Pass-By (15%)			*-23*	*-23*	*-46*	*-17*	*-17*	*-34*	*-477*
Car Wash	130	Feet	49	36	85	82	82	164	1,543
Pass-By (AM 10%. PM 34%, ADT 10%)			*-4*	*-4*	*-8*	*-28*	*-28*	*-56*	*-154*
TOTAL NET TRIPS			357	333	690	311	301	612	7,726

[1] RM = Room; VFP = Vehicle Fueling Position; TSF = Thousand Square Feet; Feet = Linear Feet of the Tunnel

FIGURE 4-A

PROJECT OUTBOUND TRIP DISTRIBUTION
(WITH FULL ACCESS AT CHERRY STREET/BUNDY CANYON ROAD)



LEGEND:

16 = INTERSECTION ID

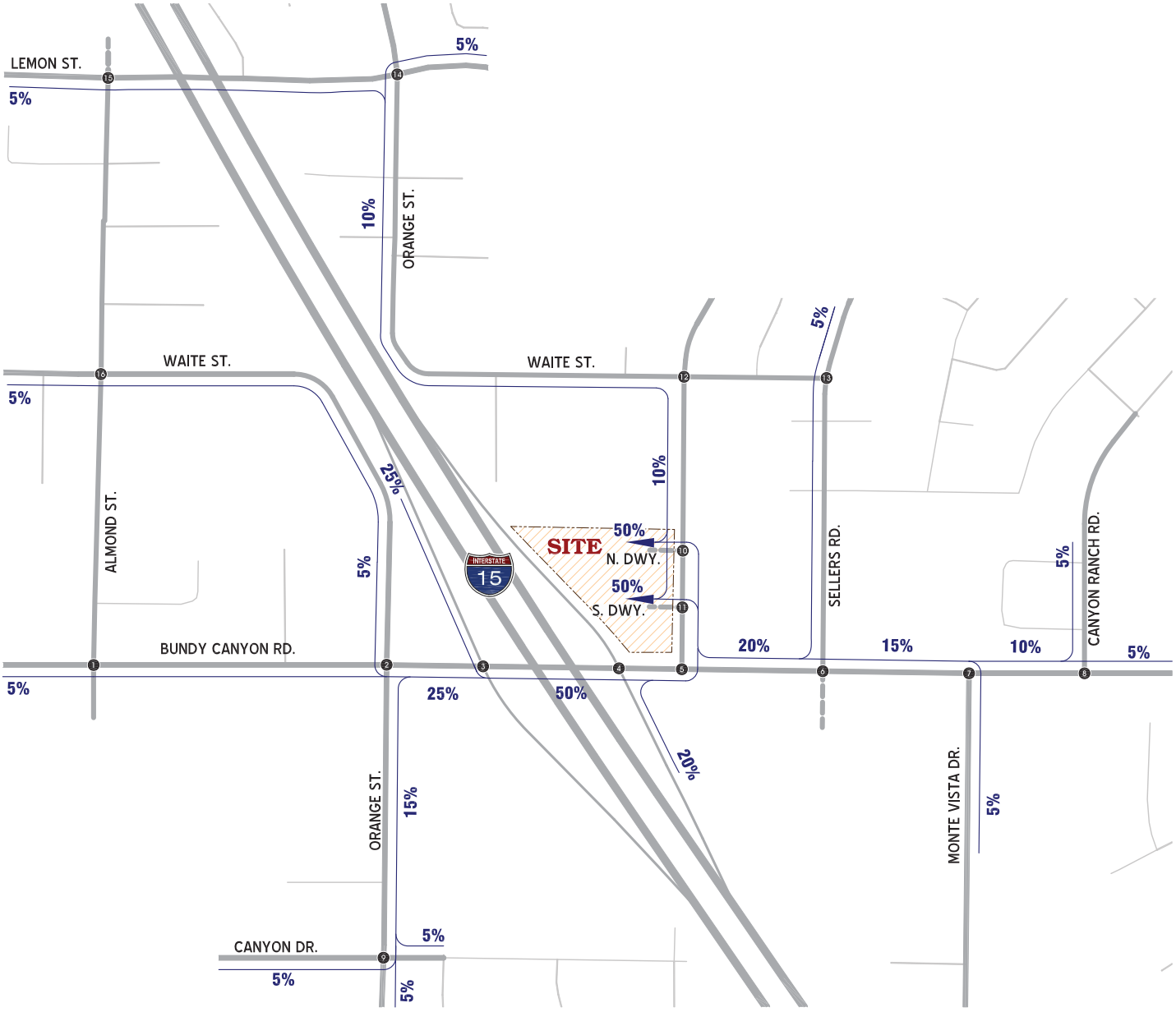
= FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY

10% = PERCENT FROM PROJECT

N

FIGURE 4-B

PROJECT INBOUND TRIP DISTRIBUTION
(WITH FULL ACCESS AT CHERRY STREET/BUNDY CANYON ROAD)



LEGEND:

16 = INTERSECTION ID

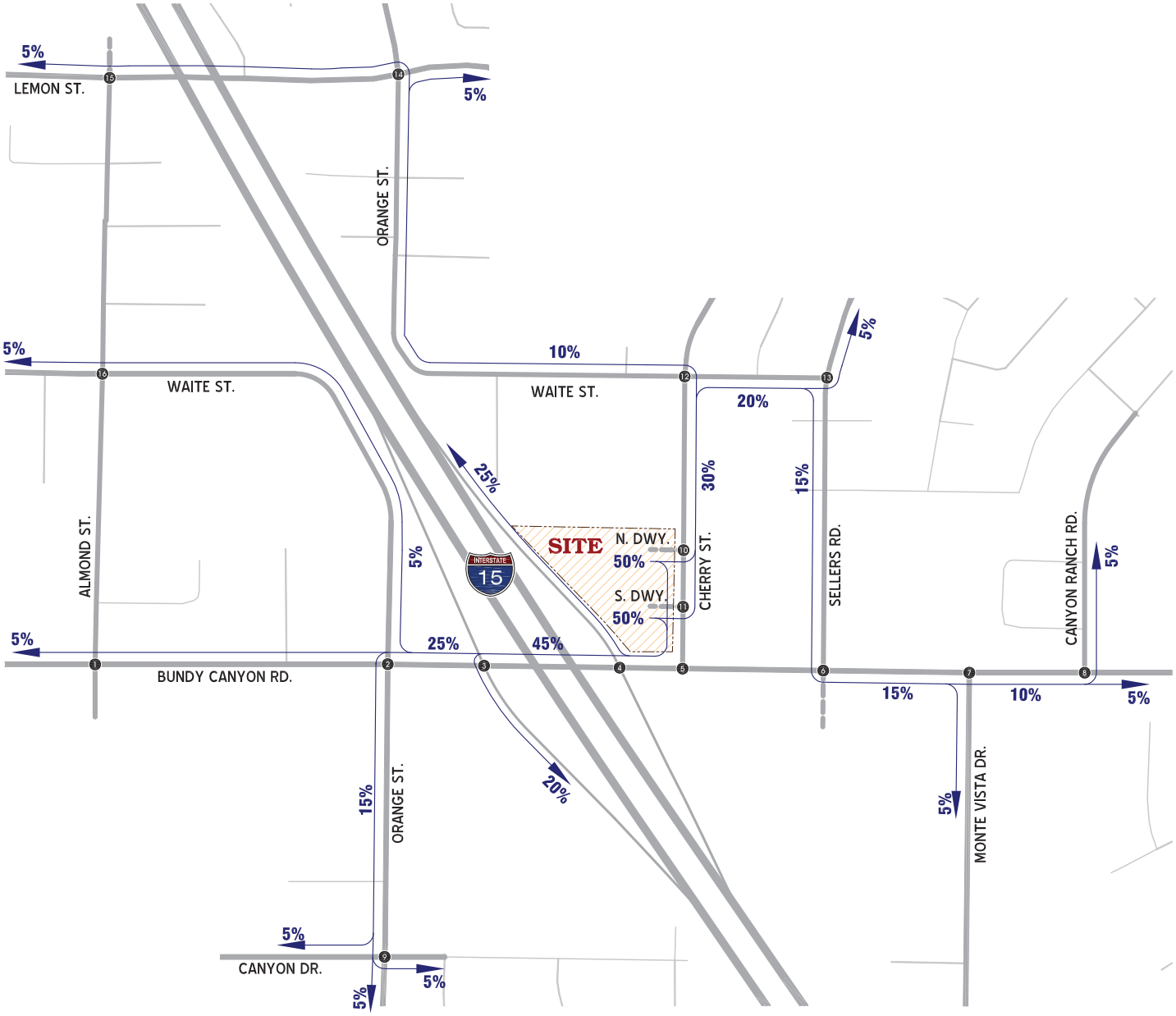
= FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY

10% = PERCENT TO PROJECT

N

FIGURE 4-C

PROJECT OUTBOUND TRIP DISTRIBUTION
(WITH RIRO/LI AT CHERRY STREET/BUNDY CANYON ROAD)



LEGEND:

16 = INTERSECTION ID

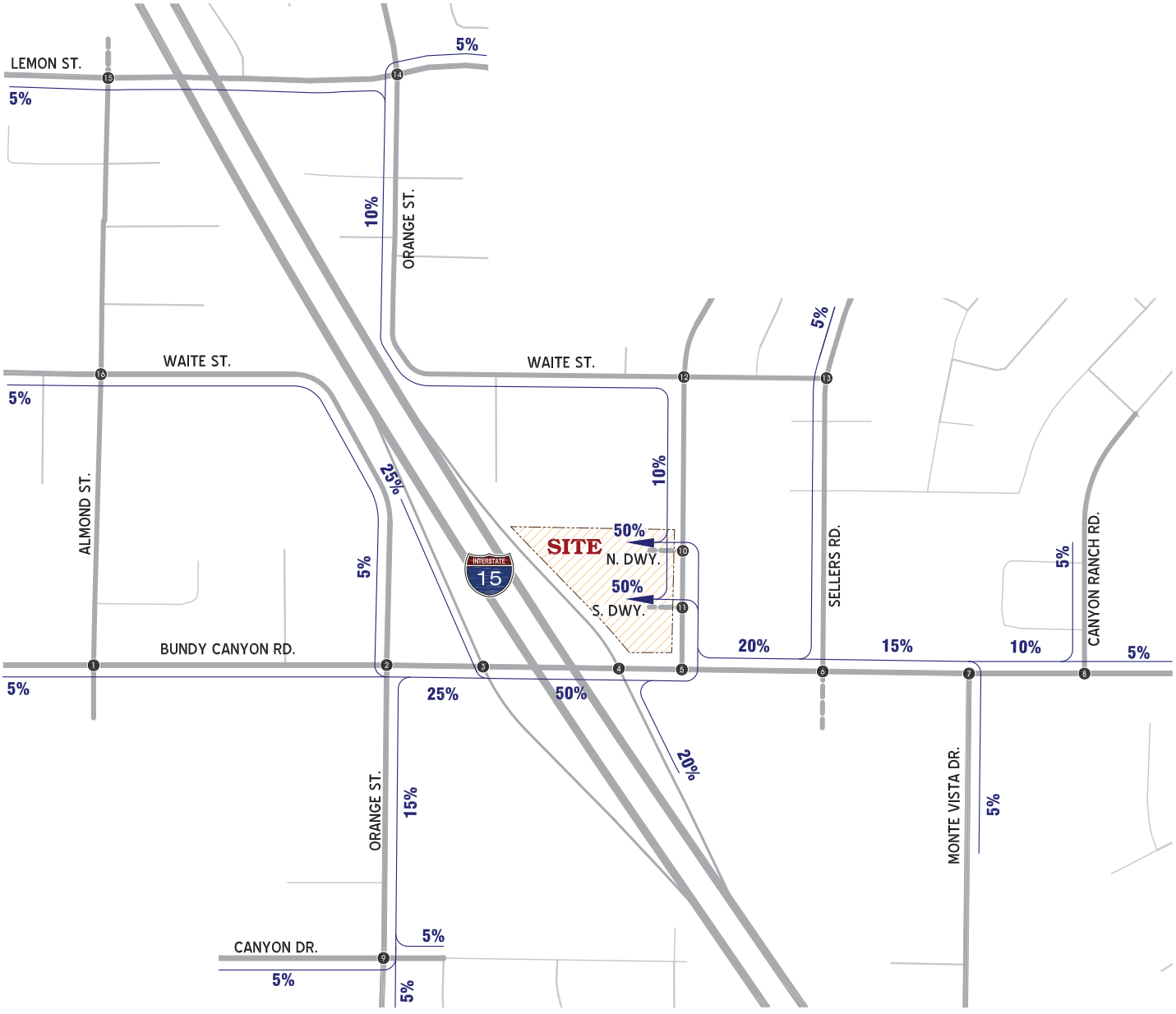
= FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY

10% = PERCENT FROM PROJECT

N

FIGURE 4-D

PROJECT INBOUND TRIP DISTRIBUTION
(WITH RIRO/LI AT CHERRY STREET/BUNDY CANYON ROAD)



LEGEND:

16 = INTERSECTION ID

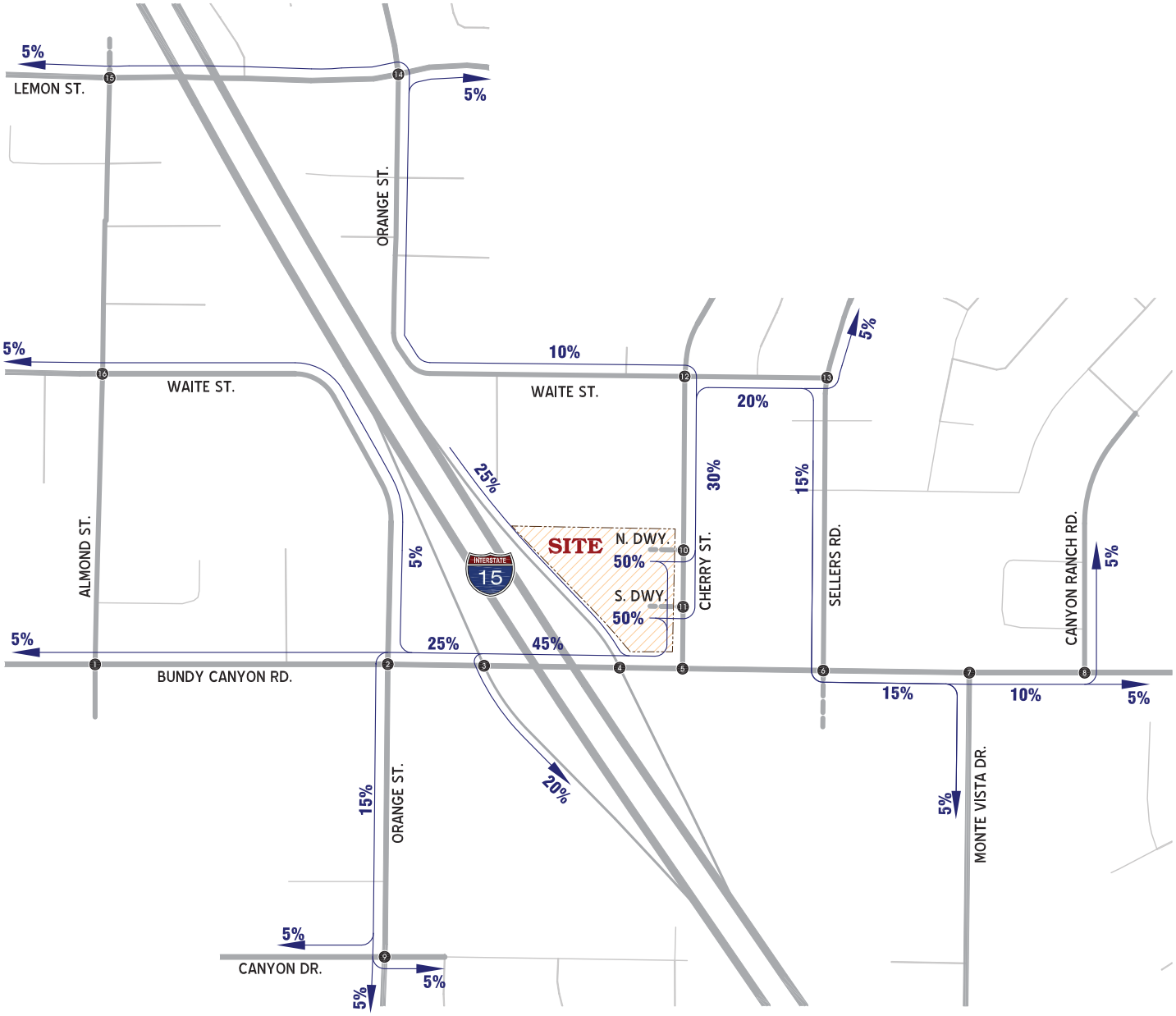
= FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY

10% = PERCENT TO PROJECT

N

FIGURE 4-E

PROJECT OUTBOUND TRIP DISTRIBUTION
(WITH RIRO AT CHERRY STREET/BUNDY CANYON ROAD)



LEGEND:

16 = INTERSECTION ID

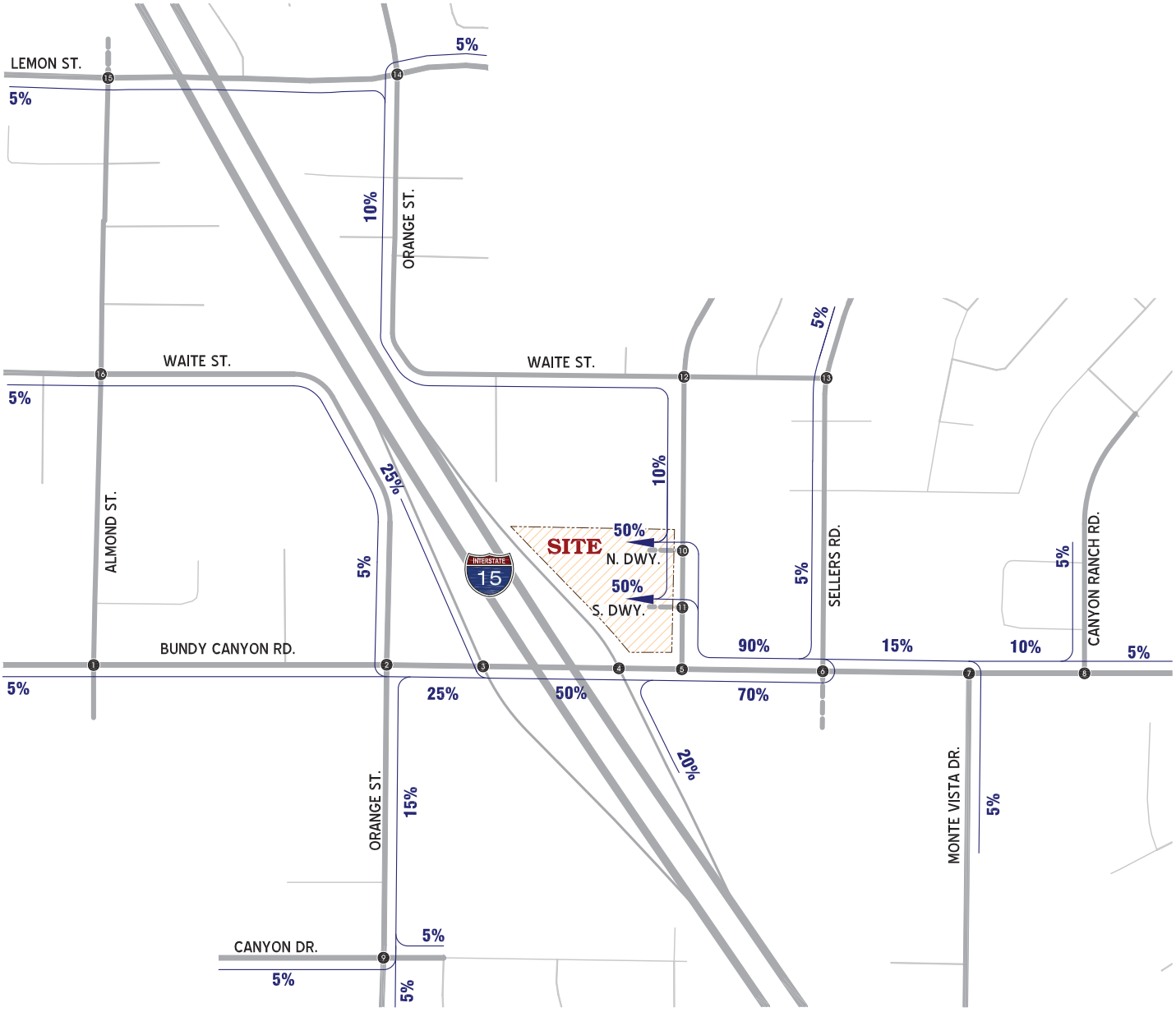
= FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY

10% = PERCENT FROM PROJECT

N

FIGURE 4-F

PROJECT INBOUND TRIP DISTRIBUTION
(WITH RIRO AT CHERRY STREET/BUNDY CANYON ROAD)

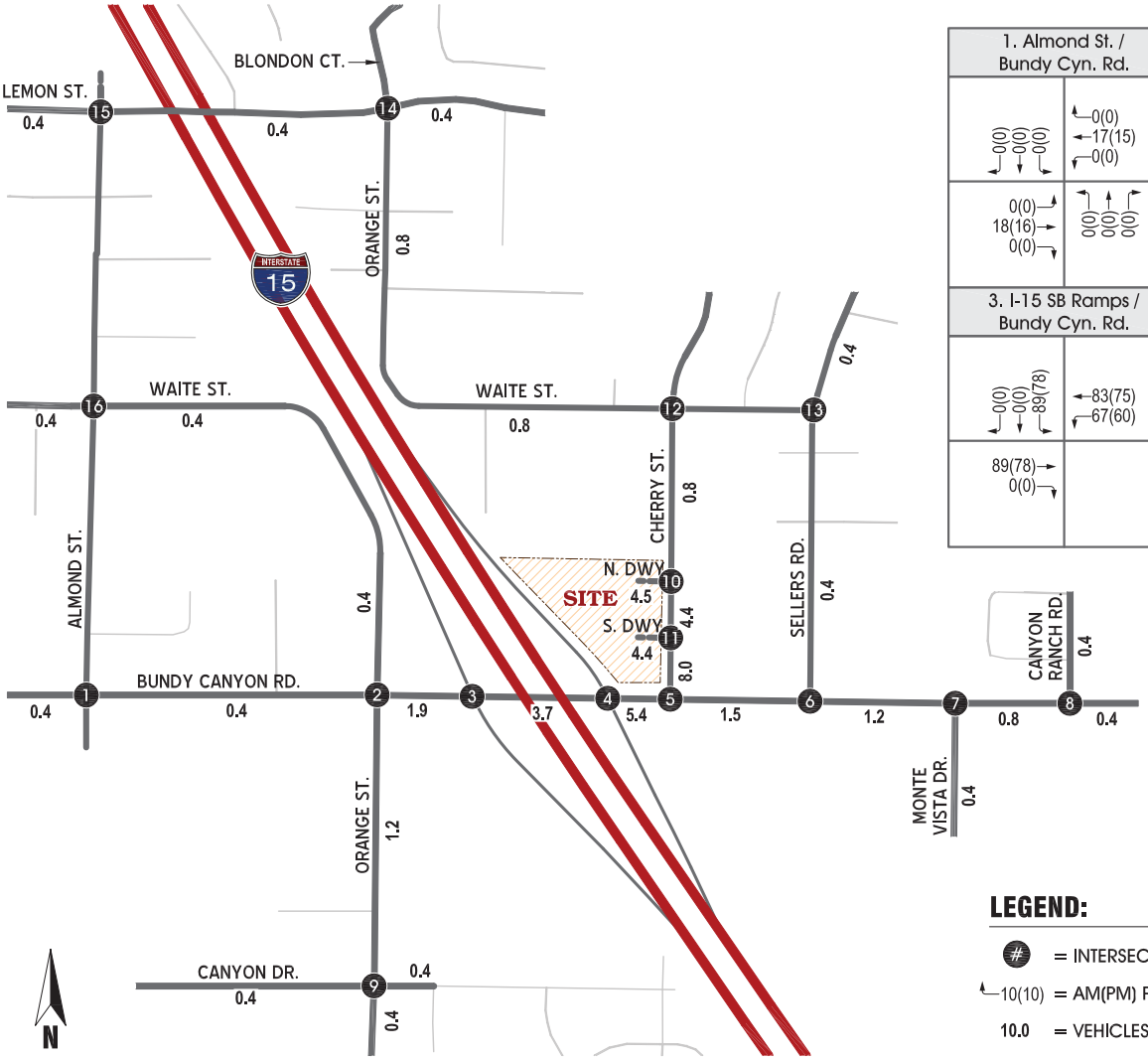


LEGEND:

- 16 = INTERSECTION ID
- = FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY
- 10% = PERCENT TO PROJECT

N

FIGURE 4-G
PROJECT ONLY (WITH PASS-BY) TRAFFIC VOLUMES
(WITH FULL ACCESS AT CHERRY STREET/BUNDY CANYON ROAD)



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
0(0) 0(0) 0(0)	0(0) 17(15) 0(0)	0(0) 0(0) 18(16)	17(15) 17(15) 50(45)
0(0) 18(16) 0(0)	0(0) 0(0) 0(0)	0(0) 18(16) 0(0)	0(0) 0(0) 54(47)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
0(0) 0(0) 89(78)	83(75) 67(60)		83(75) 150(135)
89(78) 0(0)		0(0) 179(156)	0(0) 0(0) 71(62)

LEGEND:

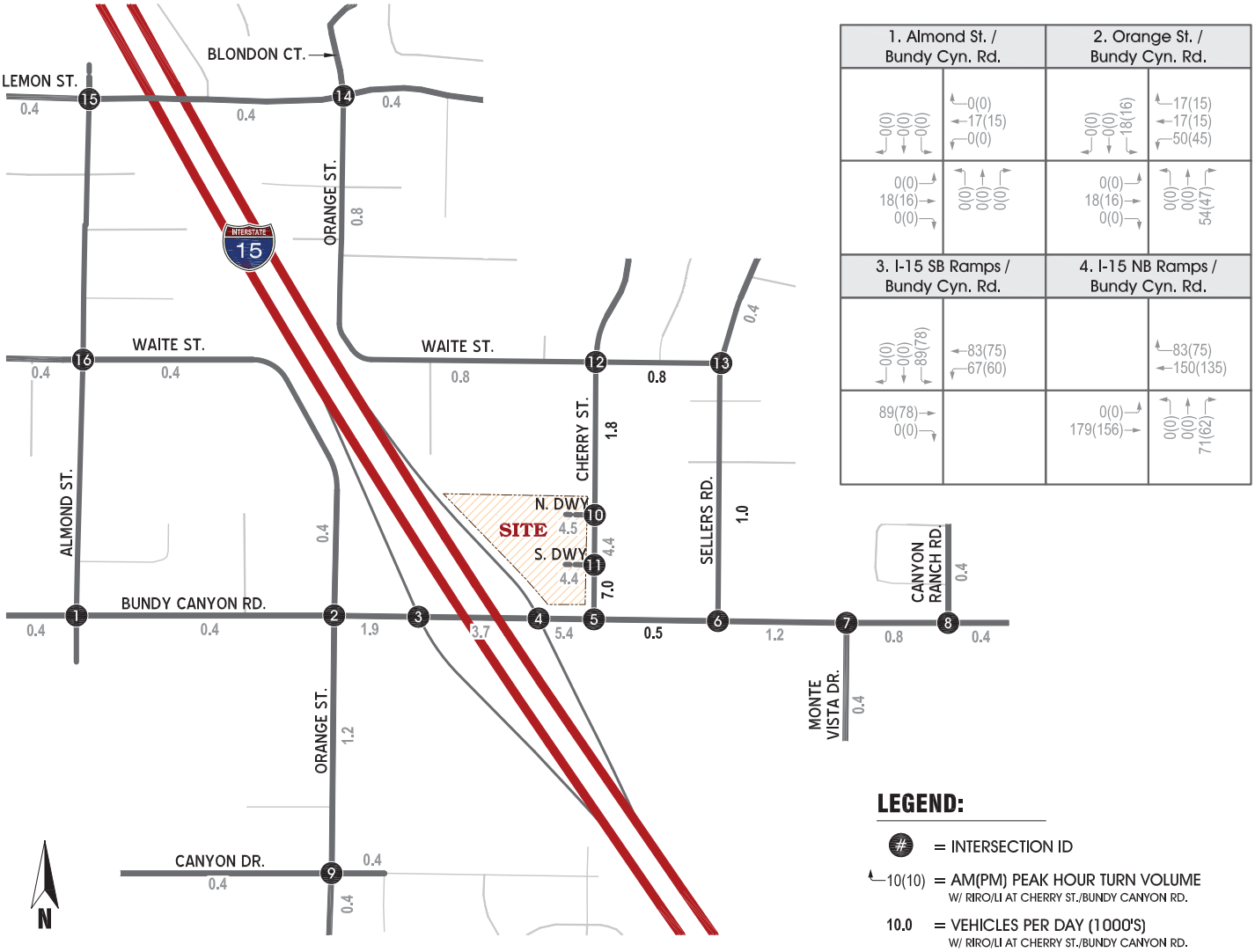
(#) = INTERSECTION ID

10(10) = AM(PM) PEAK HOUR TURN VOLUME

10.0 = VEHICLES PER DAY (1000'S)

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
258(242) 91(92)	96(93) 25(-31)	18(16) 0(0)	0(0) 54(47)		36(31) 0(0)	18(16) 0(0)	0(0) 18(16)	17(15) 17(15) 17(15)	18(16) 0(0) 0(0)	21(19) 15(13)	
274(250) 24(-32)		17(15) 50(45)		33(30) 17(15)	18(16) 0(0)	17(15) 17(15)		18(16) 0(0) 0(0)	0(0) 18(16) 0(0)	18(17) 177(167)	187(173) 16(13)
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) 174(164)		0(0) 0(0) 0(0)	0(0) 0(0) 0(0)	0(0) 18(16)		0(0) 0(0) 0(0)	0(0) 0(0) 18(16)	0(0) 0(0) 0(0)	0(0) 17(15) 0(0)	0(0) 0(0) 0(0)	0(0) 17(15) 0(0)
19(16) 175(169)	187(173) 184(170)	0(0) 0(0) 36(31)	33(30) 0(0) 0(0)	0(0) 0(0)	0(0) 17(15)	0(0) 0(0) 18(16)	17(15) 0(0) 17(15)	0(0) 18(16) 0(0)	0(0) 0(0) 0(0)	0(0) 18(16) 0(0)	0(0) 0(0) 0(0)

FIGURE 4-H
PROJECT ONLY (WITH PASS-BY) TRAFFIC VOLUMES
(WITH RIRO/LI AT CHERRY STREET/BUNDY CANYON ROAD)



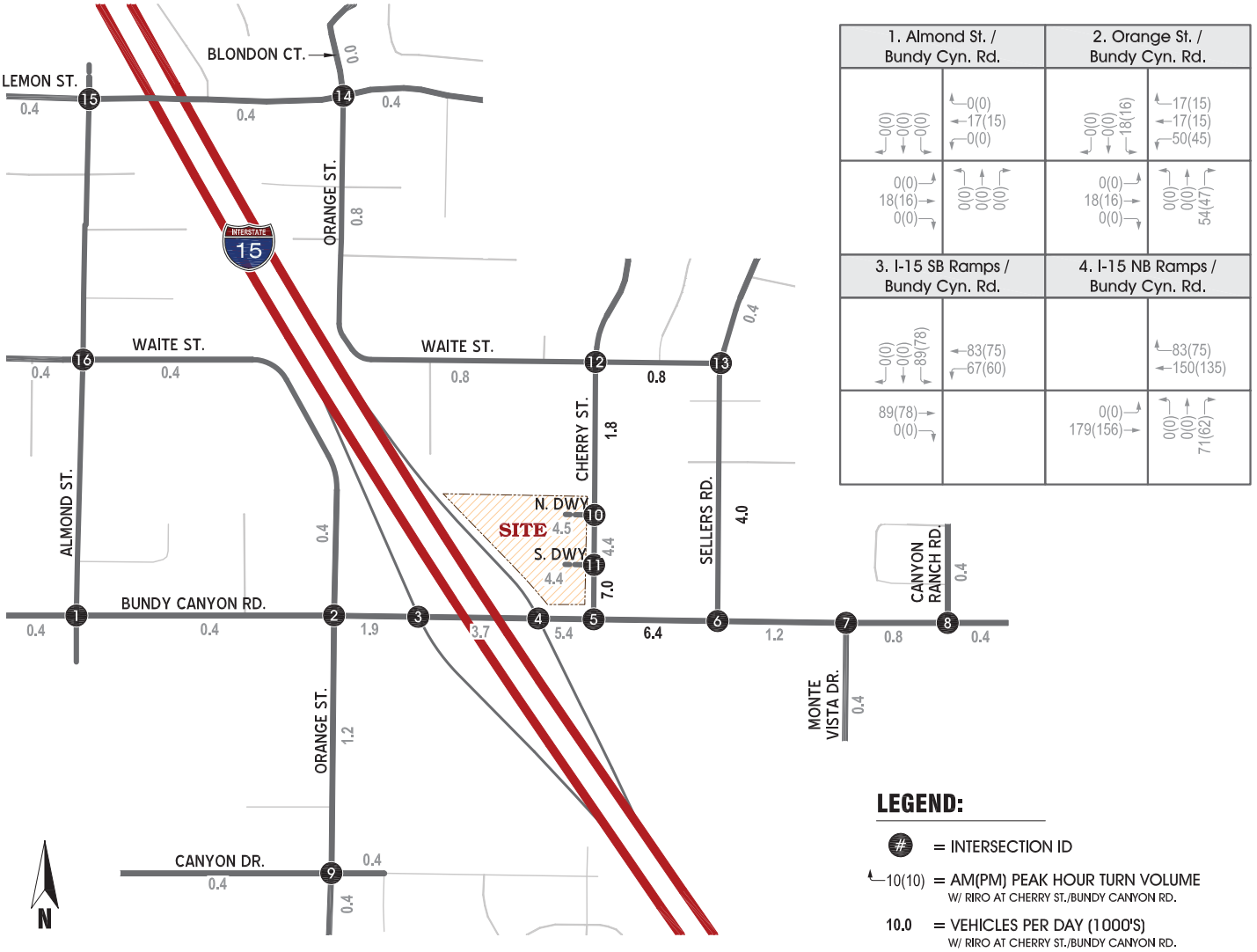
1. Almond St. / Bundy Cyn. Rd.	2. Orange St. / Bundy Cyn. Rd.
0(0) 0(0) 0(0) ← 0(0) ← 17(15) ← 0(0) 0(0) → 18(16) → 0(0) ← 0(0) 0(0) 0(0)	0(0) 0(0) 18(16) ← 17(15) ← 17(15) ← 50(45) 0(0) → 18(16) → 0(0) ← 0(0) 0(0) 54(47)
3. I-15 SB Ramps / Bundy Cyn. Rd.	**4. I-15 NB Ramps / Bundy Cyn. Rd.**
0(0) 0(0) 89(78) ← 83(75) ← 67(60) 89(78) → 0(0)	83(75) ← 150(135) 0(0) → 179(156) ← 0(0) 0(0) 71(62)

LEGEND:

- (#) = INTERSECTION ID
- 10(10) = AM(PM) PEAK HOUR TURN VOLUME W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.
- 10.0 = VEHICLES PER DAY (1000'S) W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.

5. Cherry St. / Bundy Cyn. Rd.	6. Sellers Rd. / Bundy Cyn. Rd.	7. Monte Vista Dr. / Bundy Cyn. Rd.	8. Cyn. Ranch Rd. / Bundy Cyn. Rd.	9. Orange St. / Canyon Dr.	10. Cherry St. / N. Dwy.
258(242) ← 96(93) ← -25(-31) 274(250) → -24(-32) →	18(16) 74(77) ← 0(0) ← 54(47) 0(0) → -24(-32) →	← 36(31) ← 0(0) 33(30) → 17(15) → 18(16) 0(0)	18(16) 0(0) ← 0(0) ← 18(16) 17(15) → 17(15) →	17(15) 17(15) 17(15) ← 18(16) ← 0(0) ← 0(0) 18(16) → 0(0) → 0(0) 0(0) 18(16) 0(0)	21(19) 15(13) ← 187(173) 61(59) 63(63) → 132(121) →
11. Cherry St. / S. Dwy.	**12. Cherry St. / Walte St.**	**13. Sellers Rd. / Walte St.**	**14. Orange St. / Lemon St.**	**15. Almond St. / Lemon St.**	**16. Almond St. / Walte St.**
18(16) 129(118) ← 187(173) 184(170) 64(62) → 130(123) →	0(0) 0(0) 0(0) ← 0(0) ← 0(0) ← 0(0) 0(0) → 0(0) → 36(31) → 33(30) 0(0) 67(60)	0(0) 18(16) ← 0(0) 0(0) 17(15) → 50(45) →	0(0) 0(0) 0(0) ← 0(0) ← 0(0) ← 18(16) 0(0) → 0(0) → 18(16) → 17(15) 0(0) 17(15)	0(0) 0(0) 0(0) ← 0(0) ← 17(15) ← 0(0) 0(0) → 18(16) → 0(0) → 0(0) 0(0) 0(0)	0(0) 0(0) 0(0) ← 0(0) ← 17(15) ← 0(0) 0(0) → 18(16) → 0(0) → 0(0) 0(0) 0(0)

FIGURE 4-I
PROJECT ONLY (WITH PASS-BY) TRAFFIC VOLUMES
(WITH RIRO AT CHERRY STREET/BUNDY CANYON ROAD)



5. Cherry St. / Bundy Cyn. Rd.	6. Sellers Rd. / Bundy Cyn. Rd.	7. Monte Vista Dr. / Bundy Cyn. Rd.	8. Cyn. Ranch Rd. / Bundy Cyn. Rd.	9. Orange St. / Canyon Dr.	10. Cherry St. / N. Dwy.
258(242) ← 370(343) ← -25(-31)	18(16) ← 74(77) ← 0(0) ← 54(47)	36(31) ← 0(0)	18(16) ← 0(0) ← 0(0) ← 18(16)	17(15) ← 17(15) ← 17(15) ← 18(16) ← 0(0) ← 0(0)	21(19) ← 15(13)
250(218) →	274(250) → -24(-32) →	33(30) → 17(15) → 18(16) ← 0(0)	17(15) → 17(15) →	18(16) → 0(0) → 0(0) → 0(0) ← 18(16) ← 0(0)	63(63) → 132(121) → 187(173) ← 61(59) ←

11. Cherry St. / S. Dwy.	12. Cherry St. / Walte St.	13. Sellers Rd. / Walte St.	14. Orange St. / Lemon St.	15. Almond St. / Lemon St.	16. Almond St. / Walte St.
18(16) ← 129(118)	0(0) ← 0(0) ← 0(0) ← 0(0) ← 0(0) ← 0(0)	0(0) ← 18(16)	0(0) ← 0(0) ← 0(0) ← 0(0) ← 0(0) ← 18(16)	0(0) ← 0(0) ← 0(0) ← 0(0) ← 17(15) ← 0(0)	0(0) ← 0(0) ← 0(0) ← 0(0) ← 17(15) ← 0(0)
64(62) → 130(123) → 187(173) → 184(170) →	0(0) → 0(0) → 36(31) → 33(30) → 0(0) → 67(60) →	17(15) → 50(45) → 0(0) → 0(0) ←	0(0) → 0(0) → 18(16) → 17(15) → 0(0) → 17(15) →	0(0) → 18(16) → 0(0) → 0(0) → 0(0) → 0(0) ←	0(0) → 18(16) → 0(0) → 0(0) → 0(0) → 0(0) ←

B. Cumulative Traffic (Background)

1. Method of Projection

To assess Existing Plus Ambient Plus Project Plus Cumulative traffic conditions, project traffic is combined with existing traffic, area-wide growth and other future developments which are approved or being processed concurrently in the study area. Developments which are being processed concurrently in the study area have been provided by the City of Wildomar staff.

2. Other Approved or Proposed Development Projects

The cumulative developments have been included along with the land use associated with each project. The location of the cumulative projects provided by the County are shown on Figure 4-J.

3. Other Approved Projects Trip Generation

Tables 4-3 and 4-4 presents the cumulative development land uses/trip generation rates and trip generation summary, respectively. As presented in Table 4-4 cumulative developments are projected to generate a total of approximately 28,814 trip-ends per day with 1,898 vehicle trips per hour during the AM peak hour and 2,769 vehicle trips per hour during the PM peak hour.

4. Total Background Peak Hour Turning Movement Volumes

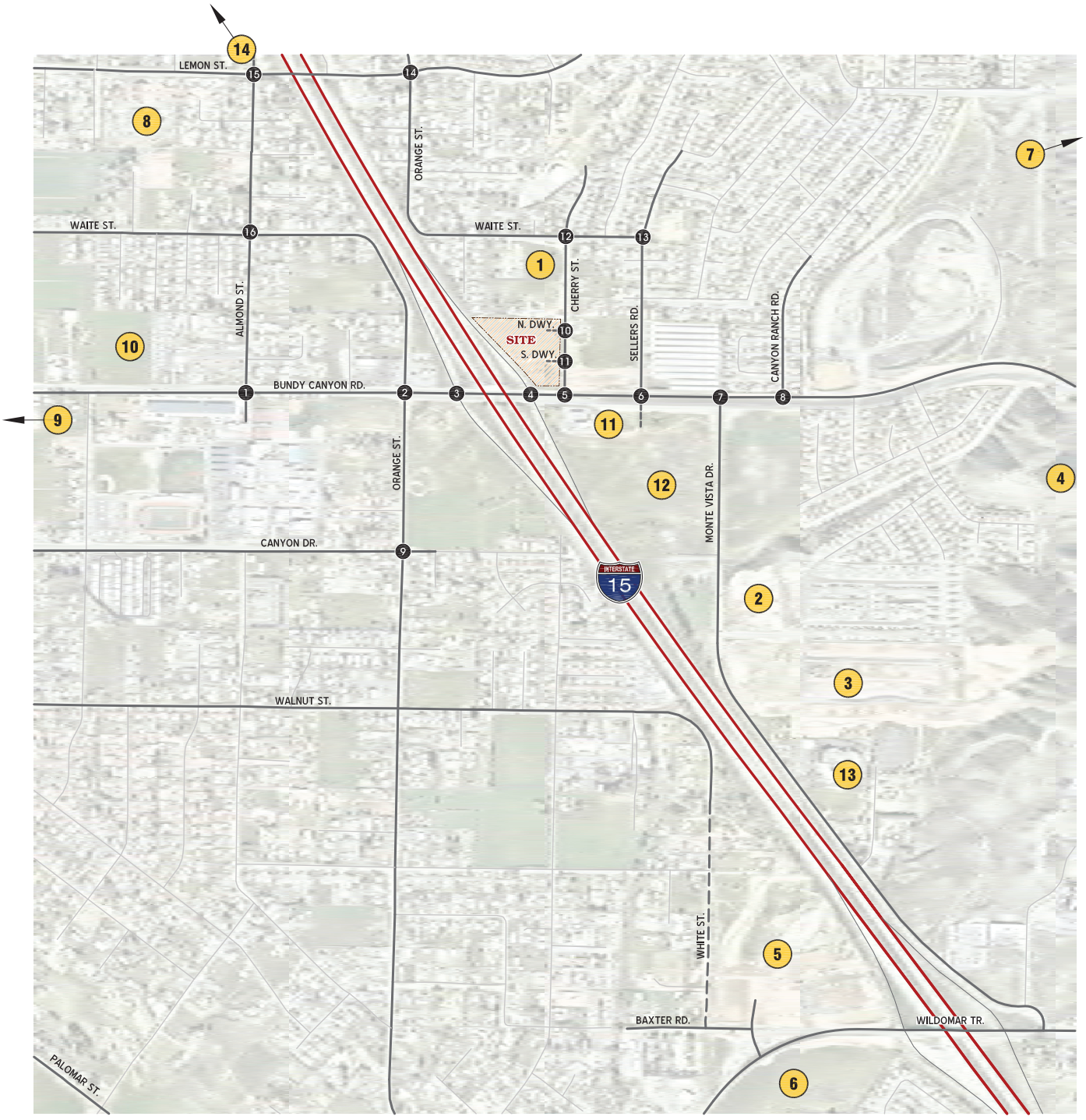
Based on the identified trip distribution for the cumulative development on arterial highways throughout the study area, cumulative development AM and PM peak hour intersection turning movement volumes are shown on Figure 4-K.

Existing plus Project (E+P) AM and PM peak hour intersection turning movement volumes are shown on Figures 4-L to 4-N.

Existing plus Ambient plus Project (EAP) AM and PM peak hour intersection turning movement volumes are shown on Figures 4-O to 4-Q.

Existing plus Ambient plus Project plus Cumulative (EAPC) AM and PM peak hour intersection turning movement volumes are shown on Figures 4-R to 4-T.

FIGURE 4-J
CUMULATIVE DEVELOPMENTS LOCATION MAP



LEGEND:

16 = INTERSECTION ID

14 = CUMULATIVE DEVELOPMENT ID (SEE TABLE 4-4 FOR REFERENCE)

N

TABLE 4-3

CUMULATIVE DEVELOPMENT TRIP GENERATION SUMMARY

LAND USE	ITE CODE	UNITS[2]	PEAK HOUR						DAILY
			AM			PM			
			IN	OUT	TOTAL	IN	OUT	TOTAL	
Single Family Detached	210	DU	0.18	0.52	0.70	0.59	0.35	0.94	9.43
Multifamily Housing (Low-Rise)	220	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74
Affordable Housing	223	DU	0.10	0.26	0.36	0.27	0.19	0.46	4.81
Hotel	310	RM	0.26	0.20	0.46	0.30	0.29	0.59	7.99
Campground/Recreational Vehicle Park	416	SPACES	0.08	0.13	0.21	0.18	0.09	0.27	2.70
Church	560	SEATS	0.04	0.03	0.07	0.05	0.06	0.10	0.90
Day Care Center	565	STU	0.41	0.37	0.78	0.37	0.42	0.79	4.09
General Office Building	710	TSF	1.34	0.18	1.52	0.24	1.20	1.44	10.84
Medical-Dental Office	720	TSF	2.45	0.65	3.10	1.18	2.75	3.93	36.00
Business Park	770	TSF	1.15	0.20	1.35	0.32	0.90	1.22	12.44
Shopping Center (>150k)	820	TSF	0.52	0.32	0.84	1.63	1.77	3.40	37.01
Shopping Center (40-150k)	821	TSF	1.07	0.66	1.73	2.54	2.65	5.19	67.52
Shopping Center (40-150k)	822	TSF	1.42	0.94	2.36	3.30	3.29	6.59	54.45
Fast-Food Restaurant w/ Drive-Through Window	934	TSF	22.75	21.86	44.61	17.18	15.85	33.03	467.48

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; DU = Dwelling Units; STU = Students

TABLE 4-4

CUMULATIVE DEVELOPMENT TRIP GENERATION SUMMARY

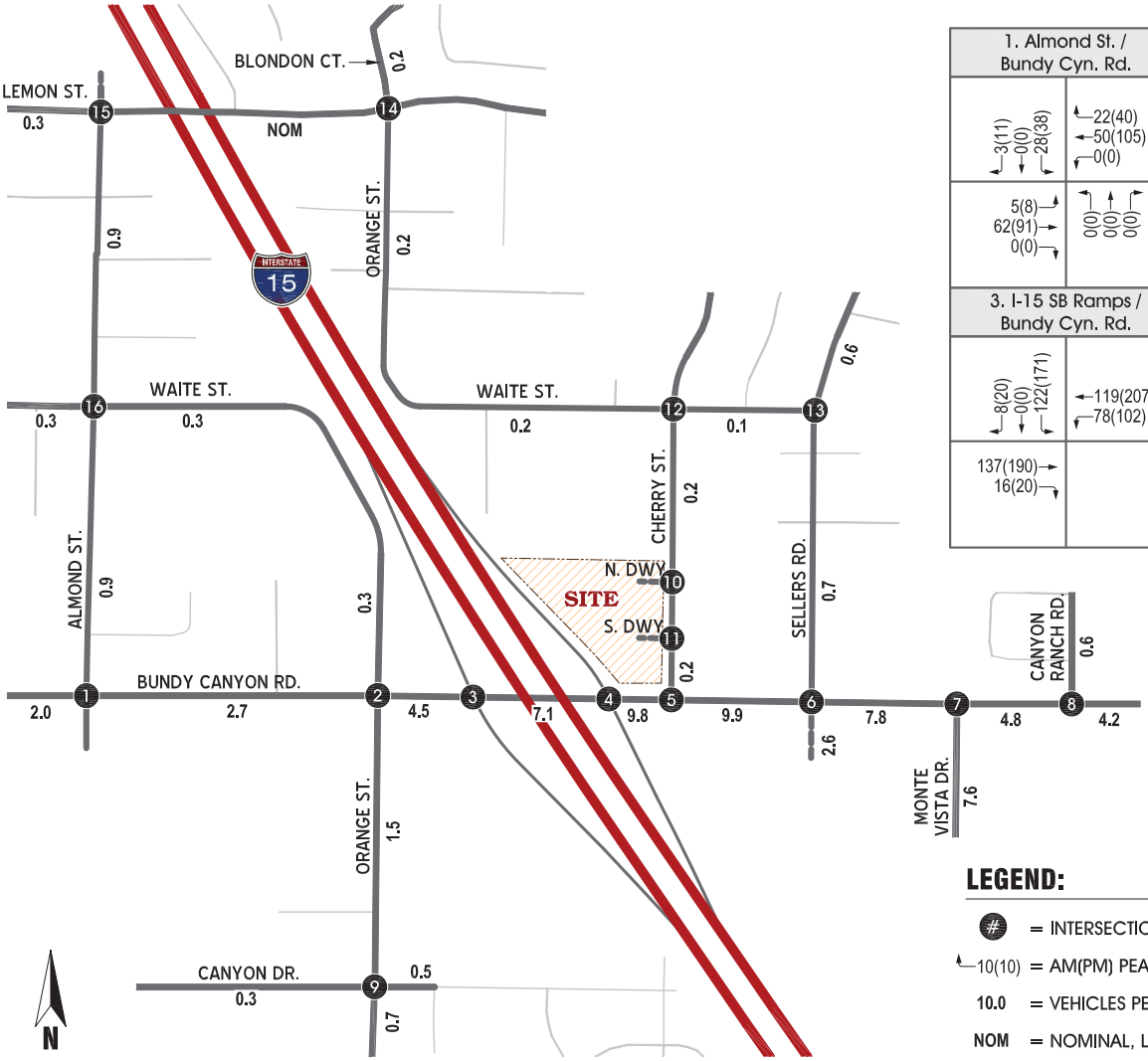
ID	PROJECT NAME	LAND USE	QUANTITY [1]	PEAK HOUR AM IN	PEAK HOUR AM OUT	PEAK HOUR AM TOTAL	PEAK HOUR PM IN	PEAK HOUR PM OUT	PEAK HOUR PM TOTAL	DAILY
1	TTM No. 38525 Subdivision (Cherry/Waite St Subdivision)	Single Family Detached	10 DU	2	5	7	6	4	10	94
2	Monte Vista II Townhome Project (south of Bundy Cyn. & east of Monte Vista Dr.)	Multifamily Housing (Low-Rise)	62 DU	6	19	25	20	12	32	418
3	Summerhill Community Phase 2 (The Village at Monte Vista Mixed Use) (south of Bundy Cyn. & east of Monte Vista Dr.)	Single Family Detached	80 DU	14	42	56	47	28	75	754
		Business Park	136 TSF	156	27	183	44	122	166	1,692
	Subtotal			170	69	239	91	150	241	2,446
4	Bundy Cyn. Resort Apts. (south Bundy Cyn. & west of Oak Creek Rd.)	Multifamily Housing (Low-Rise)	140 DU	14	42	56	45	27	72	944
5	Baxter Village Residential Project (north of Clinton Keith Rd. & west of I-15 Fwy.)	Single Family Detached	67 DU	12	35	47	40	23	63	632
		Multifamily Housing (Low-Rise)	204 DU	20	61	81	65	39	104	1,375
		Medical-Dental Office	84 TSF	206	55	261	99	231	330	3,024
		Hotel	102 RM	27	20	47	31	30	61	815
		Subtotal		265	171	436	235	323	558	5,846
		Internal Interaction (5%)		*(11)*	*(11)*	*(22)*	*(14)*	*(14)*	*(28)*	*(292)*
	Subtotal			254	160	414	221	309	530	5,554
6	Wildomar Trail Mixed-Use Project (south of Clinton Keith Rd. & west of I-15 Fwy.)	Multifamily Housing (Low-Rise)	109 DU	11	33	44	35	21	56	735
		Shopping Center (40-150k)	41.609 TSF	45	27	72	106	110	216	2,809
		General Office Building	72 TSF	96	13	109	17	86	103	780
		Subtotal		152	73	225	158	217	375	4,324
		Internal Interaction (10%)		*(11)*	*(11)*	*(22)*	*(19)*	*(19)*	*(38)*	*(432)*
		Shopping Center Pass-By (10%)		*(3)*	*(3)*	*(6)*	*(11)*	*(11)*	*(22)*	*(281)*
	Subtotal			138	59	197	128	187	315	3,611
7	Oak Creek Canyon Residential Proj. (Bundy Cyn. Rd. & west of Sunshine Av.)	Single Family Detached	275 DU	50	143	193	162	96	258	2,593
8	St. Frances of Rome Church	Proposed New Church	1,200 SEATS	50	34	84	54	66	120	1,080
		Existing Church (to be converted into multi-purpose building)	897 SEATS	(38)	(25)	(63)	(40)	(49)	(89)	(807)
	Subtotal			12	9	21	14	17	31	273
9	Wildomar Shooting Academy[3]	Shooting Range	34.702 TSF	-	-	-	38	42	80	290
10	Bundy Canyon Super Storage RV & Boat Storage	Campground/Recreational Vehicle Park	419 Spaces	34	54	88	75	38	113	1,131
11	Bundy Canyon Plaza	Fast-Food Restaurant w/ Drive-Through Window	7.859 TSF	179	172	351	135	125	260	3,674
		Shopping Center (<40k)	17.1 TSF	24	16	40	56	56	112	930
		Pass-By		*(26)*	*(26)*	*(52)*	*(19)*	*(19)*	*(38)*	*(551)*
	Subtotal			177	162	339	172	162	334	4,053
12	Retail Building (previously Walmart)	Shopping Center (>150k)	193.792 TSF	101	62	163	316	343	659	7,172
		Shopping Center Pass-By (15%)		*(12)*	*(11)*	*(23)*	*(50)*	*(49)*	*(99)*	*(1,076)*
	Subtotal			89	51	140	266	294	560	6,096
13	Cornerstone ChurchPreschool & Admin Bldg.	Day Care Center	170 STU	70	63	133	63	71	134	695
14	Wildomar Cottages	Affordable Housing	128 DU	13	33	46	35	24	59	616
Total Cumulative Trips				1,029	869	1,898	1,336	1,433	2,769	28,814

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; DU = Dwelling Units; STU = Students

[3] Source: Initial Study & Mitigated Negative Declaration Wildomar Shooting Range/Academy Project (PA No. 19-0093), November 2019. Prepared by PlaceWorks.

FIGURE 4-K
CUMULATIVE DEVELOPMENTS ONLY TRAFFIC VOLUMES



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
3(11) 0(0) 28(38)	22(40) 50(105) 0(0)	0(0) 0(0) 10(11)	10(10) 72(145) 45(72)
5(8) 62(91) 0(0)	0(0) 0(0) 0(0)	0(0) 90(129) 0(0)	0(0) 0(0) 53(70)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
8(20) 0(0) 122(171)	119(207) 78(102)		126(161) 187(284)
137(190) 16(20)		11(15) 248(346)	10(25) 0(0) 62(117)

LEGEND:

- (#) = INTERSECTION ID
- 10(10) = AM(PM) PEAK HOUR TURN VOLUME
- 10.0 = VEHICLES PER DAY (1000'S)
- NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.
3(3) 0(0)	9(10) 310(442)	0(0) 18(17) 17(19)	7(24) 176(312) 40(36)		122(91) 85(98)	25(27) 0(0)	0(0) 182(162)	17(15) 19(34) 11(23)	13(22) 0(0) 0(0)	Future Intersection
1(4) 309(459)		0(0) 192(347) 27(26)	143(140) 8(8) 8(8)	55(135) 162(239)	101(281) 49(125)	15(32) 89(228)		14(18) 0(0) 0(0)	0(0) 26(30) 0(0)	
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**
Future Intersection		0(0) 0(0) 0(0)	0(0) 0(0) 0(0)	0(0) 25(27)		0(0) 9(9) 0(0)	0(0) 0(0) 0(0)	0(0) 20(36) 0(0)	0(0) 1(1) 0(0)	0(0) 31(50) 0(0)	0(0) 10(10) 0(0)
		0(0) 9(9) 0(1)	9(9) 0(0) 1(1)	0(0) 10(9)	0(0) 15(32)	0(0) 0(0) 0(1)	1(1) 8(8) 0(0)	0(0) 0(1) 11(13)	9(14) 19(34) 0(0)	0(0) 10(11) 0(0)	0(0) 28(48) 0(0)

FIGURE 4-L
EXISTING PLUS PROJECT TRAFFIC VOLUMES
(WITH FULL ACCESS AT CHERRY STREET/BUNDY CANYON ROAD)



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
39(15) 34(1) 80(47)	40(46) 314(512) 62(6)	7(19) 45(30) 197(127)	80(158) 399(547) 338(237)
21(9) 390(434) 29(7)	23(10) 32(6) 65(15)	24(22) 473(453) 23(24)	9(15) 56(40) 391(233)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
252(196) 7(2) 362(488)	609(801) 396(247)		396(299) 726(614)
535(530) 525(282)		217(134) 681(884)	279(434) 0(3) 262(422)

LEGEND:

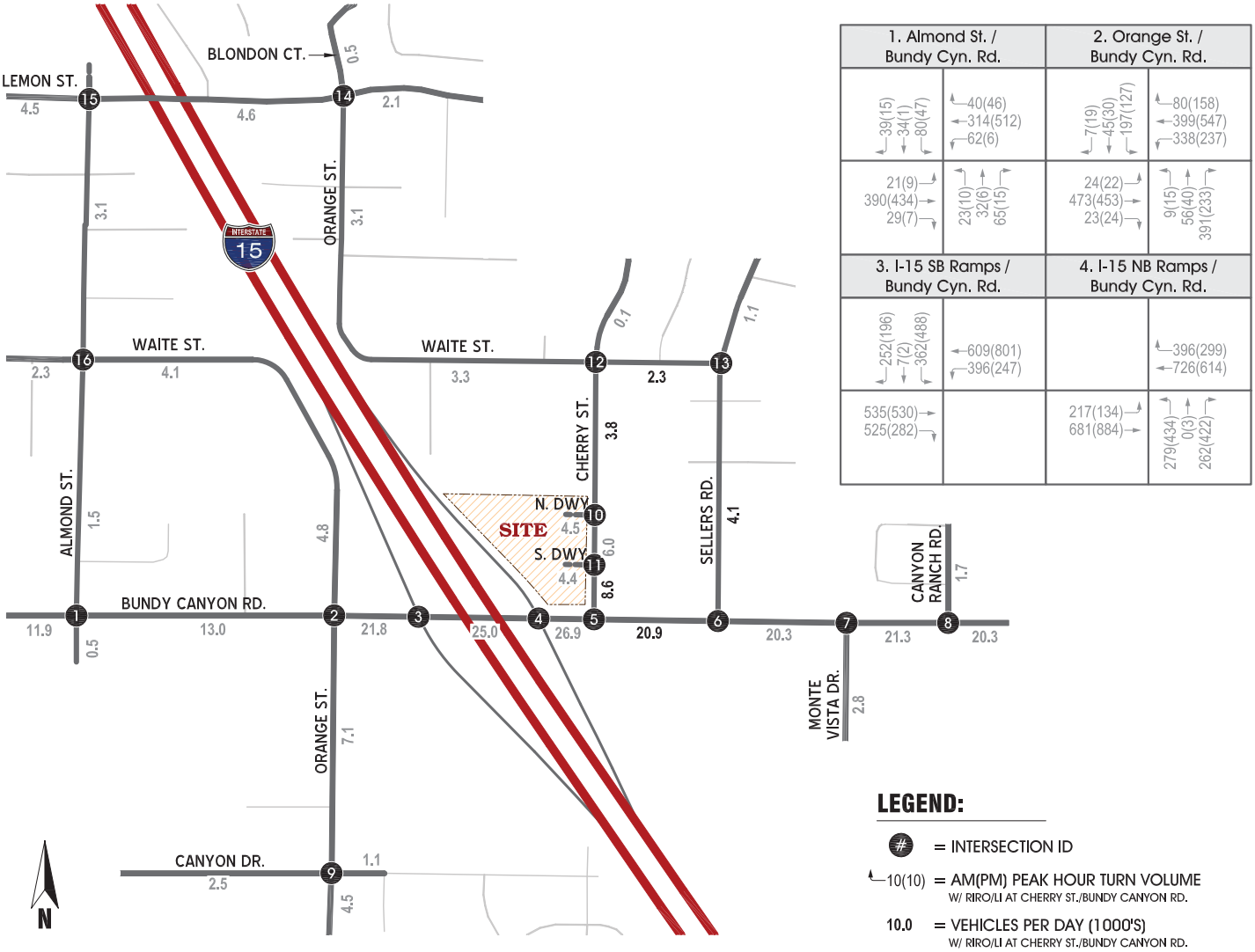
(#) = INTERSECTION ID

10(10) = AM(PM) PEAK HOUR TURN VOLUME

10.0 = VEHICLES PER DAY (1000'S)

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
323(289) 104(97)	102(114) 799(625)	110(75) 45(34)	26(39) 812(614)		785(618) 170(50)	87(40) 12(9)	8(18) 868(629)	270(77) 118(176) 26(45)	53(34) 9(4) 2(1)	21(19) 93(65)	
317(315) 626(991)		70(137) 618(1004)		553(999) 110(39)	53(35) 77(106)	43(71) 588(1034)		216(89) 2(7) 74(17)	152(11) 188(170) 4(2)	18(17) 177(167)	187(173) 65(99)
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) 252(216)		3(1) 4(3) 4(1)	3(1) 88(45) 24(15)	18(8) 47(24)		18(9) 12(3) 1(1)	1(1) 84(44) 33(28)	1(1) 3(1) 1(1)	1(1) 130(96) 149(71)	3(8) 134(39) 111(71)	124(107) 50(88) 8(1)
19(16) 175(169)	187(173) 233(256)	1(1) 77(41) 75(64)	48(117) 3(5) 3(25)	19(6) 62(39)	70(45) 27(53)	12(13) 36(61) 104(89)	125(85) 2(13) 22(40)	1(1) 100(156) 77(52)	77(70) 2(1) 153(59)	11(2) 64(65) 14(9)	17(15) 80(30) 6(8)

FIGURE 4-M
EXISTING PLUS PROJECT TRAFFIC VOLUMES
(WITH RIRO/LI AT CHERRY STREET/BUNDY CANYON ROAD)



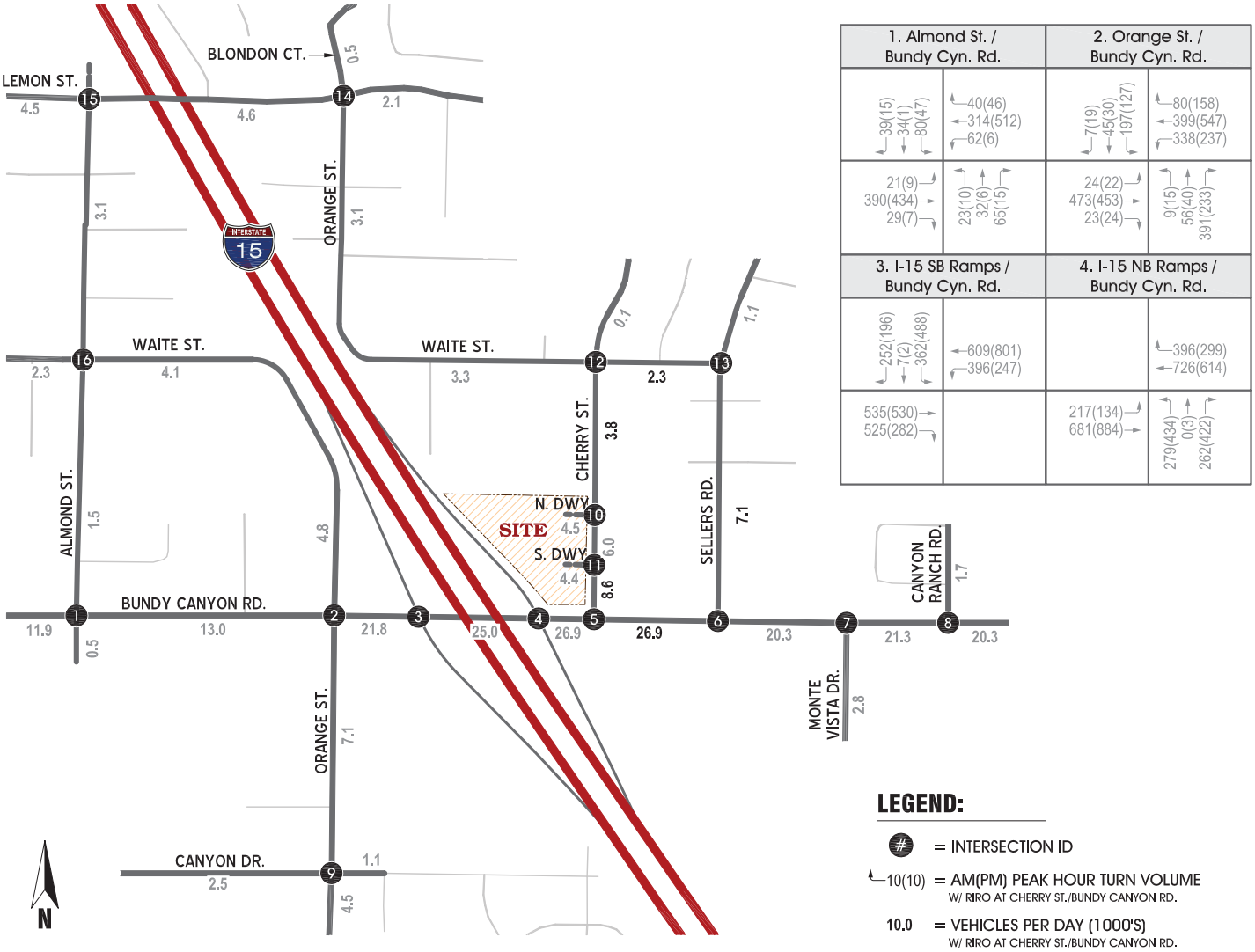
LEGEND:

- (#) = INTERSECTION ID
- 10(10) = AM(PM) PEAK HOUR TURN VOLUME W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.
- 10.0 = VEHICLES PER DAY (1000'S) W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.

5. Cherry St. / Bundy Cyn. Rd.	6. Sellers Rd. / Bundy Cyn. Rd.	7. Monte Vista Dr. / Bundy Cyn. Rd.	8. Cyn. Ranch Rd. / Bundy Cyn. Rd.	9. Orange St. / Canyon Dr.	10. Cherry St. / N. Dwy.
323(289) 102(114) 799(625)	110(75) 132(116) 26(39) 812(614)	785(618) 170(50)	87(40) 12(9) 8(18) 868(629)	270(77) 118(176) 26(45) 53(34) 9(4) 2(1)	21(19) 80(60)
317(315) 626(991)	53(122) 531(922)	553(999) 110(39) 53(35) 77(106)	43(71) 588(1034)	216(89) 2(7) 74(17) 152(11) 188(170) 4(2)	63(63) 132(121) 187(173) 110(145)

11. Cherry St. / S. Dwy.	12. Cherry St. / Walte St.	13. Sellers Rd. / Walte St.	14. Orange St. / Lemon St.	15. Almond St. / Lemon St.	16. Almond St. / Walte St.
18(16) 194(165)	3(1) 4(3) 4(1) 3(1) 88(45) 24(15)	18(8) 47(24)	18(9) 12(3) 1(1) 1(1) 84(44) 33(28)	1(1) 3(1) 1(1) 1(1) 130(96) 149(71)	3(8) 134(39) 111(71) 124(107) 50(88) 8(1)
64(62) 130(123) 187(173) 233(256)	1(1) 77(41) 75(64) 48(117) 3(5) 70(85)	36(21) 112(84) 70(45) 10(38)	12(13) 36(61) 104(89) 125(85) 2(13) 22(40)	1(1) 100(156) 77(52) 77(70) 2(1) 153(59)	11(2) 64(65) 14(9) 17(15) 80(30) 6(8)

FIGURE 4-N
EXISTING PLUS PROJECT TRAFFIC VOLUMES
(WITH RIRO AT CHERRY STREET/BUNDY CANYON ROAD)



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
39(15) 34(1) 80(47)	40(46) 314(512) 62(6)	7(19) 45(30) 197(127)	80(158) 399(547) 338(237)
21(9) 390(434) 29(7)	23(10) 32(6) 65(15)	24(22) 473(453) 23(24)	9(15) 56(40) 391(233)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
252(196) 7(2) 362(488)	609(801) 396(247)		396(299) 726(614)
535(530) 525(282)		217(134) 681(884)	279(434) 0(3) 262(422)

LEGEND:

(#) = INTERSECTION ID

10(10) = AM(PM) PEAK HOUR TURN VOLUME
W/ RIRO AT CHERRY ST./BUNDY CANYON RD.

10.0 = VEHICLES PER DAY (1000'S)
W/ RIRO AT CHERRY ST./BUNDY CANYON RD.

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
323(289)	419(429) 799(625)	110(75) 132(116)	26(39) 812(614)	785(618) 170(50)		87(40) 12(9)	8(18) 868(629)	270(77) 118(176) 26(45)	53(34) 9(4) 2(1)	21(19) 80(60)	
943(1306)		370(437) 531(922)		553(999) 110(39)	53(35) 77(106)	43(71) 588(1034)		216(89) 2(7) 74(17)	152(11) 188(170) 4(2)	63(63) 132(121)	187(173) 110(145)
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) 194(165)		3(1) 4(3) 4(1)	3(1) 88(45) 24(15)	18(8) 47(24)		18(9) 12(3) 1(1)	1(1) 84(44) 33(28)	1(1) 3(1) 1(1)	1(1) 130(96) 149(71)	3(8) 134(39) 111(71)	124(107) 50(88) 8(1)
64(62) 130(123)	187(173) 233(256)	1(1) 77(41) 75(64)	48(117) 3(5) 70(85)	36(21) 112(84)	70(45) 10(38)	12(13) 36(61) 104(89)	125(85) 2(13) 22(40)	1(1) 100(156) 77(52)	77(70) 2(1) 153(59)	11(2) 64(65) 14(9)	17(15) 80(30) 6(8)

FIGURE 4-O
EXISTING PLUS AMBIENT PLUS PROJECT (2025) TRAFFIC VOLUMES
(WITH FULL ACCESS AT CHERRY STREET/BUNDY CANYON ROAD)



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
41(16) 35(1) 83(49)	42(48) 326(532) 65(6)	7(20) 47(31) 204(131)	83(164) 414(568) 350(245)
22(9) 405(451) 30(7)	24(10) 33(6) 68(16)	25(23) 491(471) 24(25)	9(16) 58(42) 405(241)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
262(204) 7(2) 373(505)	630(830) 409(255)		409(308) 749(633)
553(548) 546(293)		226(139) 701(913)	290(452) 0(3) 270(437)

LEGEND:

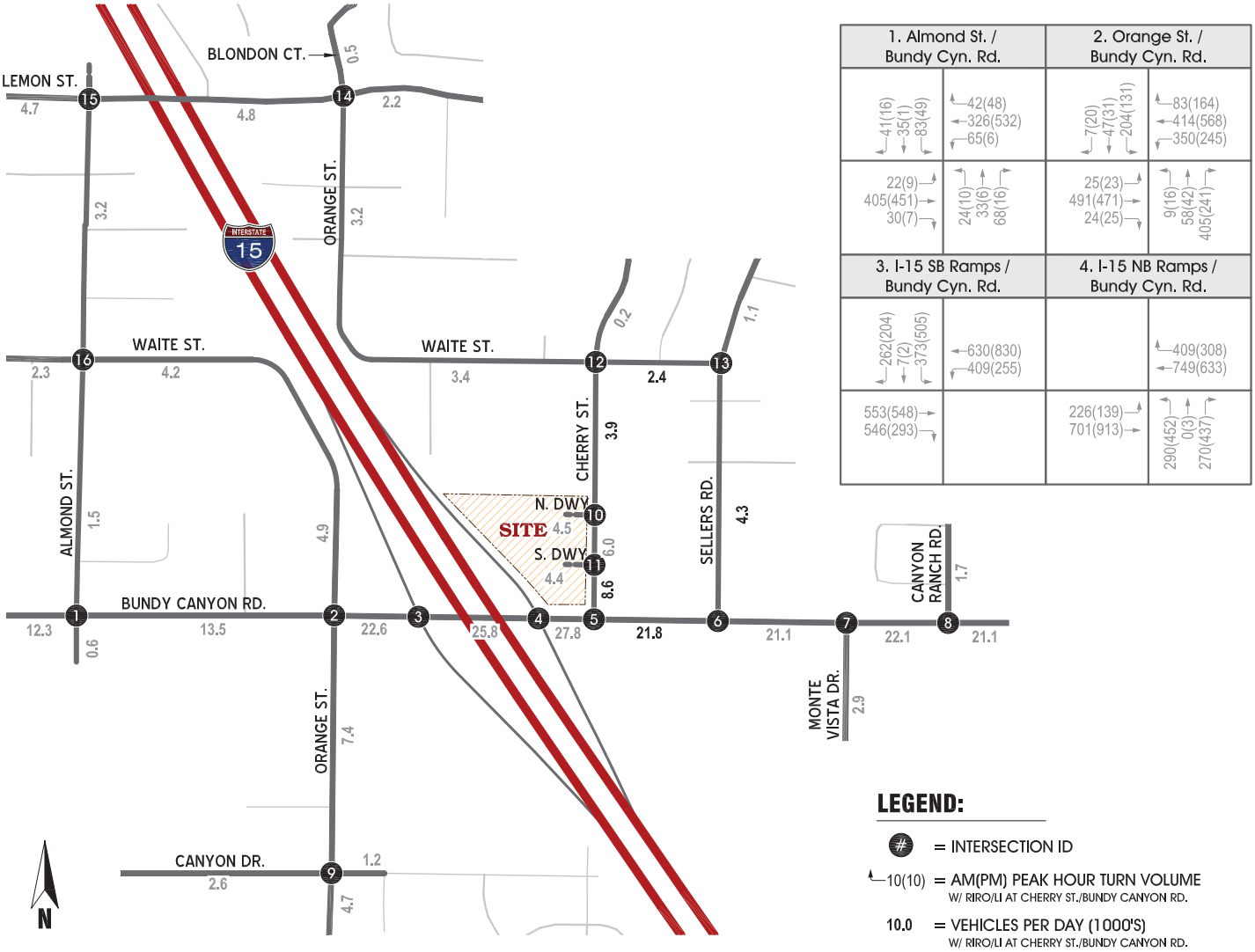
(#) = INTERSECTION ID

10(10) = AM(PM) PEAK HOUR TURN VOLUME

10.0 = VEHICLES PER DAY (1000'S)

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
326(291) 105(97)	102(115) 832(652)	114(77) 47(35)	27(41) 843(637)		815(642) 177(52)	90(41) 12(9)	8(19) 902(654)	280(80) 122(183) 26(46)	54(35) 9(4) 2(1)	21(19) 96(67)	
319(318) 652(1032)		72(142) 641(1043)		574(1038) 114(40)	54(36) 80(110)	44(73) 611(1075)		224(92) 2(7) 77(18)	158(11) 195(176) 4(2)	18(17) 177(167)	187(173) 67(102)
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) 255(218)		3(1) 4(3) 4(1)	3(1) 92(47) 25(16)	19(8) 48(24)		19(9) 12(3) 1(1)	1(1) 87(46) 34(28)	1(1) 3(1) 1(1)	1(1) 135(99) 155(74)	3(8) 139(41) 115(74)	129(111) 51(91) 8(1)
19(16) 175(169)	187(173) 235(259)	1(1) 80(43) 77(65)	49(121) 3(5) 3(26)	20(6) 65(41)	73(47) 27(55)	12(14) 37(63) 107(92)	129(88) 2(14) 22(41)	1(1) 103(162) 80(54)	80(73) 2(1) 159(61)	11(2) 66(67) 15(9)	18(16) 83(31) 6(8)

FIGURE 4-P
EXISTING PLUS AMBIENT PLUS PROJECT (2025) TRAFFIC VOLUMES
(WITH RIRO/LI AT CHERRY STREET/BUNDY CANYON ROAD)



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
41(16) 35(1) 83(49)	42(48) 326(532) 65(6)	7(20) 47(31) 204(131)	83(164) 414(568) 350(245)
22(9) 405(451) 30(7)	24(10) 33(6) 68(16)	25(23) 491(471) 24(25)	9(16) 58(42) 405(241)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
262(204) 7(2) 373(505)	630(830) 409(255)		409(308) 749(633)
553(548) 546(293)		226(139) 701(913)	290(452) 0(3) 270(437)

LEGEND:

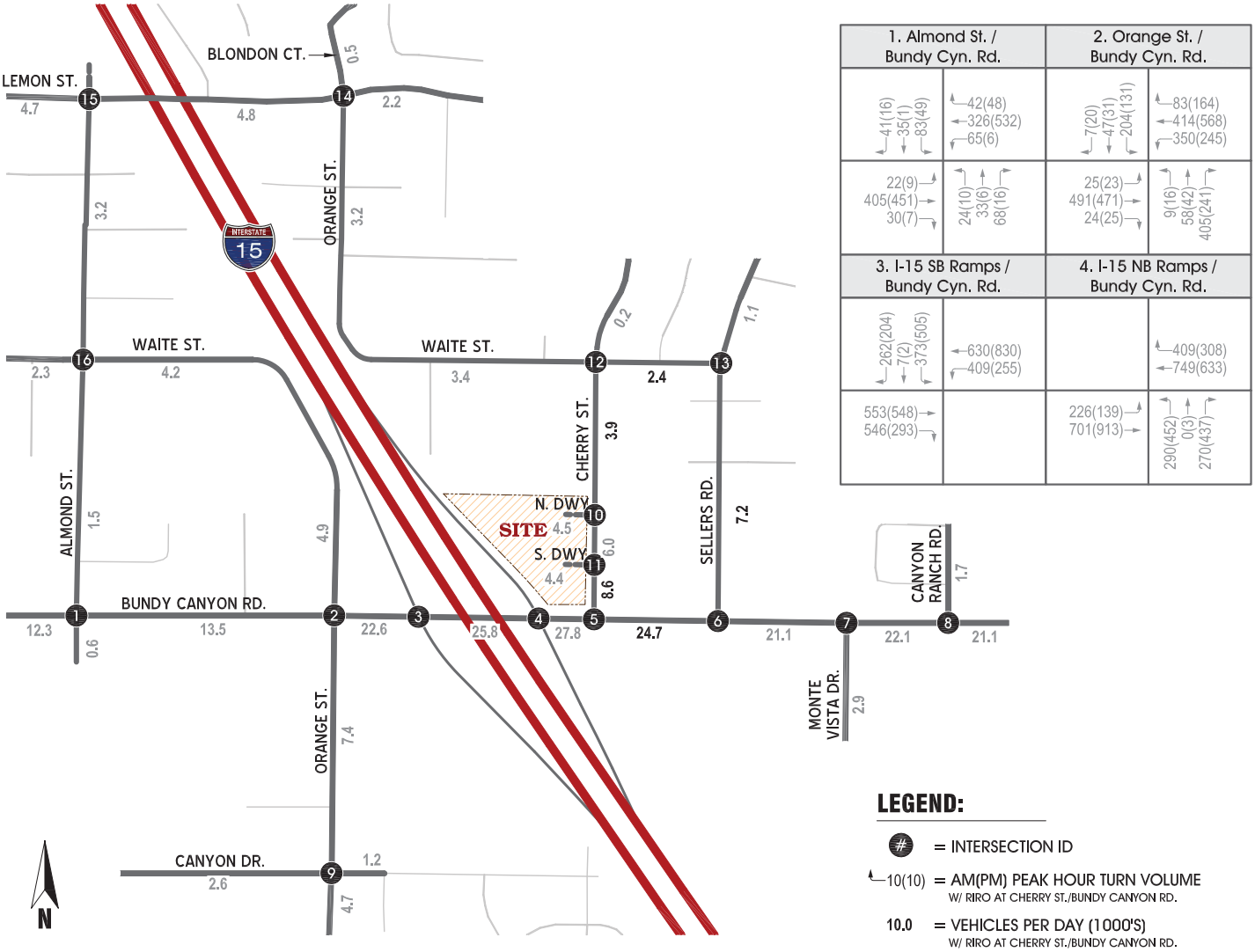
(#) = INTERSECTION ID

10(10) = AM(PM) PEAK HOUR TURN VOLUME
W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.

10.0 = VEHICLES PER DAY (1000'S)
W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.

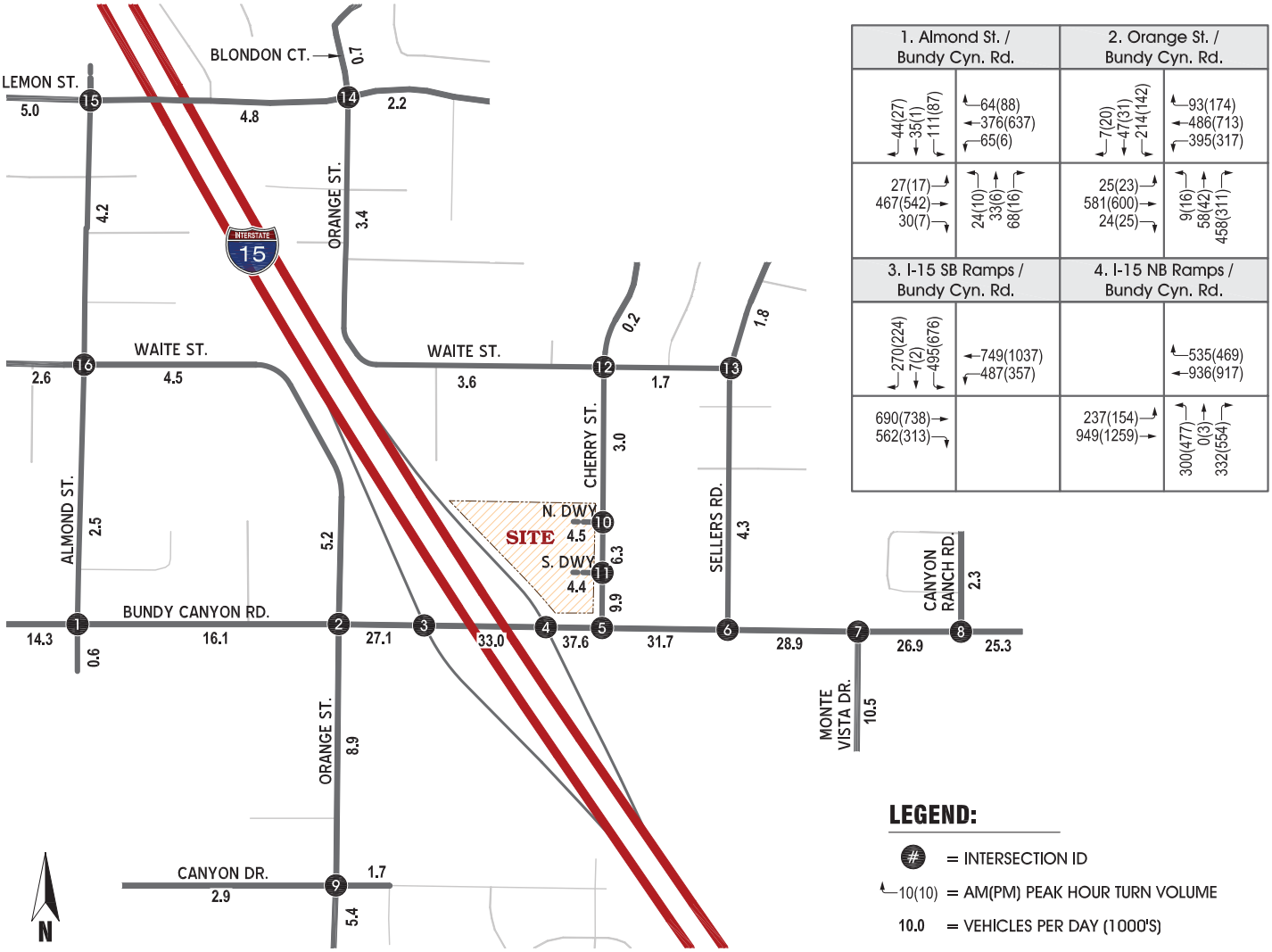
5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
326(291)	102(115) 832(652)	114(77) 134(118)	27(41) 843(637)		815(642) 177(52)	90(41) 12(9)	8(19) 902(654)	280(80) 122(183) 26(46)	54(35) 9(4) 2(1)	21(19) 83(62)	
319(318) 652(1032)		55(127) 553(961)		574(1038) 114(40)	54(36) 80(110)	44(73) 611(1075)		224(92) 2(7) 77(18)	158(11) 195(176) 4(2)	63(63) 132(121)	187(173) 112(148)
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) 197(167)		3(1) 4(3) 4(1)	3(1) 92(47) 25(16)	19(8) 48(24)		19(9) 12(3) 1(1)	1(1) 87(46) 34(28)	1(1) 3(1) 1(1)	1(1) 135(99) 155(74)	3(8) 139(41) 115(74)	129(111) 51(91) 8(1)
64(62) 130(123)	187(173) 235(259)	1(1) 80(43) 77(65)	49(121) 3(5) 70(86)	37(21) 115(86)	73(47) 10(40)	12(14) 37(63) 107(92)	129(88) 2(14) 22(41)	1(1) 103(162) 80(54)	80(73) 2(1) 159(61)	11(2) 66(67) 15(9)	18(16) 83(31) 6(8)

FIGURE 4-Q
EXISTING PLUS AMBIENT PLUS PROJECT (2025) TRAFFIC VOLUMES
(WITH RIRO AT CHERRY STREET/BUNDY CANYON ROAD)



5. Cherry St. / Bundy Cyn. Rd.	6. Sellers Rd. / Bundy Cyn. Rd.	7. Monte Vista Dr. / Bundy Cyn. Rd.	8. Cyn. Ranch Rd. / Bundy Cyn. Rd.	9. Orange St. / Canyon Dr.	10. Cherry St. / N. Dwy.
326(291) 421(432) 832(652)	114(77) 134(118) 27(41) 843(637)	815(642) 177(52)	90(41) 12(9) 8(19) 902(654)	280(80) 122(183) 26(46) 54(35) 9(4) 2(1)	21(19) 83(62)
971(1350)	374(445) 553(961)	574(1038) 114(40) 54(36) 80(110)	44(73) 611(1075)	224(92) 2(7) 77(18) 158(11) 195(176) 4(2)	63(63) 132(121) 187(173) 112(148)
11. Cherry St. / S. Dwy.	**12. Cherry St. / Walte St.**	**13. Sellers Rd. / Walte St.**	**14. Orange St. / Lemon St.**	**15. Almond St. / Lemon St.**	**16. Almond St. / Walte St.**
18(16) 197(167)	3(1) 4(3) 4(1) 3(1) 92(47) 25(16)	19(8) 48(24)	19(9) 12(3) 1(1) 1(1) 87(46) 34(28)	1(1) 3(1) 1(1) 1(1) 135(99) 155(74)	3(8) 139(41) 115(74) 129(111) 51(91) 8(1)
64(62) 130(123) 187(173) 235(259)	1(1) 80(43) 77(65) 49(121) 3(5) 70(86)	37(21) 115(86) 73(47) 10(40)	12(14) 37(63) 107(92) 129(88) 2(14) 22(41)	1(1) 103(162) 80(54) 80(73) 2(1) 159(61)	11(2) 66(67) 15(9) 18(16) 83(31) 6(8)

FIGURE 4-R
EAPC (2025) TRAFFIC VOLUMES
(WITH FULL ACCESS AT CHERRY STREET/BUNDY CANYON ROAD)



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
44(27) ↓ 35(1) ↑ 111(87)	64(88) → 376(637) ← 65(6)	7(20) ↓ 47(31) ↑ 214(142)	93(174) → 486(713) ← 395(317)
27(17) → 467(542) ← 30(7)	24(10) ↑ 33(6) ↑ 68(16)	25(23) → 581(600) ← 24(25)	9(16) ↑ 58(42) ↑ 458(311)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
270(224) ↓ 7(2) ↑ 495(676)	749(1037) ← 487(357)		535(469) → 936(917)
690(738) → 562(313) →		237(154) → 949(1259) →	300(477) ↑ 0(3) ↑ 332(554) ↑

LEGEND:

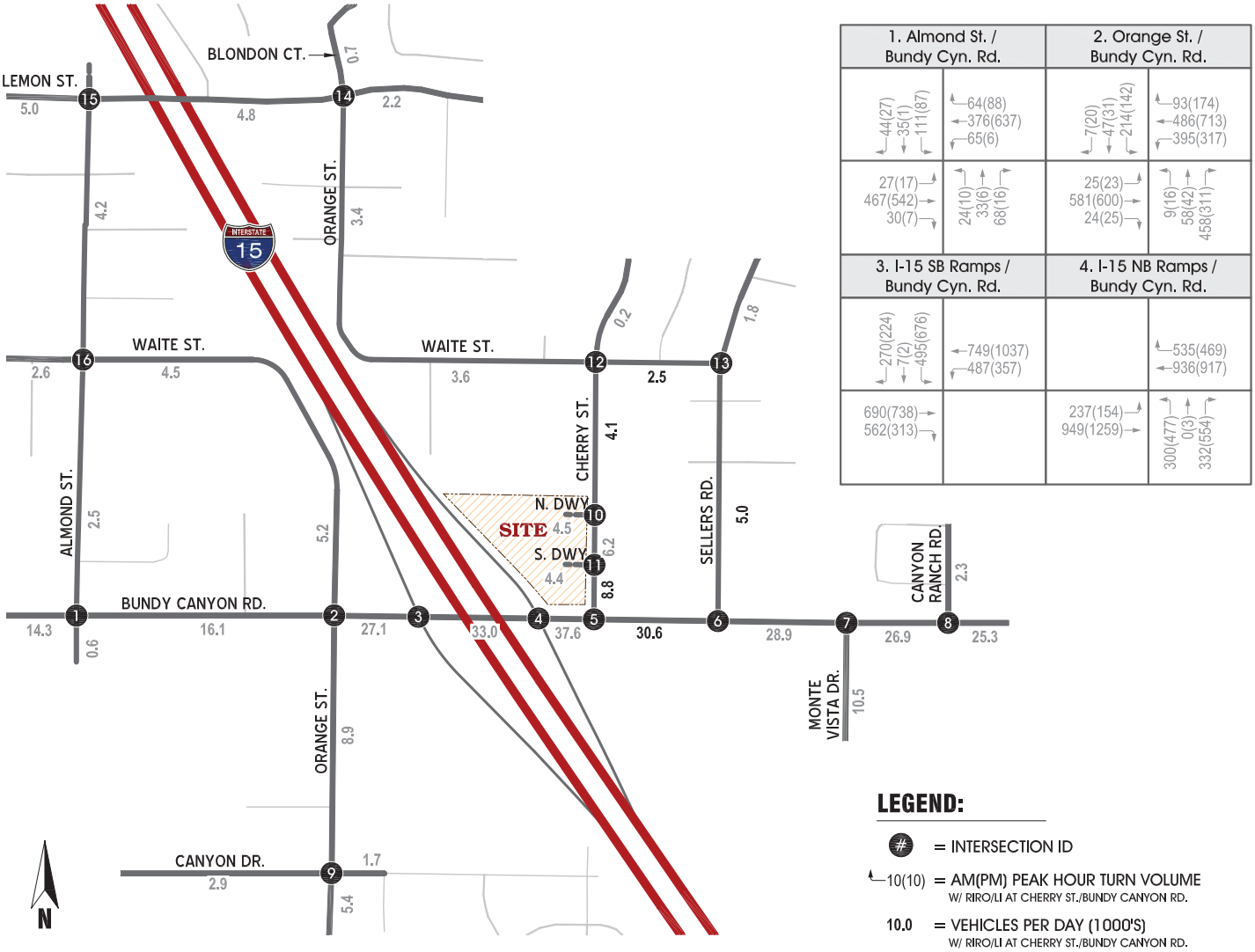
(#) = INTERSECTION ID

10(10) = AM(PM) PEAK HOUR TURN VOLUME

10.0 = VEHICLES PER DAY (1000'S)

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
329(294) ↓ 105(97) ↑	111(125) ← 1142(1094)	114(77) ↓ 64(54) ↑	34(65) ← 1032(959)	937(733) ← 262(150)		115(68) ↓ 12(9) ↑	8(19) ← 1084(816)	297(95) ↓ 141(217) ↑ 37(69)	67(57) ← 9(4) ← 2(1)	21(19) ↓ 99(70) ↑	
320(322) → 961(1491) →		72(142) → 833(1390) →		629(1173) → 276(279) →	155(317) ↑ 129(235) ↑	59(105) → 700(1303) →		238(110) → 2(7) → 77(18) →	158(11) ↑ 221(206) ↑ 4(2) ↑	18(17) → 177(167) →	187(173) ↑ 77(116) ↑
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) ↓ 258(221) ↑		3(1) ↓ 4(3) ↑ 4(1)	3(1) ← 92(47) ← 25(16)	19(8) ↓ 73(51) ↑		19(9) ↓ 21(12) ↑ 1(1)	1(1) ← 87(46) ← 34(28)	1(1) ↓ 23(37) ↑ 1(1)	1(1) ← 136(100) ← 155(74)	3(8) ↓ 170(91) ↑ 115(74)	129(111) ← 61(101) ← 8(1)
19(16) → 175(169) →	187(173) ↑ 245(273) ↑	1(1) → 89(52) → 77(66) →	58(130) ↑ 3(5) ↑ 4(27) ↑	20(6) → 75(50) →	73(47) ↑ 42(87) ↑	12(14) → 37(63) → 107(93) →	130(89) ↑ 10(22) ↑ 22(41) ↑	1(1) → 103(163) → 91(67) →	89(87) ↑ 21(35) ↑ 159(61) ↑	11(2) → 76(78) → 15(9) →	18(16) ↑ 111(79) ↑ 6(8) ↑

FIGURE 4-S
EAPC (2025) TRAFFIC VOLUMES
(WITH RIRO/LI AT CHERRY STREET/BUNDY CANYON ROAD)



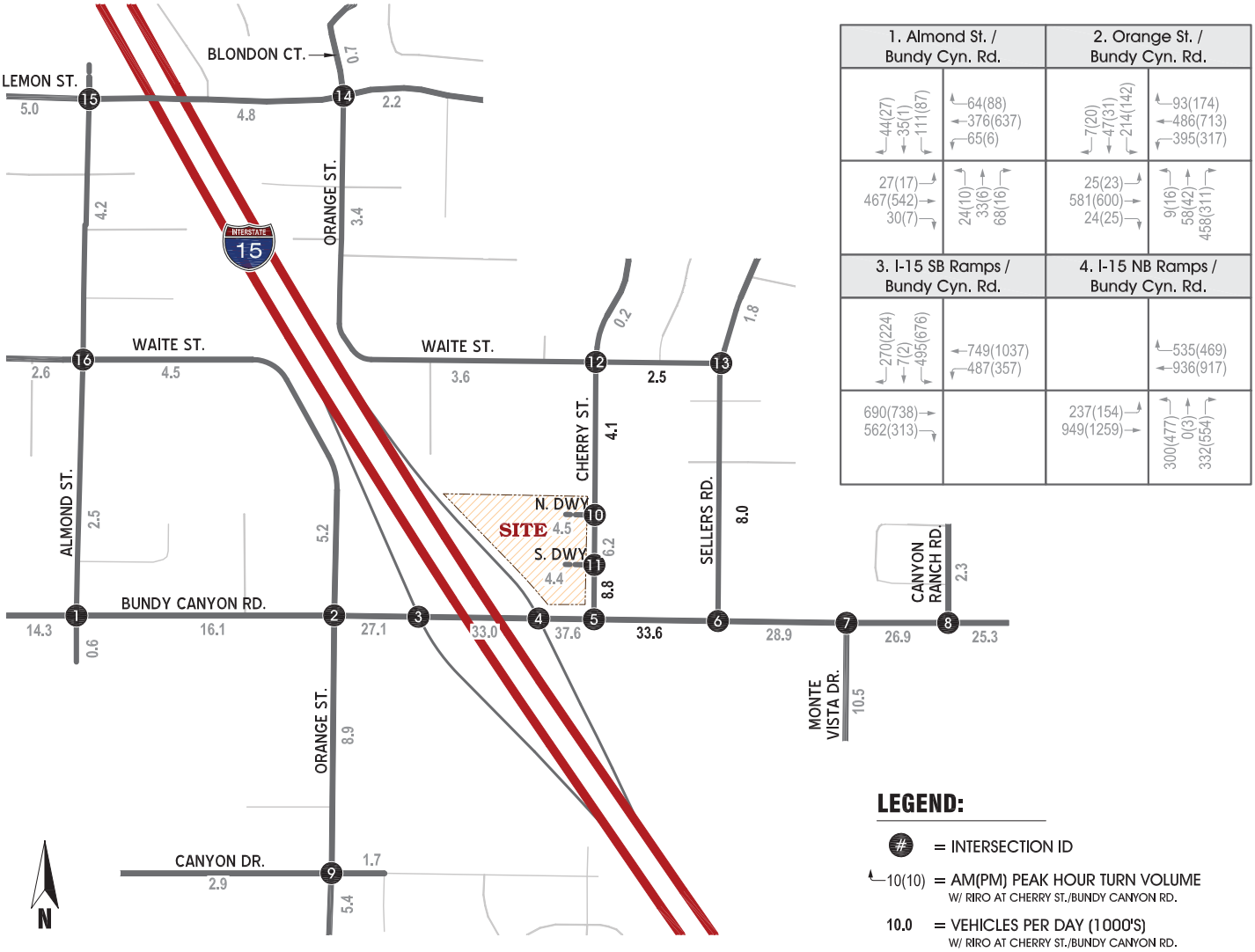
1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
44(27) 35(1) 111(87)	64(88) 376(637) 65(6)	7(20) 47(31) 214(142)	93(174) 486(713) 395(317)
27(17) 467(542) 30(7)	24(10) 33(6) 68(16)	25(23) 581(600) 24(25)	9(16) 58(42) 458(311)
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
270(224) 7(2) 495(676)	749(1037) 487(357)		535(469) 936(917)
690(738) 562(313)		237(154) 949(1259)	300(477) 0(3) 332(554)

LEGEND:

- (#) = INTERSECTION ID
- 10(10) = AM(PM) PEAK HOUR TURN VOLUME W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.
- 10.0 = VEHICLES PER DAY (1000'S) W/ RIRO/LI AT CHERRY ST./BUNDY CANYON RD.

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
329(294)	111(125) 1142(1094)	114(77) 151(137)	34(65) 1019(949)		937(733) 262(150)	115(68) 12(9)	8(19) 1084(816)	297(95) 141(217) 37(69)	67(57) 9(4) 2(1)	21(19) 86(65)	
320(322) 961(1491)		55(127) 745(1308)		629(1173) 276(279)	155(317) 129(235)	59(105) 700(1303)		238(110) 2(7) 77(18)	158(11) 221(206) 4(2)	63(63) 132(121)	187(173) 122(162)
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) 200(170)		3(1) 4(3) 4(1)	3(1) 92(47) 25(16)	19(8) 73(51)		19(9) 21(12) 1(1)	1(1) 87(46) 34(28)	1(1) 23(37) 1(1)	1(1) 136(100) 155(74)	3(8) 170(91) 115(74)	129(111) 61(101) 8(1)
64(62) 130(123)	187(173) 245(273)	1(1) 89(52) 77(66)	58(130) 3(5) 71(87)	37(21) 125(95)	73(47) 25(72)	12(14) 37(63) 107(93)	130(89) 10(22) 22(41)	1(1) 103(163) 91(67)	89(87) 21(35) 159(61)	11(2) 76(78) 15(9)	18(16) 111(79) 6(8)

FIGURE 4-T
EAPC (2025) TRAFFIC VOLUMES
(WITH RIRO AT CHERRY STREET/BUNDY CANYON ROAD)



1. Almond St. / Bundy Cyn. Rd.		2. Orange St. / Bundy Cyn. Rd.	
44(27) ↓ 35(1) ↑ 111(87) ←	64(88) → 376(637) ← 65(6)	7(20) ↓ 47(31) ↑ 214(142) ←	93(174) → 486(713) ← 395(317)
27(17) → 467(542) → 30(7) ↓	24(10) ↑ 33(6) ↑ 68(16) ↑	25(23) → 581(600) → 24(25) ↓	9(16) ↑ 58(42) ↑ 458(311) ↑
3. I-15 SB Ramps / Bundy Cyn. Rd.		**4. I-15 NB Ramps / Bundy Cyn. Rd.**	
270(224) → 7(2) ↓ 495(676) ←	749(1037) ← 487(357)		535(469) → 936(917) ←
690(738) → 562(313) →		237(154) → 949(1259) →	300(477) ↑ 0(3) ↑ 332(554) ↑

LEGEND:

- (#) = INTERSECTION ID
- 10(10) = AM(PM) PEAK HOUR TURN VOLUME W/ RIRO AT CHERRY ST./BUNDY CANYON RD.
- 10.0 = VEHICLES PER DAY (1000'S) W/ RIRO AT CHERRY ST./BUNDY CANYON RD.

5. Cherry St. / Bundy Cyn. Rd.		6. Sellers Rd. / Bundy Cyn. Rd.		7. Monte Vista Dr. / Bundy Cyn. Rd.		8. Cyn. Ranch Rd. / Bundy Cyn. Rd.		9. Orange St. / Canyon Dr.		10. Cherry St. / N. Dwy.	
329(294) ↓	431(446) ← 1142(1094)	114(77) ↓ 151(137) ↑	34(65) → 1019(949) ←	937(733) ← 262(150)		115(68) ↓ 12(9) ↑	8(19) → 1084(816) ←	297(95) ↓ 141(217) ↑ 37(69) ←	67(57) → 9(4) ← 2(1) ←	21(19) ↓ 86(65) ↑	
1281(1813) →		375(449) ↱ 745(1308) →		629(1173) → 276(279) ↓	155(317) ↑ 129(235) ↑	59(105) ↱ 700(1303) →		238(110) → 2(7) → 77(18) ↓	158(11) ↑ 221(206) ↑ 4(2) ↑	63(63) → 132(121) ↓	187(173) ↑ 122(162) ↑
11. Cherry St. / S. Dwy.		**12. Cherry St. / Walte St.**		**13. Sellers Rd. / Walte St.**		**14. Orange St. / Lemon St.**		**15. Almond St. / Lemon St.**		**16. Almond St. / Walte St.**	
18(16) ↓ 200(170) ↑		3(1) ↓ 4(3) ↑ 4(1) ↑	3(1) → 92(47) ← 25(16) ←	19(8) ↓ 73(51) ↑		19(9) ↓ 21(12) ↑ 1(1) ↑	1(1) → 87(46) ← 34(28) ←	1(1) ↓ 23(37) ↑ 1(1) ↑	1(1) → 136(100) ← 155(74) ←	3(8) ↓ 170(91) ↑ 115(74) ↑	129(111) → 61(101) ← 8(1) ←
64(62) → 130(123) ↓	187(173) ↑ 245(273) ↑	1(1) → 89(52) → 77(66) ↓	58(130) ↑ 3(5) ↑ 71(87) ↑	37(21) → 125(95) ↓	73(47) ↑ 25(72) ↑	12(14) → 37(63) → 107(93) ↓	130(89) ↑ 10(22) ↑ 22(41) ↑	1(1) → 103(163) → 91(67) ↓	89(87) ↑ 21(35) ↑ 159(61) ↑	11(2) → 76(78) → 15(9) ↓	18(16) ↑ 111(79) ↑ 6(8) ↑

5. Vehicle Miles Traveled Evaluation

A significant change in the California Environmental Quality Act (CEQA) has been triggered by the implementation of Senate Bill 743 (SB 743). The bill specifies the use of Vehicle Miles Traveled (VMT) as the metric to evaluate transportation impacts. In some cases, projects can be determined to have a less than significant impact and be "screened out" of further analysis. According to the Office of Planning and Research (OPR), a commercial project less than 50,000 square feet or local serving developments that will tend to reduce the VMT in an area can be considered to have a less than significant impact.

The retail component of the project will consist of less than 50,000 square feet and can be screened out of further analysis The proposed hotel will be local serving.

There will be no conference/wedding facilities or restaurants to attract visitors from outside of the area. The OPR indicates that by adding retail opportunities and improve destination proximity, local-serving retail developments tends to shorten trips and reduce VMT. Similarly, the proposed hotel project will be located between similar type hotels in the Cities of Lake Elsinore (Holiday Inn Express 31573 Canyon Estates) and Murrieta (Comfort Inn 41005 California Oaks). The proposed hotel would be located approximately 3 miles south of the Lake Elsinore hotel and 6 miles north of the one in Murrieta. By siting the hotel along Bundy Canyon, this should result in a reduction of VMT by 1.5 miles to the north and 3 miles to the south. Therefore, the proposed hotel is consistent with the goals of SB 743 by potentially reducing the VMT along I-15 and can be considered to have a less than significant transportation impact.

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5.0 TRAFFIC ANALYSIS

Peak hour intersection analysis has been performed at the study area intersections for each of the project scenarios and for projected future conditions. Improvements are recommended to satisfy the level of service requirements of the City of Wildomar and if the following impacts are identified:

1) When existing traffic conditions (Analysis Scenario 1) exceed the General Plan target LOS.

2) When project traffic, when added to existing traffic (Analysis Scenario 2), will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.

3) When cumulative traffic (Analysis Scenario 3) exceeds the target LOS, and impacts cannot be mitigated through existing infrastructure funding mechanisms.

A. Existing plus Project (E+P) Conditions

The results of the E+P conditions intersection analysis are summarized in Table 5-1. The E+P condition operations analysis worksheets are provided in Appendix "E". As shown in Table 5-1, the intersections of Orange Street / Bundy Canyon Road (#2) and Cherry Street / Bundy Canyon Road (#5) are anticipated to operate at an unacceptable LOS (LOS “E” or worse).

The following improvements (as shown on Table 5-1) are anticipated to improve intersection LOS to acceptable operations:

Orange Street / Bundy Canyon Road (#2)

- Modify striping for the northbound approach to provide a 1 left turn lane and 1 shared through/right lane.
- Modify striping for the southbound approach to provide a 1 left turn lane and 1 shared through/right lane.

As mentioned previously, the intersection of Cherry Street / Bundy Canyon Road (#5) has been evaluated as a full access, right-in/right-out/left-in (RIRO/LI) only configuration, and as a right-in/right-out only (RIRO) intersection (no median break and no EB left turn movement). As shown on Table 5-1, Cherry Street / Bundy Canyon Road (#5) is projected to operate at an unacceptable LOS (LOS “E” or worse) during the peak hours if left turn restrictions (Full Access) are not implemented at this location. However, an acceptable level of service (LOS “D” or better) is projected during the peak hours with either the RIRO/LI or RIRO configuration (as listed below).

Cherry Street / Bundy Canyon Road (#5)

- Full Access:
    - o Install traffic signal.
    - o Provide a separate southbound left turn lane.
    - o Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
    - o This improvement may not be feasible due to the close proximity between the I-15/Bundy Canyon and Sellers/Bundy Canyon traffic signals.
- Alternative 1: Restrict intersection to right-in/right-out/left-in only (RIRO) configuration (no SB left turn movement).
    - o Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
- Alternative 2: Restrict intersection to right-in/right-out only (RIRO) configuration (no median break, no SB left and EB left turn movements). This alternative may not be feasible since inbound delivery trucks would likely need to perform a U-turn maneuver at the Sellers/Bundy Canyon traffic signal. Additional improvements would be required at this intersection to accommodate the U-turn.

In addition, Bundy Canyon Road is proposed to be improved and striped to include a continuous westbound right turn only lane at the I-15 NB on-ramp to address potential queuing issues between the I-15 NB on-ramp and Cherry Street. Therefore, the following improvements are proposed in addition to the potential configurations of Cherry Street / Bundy Canyon Road (#5):

I-15 NB Ramps / Bundy Canyon Road (#4)

- Provide a separate westbound right turn lane .

Cherry Street / Bundy Canyon Road (#5)

- Modify existing westbound right turn lane to provide a 3rd westbound thru lane with a defacto right turn lane.

Traffic signal warrants for E+P traffic conditions are also provided in Appendix "E". For E+P traffic conditions, the intersections of Cherry Street / Bundy Canyon Road (#5) is anticipated to meet traffic signal warrants.

Ramp merge and diverge operations were for E+P traffic conditions are presented in Table 5-2. As shown in Table 5-2, the I-15 Freeway ramp merge and diverge areas at Bundy Canyon Road are anticipated to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours under E+P traffic conditions. E+P traffic conditions freeway ramp junction operations analysis worksheets are provided in Appendix "F".

TABLE 5-1

INTERSECTION ANALYSIS FOR EXISTING PLUS PROJECT CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Almond St. / Bundy Cyn. Rd.	AWS	0	1!	0	0	1!	0	0.5	1.5	d	0.5	1.5	d	15.1	12.8	C	B
2	Orange St. / Bundy Cyn. Rd.																	
	- Without Improvements	TS	0.5	0.5	1	0.5	0.5	1	1	2	d	1	2	0	>80	>80	F	F
	- With Improvements	TS	1	1	0	1	1	0	1	2	d	1	2	0	46.5	23.2	D	C
3	I-15 SB Ramps / Bundy Cyn. Rd.	TS	0	0	0	1	1	0	0	2	0	1	2	0	28.9	33.3	C	C
4	I-15 NB Ramps / Bundy Cyn. Rd.																	
	- Without Improvements	TS	1	1	0	0	0	0	1	2	0	0	2	0	25.8	26.6	C	C
	- With Improvements [4]	TS	1	1	0	0	0	0	1	2	0	0	2	1	22.9	25.0	C	C
5	Cherry St. / Bundy Cyn. Rd.																	
	- With Full Access	CSS	0	0	0	0	1!	0	1*	3	0	0	2	1	>80	>80	F	F
	- With Signal Improvement [5]	TS	0	0	0	1	0	1	1	3	0	0	3	d	30.4	23.1	C	C
	- With Right-In/Right-Out/Left-In Configuration	CSS	0	0	0	0	0	1	1	3	0	0	3	d	30.7	24.2	D	C
	- With Right-In/Right-Out Configuration	CSS	0	0	0	0	0	1	0	3	0	0	3	d	24.9	17.2	C	C
6	Sellers Rd. / Bundy Cyn. Rd.																	
	- With Full Access	TS	0	0	0	1	0	1	1	3	0	0	2	1	8.4	10.1	A	B
	- With RIRO/LI Configuration at Int. #5	TS	0	0	0	1	0	1	1	3	0	0	2	1	8.4	10.0	A	A
	- With RIRO Configuration at Int. #5	TS	0	0	0	1	0	1	1	3	0	0	2	1	18.8	18.3	B	B
7	Monte Vista Dr. / Bundy Cyn. Rd.	TS	2	0	1	0	0	0	0	3	1	1	2	0	11.9	7.3	B	A
8	Cyn. Ranch Rd. / Bundy Cyn. Rd.	CSS	0	0	0	0	1!	0	1	3	0	0	2	0	15.0	12.9	B	B
9	Orange St. / Canyon Dr.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	27.1	9.8	D	A
10	Cherry St. / N. Dwy.																	
	- With Full Access at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	10.9	10.5	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	13.6	13.1	B	B
	- With RIRO Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	13.5	13.1	B	B
11	Cherry St. / S. Dwy.																	
	- With Full Access at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	13.9	12.8	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	18.3	16.8	C	C
	- With RIRO Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	18.3	16.8	C	C
12	Cherry St. / Waite St.																	
	- With Full Access at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	11.2	10.7	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.8	10.9	B	B
	- With RIRO Configuration at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.8	10.9	B	B
13	Sellers Rd. / Waite St.																	
	- With Full Access at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	9.5	8.9	A	A
	- With RIRO/LI Configuration at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	9.9	9.3	A	A
	- With RIRO Configuration at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	9.9	9.3	A	A
14	Orange St. / Lemon St.	AWS	0	1!	0	0	1!	0	0	1!	0	0.5	0.5	d	9.0	8.4	A	A
15	Almond St. / Lemon St.	CSS	0	1!	0	0	1!	0	0.5	0.5	d	0	1!	0	15.2	12.3	C	B
16	Almond St. / Waite St.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.7	8.6	A	A

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 1! = Shared Left/Through/Right Lane;
* = Left Turn within Two-Way Left Turn Lane Median; d = Defacto right turn lane; 1 = Improvement

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6
BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[4] Separate WB right turn lane recommended to address potential queueing issues.

TABLE 5-2

FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS FOR
EXISTING PLUS PROJECT CONDITIONS

Freeway	Direction	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Volume		Density [1]		LOS [2]	
						AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	SB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	621	686	28.3	25.2	D	C
		SB On Ramp at Bundy Canyon Rd.	Merge	3	1	928	531	28.1	21.3	D	C
	NB	NB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	541	859	23.0	28.0	C	C
		NB On Ramp at Bundy Canyon Rd.	Merge	3	1	613	436	19.5	20.5	B	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7: Ramps and Ramp Junction software, Version 7.90

B. Existing plus Ambient plus Project (EAP 2025) Conditions

The results of the EAP conditions intersection analysis are summarized in Table 5-3. The EAP condition operations analysis worksheets are provided in Appendix "G". In addition to previously identified deficient intersections under E+P conditions, the study area intersection of Orange Street / Canyon Drive (#9) is projected to operate at an unacceptable level of service (LOS "E" or worse) during the peak hours with the existing geometry and traffic controls.

The following improvements (as shown on Table 5-3) are consistent with E+P improvements and are anticipated to continue to improve intersection LOS to acceptable operations:

Orange Street / Bundy Canyon Road (#2)

- Modify striping for the northbound approach to provide a 1 left turn lane and 1 shared through/right lane.
- Modify striping for the southbound approach to provide a 1 left turn lane and 1 shared through/right lane.

Additional improvements at the new deficient intersection of Orange Street / Canyon Drive (#9) is recommended under EAP conditions:

Orange Street / Canyon Drive (#9)

- Provide a separate southbound right turn lane.

Similar to with E+P conditions, the intersection of Cherry Street / Bundy Canyon Road (#5) has been evaluated with the following configurations and are both projected to operate at an acceptable level of service (LOS "D" or better) during the peak hours.

Cherry Street / Bundy Canyon Road (#5)

- Full Access:
    - Install traffic signal.
    - Provide a separate southbound left turn lane.
    - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
    - This improvement may not be feasible due to the close proximity between the I-15/Bundy Canyon and Sellers/Bundy Canyon traffic signals.

- Alternative 1: Restrict intersection to right-in/right-out/left-in only (RIRO/LI) configuration (no SB left turn movement).
    - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.

TABLE 5-3

INTERSECTION ANALYSIS FOR EAP (2025) PROJECT CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Almond St. / Bundy Cyn. Rd.	AWS	0	1!	0	0	1!	0	0.5	1.5	d	0.5	1.5	d	16.1	13.4	C	B
2	Orange St. / Bundy Cyn. Rd.																	
	- Without Improvements	TS	0.5	0.5	1	0.5	0.5	1	1	2	d	1	2	0	>80	>80	F	F
	- With Improvements	TS	1	1	0	1	1	0	1	2	d	1	2	0	45.2	22.6	D	C
3	I-15 SB Ramps / Bundy Cyn. Rd.	TS	0	0	0	1	1	0	0	2	0	1	2	0	31.9	35.6	C	D
4	I-15 NB Ramps / Bundy Cyn. Rd.																	
	- Without Improvements	TS	1	1	0	0	0	0	1	2	0	0	2	0	27.0	27.7	C	C
	- With Improvements [4]	TS	1	1	0	0	0	0	1	2	0	0	2	1	23.3	25.3	C	C
5	Cherry St. / Bundy Cyn. Rd.																	
	- With Full Access at Int. #5	CSS	0	0	0	0	0	1	1	3	0	0	2	1	>80	>80	F	F
	- With Signal Improvement [5]	TS	0	0	0	1	0	1	1	3	0	0	3	d	35.6	23.8	D	C
	- With Right-In/Right-Out/Left-In Configuration	CSS	0	0	0	0	0	1	1	3	0	0	3	d	31.5	26.2	D	D
	- With Right-In/Right-Out Configuration	CSS	0	0	0	0	0	1	0	3	0	0	3	d	26.6	17.8	D	C
6	Sellers Rd. / Bundy Cyn. Rd.																	
	- With Full Access at Int. #5	TS	1	1	0	1	1	0	1	3	0	1	2	1	8.6	10.3	A	B
	- With RIRO/LI Configuration at Int. #5	TS	1	1	0	1	1	0	1	3	0	1	2	1	8.5	10.1	A	B
	- With RIRO Configuration at Int. #5	TS	1	1	0	1	1	0	1	3	0	1	2	1	18.8	18.3	B	B
7	Monte Vista Dr. / Bundy Cyn. Rd.	TS	2	0	1	0	0		0	3	1	1	2	0	12.1	7.5	B	A
8	Cyn. Ranch Rd. / Bundy Cyn. Rd.	CSS	0	0	0	0	1!	0	1	3	0	0	2	0	15.5	13.2	C	B
9	Orange St. / Canyon Dr.																	
	- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	33.8	10.0	D	B
	- With Improvements	AWS	0	1!	0	0.5	0.5	1	0	1!	0	0	1!	0	23.2	9.8	C	A
10	Cherry St. / N. Dwy.																	
	- With Full Access at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	11.0	10.5	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	13.6	13.2	B	B
	- With RIRO Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	13.6	13.2	B	B
11	Cherry St. / S. Dwy.																	
	- With Full Access at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	14.0	12.8	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	18.5	17.0	C	C
	- With RIRO Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	18.5	17.0	C	C
12	Cherry St. / Waite St.																	
	- With Full Access at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	11.3	10.8	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.9	11.0	B	B
	- With RIRO Configuration at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.9	11.0	B	B
13	Sellers Rd. / Waite St.																	
	- With Full Access at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	9.5	8.9	A	A
	- With RIRO/LI Configuration at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	10.0	9.3	B	A
	- With RIRO Configuration at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	10.0	9.3	B	A
14	Orange St. / Lemon St.	AWS	0	1!	0	0	1!	0	0	1!	0	0.5	0.5	d	9.1	8.5	A	A
15	Almond St. / Lemon St.	CSS	0	1!	0	0	1!	0	0.5	0.5	d	0	1!	0	15.6	12.6	C	B
16	Almond St. / Waite St.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	9.8	8.7	A	A

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes
L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 1! = Shared Left/Through/Right Lane;
* = Left Turn within Two-Way Left Turn Lane Median; d = Defacto right turn lane; 1 = Improvement

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6
BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

- Alternative 2: Restrict intersection to right-in/right-out only (RIRO) configuration (no median break, no SB left and EB left turn movements). This alternative may not be feasible since inbound delivery trucks would likely need to perform a U-turn maneuver at the Sellers/Bundy Canyon traffic signal. Additional improvements would be required at this intersection to accommodate the U-turn.

Consistent with E+P conditions, the following additional improvements on Bundy Canyon Road is proposed with the development of the Project to address potential queuing issues along Bundy Canyon Road, between the I-15 NB on-ramp and Cherry Street.

I-15 NB Ramps / Bundy Canyon Road (#4)

- Provide a separate westbound right turn lane .

Cherry Street / Bundy Canyon Road (#5)

- Modify existing westbound right turn lane to provide a 3rd westbound thru lane with a defacto right turn lane.

Traffic signal warrants for EAP traffic conditions are also provided in Appendix "G". For EAP traffic conditions, the unsignalized intersection of Orange Street / Canyon Drive (#9) is anticipated to meet traffic signal warrants, in addition to previously warranted intersection under E+P traffic conditions.

Ramp merge and diverge operations were for EAP (2025) traffic conditions are presented in Table 5-4. As shown in Table 5-4, the I-15 Freeway ramp merge and diverge areas at Bundy Canyon Road are anticipated to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours under EAP traffic conditions. EAP traffic conditions freeway ramp junction operations analysis worksheets are provided in Appendix "H".

C. Existing plus Ambient plus Project plus Cumulative (EAPC 2025) Conditions

The results of the EAPC conditions intersection analysis are summarized in Table 5-5. The EAPC condition operations analysis worksheets are provided in Appendix "I". The study area intersection of I-15 SB Ramps / Bundy Canyon Road (#3) is anticipated to operate at an unacceptable LOS under EAPC conditions, in addition to the previously identified deficient intersections under EAP conditions.

The following improvements (as shown on Table 5-5) are anticipated to improve intersection LOS to acceptable operations:

Orange Street / Bundy Canyon Road (#2)

- Modify striping for the northbound approach to provide a 1 left turn lane and 1 through lane and 1 right turn lane with overlap phase.
- Modify striping for the southbound approach to provide a 1 left turn lane and 1 through lane and 1 right lane.

TABLE 5-4

FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS FOR
EAP (2025) CONDITIONS

Freeway	Direction	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Volume		Density [1]		LOS [2]	
						AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	SB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	642	711	29.2	26.0	D	C
		SB On Ramp at Bundy Canyon Rd.	Merge	3	1	962	550	29.1	22.0	D	C
	NB	NB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	560	892	23.6	28.8	C	D
		NB On Ramp at Bundy Canyon Rd.	Merge	3	1	635	450	20.2	21.2	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7: Ramps and Ramp Junction software, Version 7.90

TABLE 5-5

INTERSECTION ANALYSIS FOR EAPC (2025) PROJECT CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Almond St. / Bundy Cyn. Rd.	AWS	0	1!	0	0	1!	0	0.5	1.5	d	0.5	1.5	d	21.1	19.5	C	C
2	Orange St. / Bundy Cyn. Rd.																	
	- Without Improvements	TS	0.5	0.5	1	0.5	0.5	1	1	2	d	1	2	0	>80	>80	F	F
	- With Improvements	TS	1	1	1>	1	1	1	1	2	d	1	2	0	32.0	25.0	C	C
3	I-15 SB Ramps / Bundy Cyn. Rd.																	
	- Without Improvements	TS	0	0	0	1	1	0	0	2	0	1	2	0	75.0	70.7	E	E
	- With Improvements	TS	0	0	0	1	1!	1	0	2	1	1	2	0	33.5	22.5	C	C
4	I-15 NB Ramps / Bundy Cyn. Rd.																	
	- Without Improvements	TS	1	1	0	0	0	0	1	2	0	0	2	0	34.0	44.3	C	D
	- With Improvements [4]	TS	1	1	0	0	0	0	1	2	0	0	2	1	24.5	29.3	C	C
5	Cherry St. / Bundy Cyn. Rd.																	
	- With Full Access at Int. #5	CSS	0	0	0	0	0	1	1	3	0	0	2	1	>80	>80	F	F
	- With Signal Improvement [5]	TS	0	0	0	1	0	1>	1	3	0	0	3	d	20.8	14.5	C	B
	- With Right-In/Right-Out/Left-In Configuration	CSS	0	0	0	0	0	1	1	3	0	0	3	d	34.8	34.9	D	D
	- With Right-In/Right-Out Configuration	CSS	0	0	0	0	0	1	0	3	0	0	3	d	33.2	33.6	D	D
6	Sellers Rd. / Bundy Cyn. Rd.																	
	- With Full Access at Int. #5	TS	1	1	0	1	1	0	1	3	0	1	2	1	16.3	17.8	B	B
	- With RIRO/LI Configuration at Int. #5	TS	1	1	0	1	1	0	1	3	0	1	2	1	18.5	19.2	B	B
	- With RIRO Configuration at Int. #5	TS	1	1	0	1	1	0	1	3	0	1	2	1	43.9	39.9	D	D
7	Monte Vista Dr. / Bundy Cyn. Rd.	TS	2	0	1	0	0	0	0	3	1	1	2	0	24.8	17.6	C	B
8	Cyn. Ranch Rd. / Bundy Cyn. Rd.	CSS	0	0	0	0	1!	0	1	3	0	0	2	0	19.2	15.0	C	B
9	Orange St. / Canyon Dr.																	
	- Without Improvements	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	54.5	11.6	F	B
	- With Improvements	AWS	1	1!	0	0.5	0.5	1	1	1	0	0	1!	0	18.9	11.7	C	B
10	Cherry St. / N. Dwy.																	
	- With Full Access at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	11.0	10.6	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	13.8	13.4	B	B
	- With RIRO Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	13.8	13.4	B	B
11	Cherry St. / S. Dwy.																	
	- With Full Access at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	14.1	12.9	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	18.8	17.3	C	C
	- With RIRO Configuration at Int. #5	CSS	1	1	0	0	1	0	0	1!	0	0	0	0	18.8	17.3	C	C
12	Cherry St. / Waite St.																	
	- With Full Access at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	11.5	11.0	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	11.1	11.3	B	B
	- With RIRO Configuration at Int. #5	CSS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	11.1	11.3	B	B
13	Sellers Rd. / Waite St.																	
	- With Full Access at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	9.8	9.1	A	A
	- With RIRO/LI Configuration at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	10.3	9.7	B	A
	- With RIRO Configuration at Int. #5	CSS	0.5	0.5	0	0	1	0	0	1!	0	0	0	0	10.3	9.7	B	A
14	Orange St. / Lemon St.	AWS	0	1!	0	0	1!	0	0	1!	0	0.5	0.5	d	9.2	8.6	A	A
15	Almond St. / Lemon St.	CSS	0	1!	0	0	1!	0	0.5	0.5	d	0	1!	0	18.7	15.4	C	C
16	Almond St. / Waite St.	AWS	0	1!	0	0	1!	0	0	1!	0	0	1!	0	10.7	9.4	B	A

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 1! = Shared Left/Through/Right Lane; * = Left Turn within Two-Way Left Turn Lane Median; d = Defacto right turn lane; 1 = Improvement

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6
BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[4] Separate WB right turn lane recommended to address potential queueing issues.

[5] SB right turn overlap phase recommended to address potential queueing issues.

I-15 SB Ramps / Bundy Canyon Road (#3)

- Modify existing southbound shared through/right lane to shared left/through/right turn lane.
- Provide a separate eastbound right turn lane.
- Provide a separate southbound right turn lane *(recommended to address potential queueing issues)*.

I-15 NB Ramps / Bundy Canyon Road (#4)

- Provided separate westbound right turn lane *(recommended to address potential queueing issues)*.

Orange Street / Canyon Drive (#9)

- Provide a separate northbound left turn lane
- Provide a separate southbound right turn lane.
- Provide a separate eastbound left turn lane.

For Sellers Road / Bundy Canyon Road (#6), the following improvements are recommended for cumulative access purposes (new south leg).

Sellers Road / Bundy Canyon Road (#6)

- Construct 1 northbound left turn lane and 1 northbound shared though/right lane.
- Construct 1 southbound left turn lane and 1 southbound shared though/right lane.
- Provide 1 westbound left turn lanes.

Similar to with EAP conditions, the intersection of Cherry Street / Bundy Canyon Road (#5) has been evaluated with the following configurations and are projected to operate at an acceptable level of service (LOS "D" or better) during the peak hours.

Cherry Street / Bundy Canyon Road (#5)

- <u>Full Access:</u>
    - Install traffic signal.
    - Provide a separate southbound left turn lane.
    - Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
    - Provide a southbound right turn overlap phase *(recommended to address potential queueing issues)*.
    - This improvement may not be feasible due to the close proximity between the I-15/Bundy Canyon and Sellers/Bundy Canyon traffic signals.

- Alternative 1: Restrict intersection to right-in/right-out/left-in only (RIRO/LI) configuration (no SB left turn movement).
    - o Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.

- Alternative 2: Restrict intersection to right-in/right-out only (RIRO) configuration (no median break, no SB left and EB left turn movements). This alternative may not be feasible since inbound delivery trucks would likely need to perform a U-turn maneuver at the Sellers/Bundy Canyon traffic signal. Additional improvements would be required at this intersection to accommodate the U-turn.

As mentioned previously under E+P and EAP conditions, the following additional improvements on Bundy Canyon Road is proposed with the development of the Project to address potential queuing issues along Bundy Canyon Road, between the I-15 NB on-ramp and Cherry Street.

Cherry Street / Bundy Canyon Road (#5)

- Modify existing westbound right turn lane to provide a 3rd westbound thru lane with a defacto right turn lane.

Traffic Signal Warrant Analysis

Traffic signal warrants for EAPC traffic conditions are also provided in Appendix "I". For EAPC traffic conditions, the intersection of Canyon Ranch / Bundy Canyon Road (#8) is anticipated to meet warrants, in addition to previously warranted intersections under E+P & EAP traffic conditions.

Queuing Analysis

The 95th percentile queuing of vehicles has been assessed at Project access intersections and adjacent study area intersections as shown on Table 5-6.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations have been based upon the 95th percentile queue resulting from the Synchro progression analysis. The queue length reported is for the lane with the highest queue in the lane group.

As shown on Table 5-6, queues occasionally exceed available storage length but anticipated to clear in a timely manner either to be accommodated within the turn pocket transition lane on acceptable storage is provided for study area queues with improvements shown on Exhibit 6-C. Queuing analysis worksheets are provided in Appendix "J".

Freeway Merge/Diverge Analysis

Ramp merge and diverge operations were for EAPC (2025) traffic conditions are presented in Table 5-7. As shown in Table 5-7, the I-15 Freeway ramp merge and diverge areas at Bundy Canyon Road are anticipated to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours under EAPC traffic conditions. EAPC traffic conditions freeway ramp junction operations analysis worksheets are provided in Appendix "J".

TABLE 5-6

QUEUING ANALYSIS SUMMARY FOR EAPC (2025) CONDITIONS WITH IMPROVEMENTS

		With Full Access at Cherry St. / Bundy Cyn. Rd. (#5)						With RIRO/LI at Cherry St. / Bundy Cyn. Rd. (#5)						With RIRO at Cherry St. / Bundy Cyn. Rd. (#5)					
ID	Intersection	Turning Movement Lane	Storage Length Provided[1] (feet)	95th Percentile Queue Length Per Lane (feet)[2,3]		Acceptable?[4]		Turning Movement Lane	Storage Length Provided[1] (feet)	95th Percentile Queue Length Per Lane (feet)[2,3]		Acceptable?[4]		Turning Movement Lane	Storage Length Provided[1] (feet)	95th Percentile Queue Length Per Lane (feet)[2,3]		Acceptable?[4]	
				AM	PM	AM	PM			AM	PM	AM	PM			AM	PM	AM	PM
3	I-15 SB Ramps / Bundy Cyn. Rd.																		
		SBL	300	204	259	YES	YES	SBL	300	340	442	YES[5]	YES[5]	SBL	300	260	294	YES[5]	YES
		SBR	300	182	242	YES	YES	SBR	300	353	336	YES[5]	YES[5]	SBR	300	325	174	YES[5]	YES
		EBR	250	164	234	YES	YES	EBR	250	278	96	YES[5]	YES	EBR	250	240	41	YES	YES
		WBL	255	226	204	YES	YES	WBL	255	159	239	YES	YES	WBL	255	260	225	YES[7]	YES
4	I-15 NB Ramps / Bundy Cyn. Rd.																		
		NBL	300	325	389	YES[5]	YES[5]	NBL	300	410	447	YES[5]	YES[5]	NBL	300	239	389	YES	YES[5]
		EBL	255	403	339	YES[5]	YES[5]	EBL	255	377	341	YES[5]	YES[5]	EBL	255	276	228	YES[7]	YES
		WBR	225	201	54	YES	YES	WBR	225	58	174	YES	YES	WBR	225	228	171	YES[7]	YES
5	Cherry St. / Bundy Cyn. Rd.																		
		SBL	100	67	129	YES	YES[5]												
		SBR	245	219	222	YES	YES	SBR	245	239	225	YES	YES	SBR	245	219	219	YES	YES
		EBL	150	152	150	YES[7]	YES	EBL	150	170	155	YES[5]	YES[7]	EBL	150	--	--	--	--
6	Sellers Rd. / Bundy Cyn. Rd.																		
		NBL	200	202	102	YES[7]	YES	NBL	200	148	236	YES	YES[7]	NBL	200	166	199	YES	YES
		SBL	175	67	99	YES	YES	SBL	175	102	88	YES	YES	SBL	175	152	132	YES	YES
		EBL	200	133	176	YES	YES	EBL	200	56	169	YES	YES	EBL	200	180	180	YES	YES
		WBL	150	39	55	YES	YES	WBL	150	98	75	YES	YES	WBL	150	59	31	YES	YES
		WBR	565	36	67	YES	YES	WBR	565	37	30	YES	YES	WBR	565	37	27	YES	YES
10	Cherry St. / N. Dwy.																		
		NBL	100	57	122	YES	YES[5]	NBL	100	NOM	41	YES	YES	NBL	100	33	NOM	YES	YES
		SBT/R	100	NOM	NOM	YES	YES	SBT/R	100	NOM	NOM	YES	YES	SBT/R	100	29	NOM	YES	YES
		EBL/R[6]	270	81	63	YES	YES	EBL/R[6]	270	63	92	YES	YES	EBL/R[6]	270	61	63	YES	YES
11	Cherry St. / S. Dwy.																		
		NBL	100	96	93	YES	YES	NBL	100	38	77	YES	YES	NBL	100	45	42	YES	YES
		SBT/R	200	NOM	156	YES	YES	SBT/R	200	93	30	YES	YES	SBT/R	200	133	NOM	YES	YES
		EBL/R[6]	140	54	188	YES	YES[5]	EBL/R[6]	140	85	92	YES	YES	EBL/R[6]	140	244	190	YES[5]	YES[5]

[1] Existing Storage Length = 100; Future Storage Length = 100

[2] Queue length calculated using Synchro 10 with SimTraffic.

[3] NOM = Nominal, less than 5 feet.

[4] Storage Length is acceptable if the required queuing length is less than or equal to the storage length provided.

[5] 95th percentile queue is anticipated to exceed available storage length. It should be noted however that SimTraffic simulations results indicate that the turn lane queue is anticipated to clear in a timely manner and that the provided pocket length is adequate to accommodate the 95th percentile queue length.

[6] The storage shown is based on the maximum driveway length measured from the sidewalk on Cherry St. to the 2nd internal intersecting isle on-site.

[7] Excess in queue can be accommodated within the transition lane.

TABLE 5-7

FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS FOR
EAPC (2025) CONDITIONS

Freeway	Direction	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Volume		Density [1]		LOS [2]	
						AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	SB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	772	902	30.0	27.4	D	C
		SB On Ramp at Bundy Canyon Rd.	Merge	3	1	1,056	672	29.9	23.0	D	C
	NB	NB Off Ramp at Bundy Canyon Rd.	Diverge	3	1	632	1,034	24.2	29.8	C	D
		NB On Ramp at Bundy Canyon Rd.	Merge	3	1	772	626	21.3	22.7	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7: Ramps and Ramp Junction software, Version 7.90

6.0 FINDINGS AND RECOMMENDATIONS

A. Traffic Impacts and Level of Service Intersections Analysis

The intersection LOS results for Existing (2023), Existing plus Project (E+P), Existing plus Ambient plus Project (EAP 2025), and Existing plus Ambient plus Project plus Cumulative (EAPC 2025) traffic conditions are summarized in Table 6-1.

For Existing traffic conditions, the following study area intersection is currently operating at an unacceptable LOS during peak hours, with existing geometry:

- Orange Street / Bundy Canyon Road (#2)

For E+P traffic conditions, the following study area intersections are anticipated to operate at an unacceptable LOS during peak hours, with existing geometry:

- Orange Street / Bundy Canyon Road (#2)
- Cherry Street / Bundy Canyon Road (#5)

It should be noted that Cherry Street / Bundy Canyon Road (#5) has been evaluated based on the following restricted configurations: Alternative 1, intersection is restricted to right-in/right-out/left-in only (RIRO/LI) configuration & Alternative 2, intersection is restricted to right-in/right-out only (RIRO). Alternative 2 (RIRO) is the preferred configuration accepted by the City of Wildomar.

The intersection of Cherry Street / Bundy Canyon Road (#5) is anticipated to meet traffic signal warrants under E+P traffic conditions. As mentioned previously, a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted and that meeting this threshold does not require that a traffic control signal should be installed. Other traffic factors and conditions be should be evaluated in order to determine whether the installation of a signal is justified.

For EAP (2025) traffic conditions, the following study area intersections are projected to operate at an unacceptable LOS during peak hours, with existing geometry:

- Orange Street / Bundy Canyon Road (#2)
- Orange Street / Canyon Drive (#9)

The intersection of Orange Street / Canyon Drive (#9) is anticipated to meet traffic signal warrants under EAP conditions, in addition to the intersections identified under E+P conditions.

TABLE 6-1

INTERSECTION ANALYSIS SUMMARY

ID	Intersection	Traffic Control [1]	Existing				E+P				EAP (2025)				EAPC (2025)			
			Delay [2] (secs.)		Level of Service [2]		Delay [2] (secs.)		Level of Service [3]		Delay [2] (secs.)		Level of Service [2]		Delay [2] (secs.)		Level of Service [2]	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Almond St. / Bundy Cyn. Rd.	AWS	14.5	12.4	B	B	15.1	12.8	C	B	16.1	13.4	C	B	21.1	19.5	C	C
2	Orange St. / Bundy Cyn. Rd.																	
	- Without Improvements	TS	>80	73.0	F	E	>80	>80	F	F	>80	>80	F	F	>80	>80	F	F
	- With Improvements	TS	-	-	-	-	46.5	23.2	D	C	45.2	22.6	D	C	32.0	25.0	C	C
3	I-15 SB Ramps / Bundy Cyn. Rd.																	
	- Without Improvements	TS	25.6	24.3	C	C	28.9	33.3	C	C	31.9	35.6	C	D	75.0	70.7	E	E
	- With Improvements	TS	-	-	-	-	-	-	-	-	-	-	-	-	33.5	22.5	C	C
4	I-15 NB Ramps / Bundy Cyn. Rd.																	
	- Without Improvements	TS	24.8	26.3	C	C	25.8	26.6	C	C	27.0	27.7	C	C	34.0	44.3	C	D
	- With Improvements [4]	TS	-	-	-	-	22.9	25.0	C	C	23.3	25.3	C	C	24.5	29.3	C	C
5	Cherry St. / Bundy Cyn. Rd.																	
	- With Existing Configuration	CSS	14.2	11.9	B	B	>80	>80	F	F	>80	>80	F	F	>80	>80	F	F
	- With Signal Improvement	TS	-	-	-	-	30.4	23.1	C	C	35.6	23.8	D	C	20.8	14.5	C	B
	- With Right-In/Right-Out/Left-In Configuration	CSS	-	-	-	-	30.7	24.2	D	C	31.5	26.2	D	D	34.8	34.9	D	D
	- With Right-In/Right-Out Configuration	CSS	-	-	-	-	24.9	17.2	C	C	26.6	17.8	D	C	33.2	33.6	D	D
6	Sellers Rd. / Bundy Cyn. Rd.																	
	- With Full Access at Int. #5	TS	7.7	9.6	A	A	8.4	10.1	A	B	8.6	10.3	A	B	16.3	17.8	B	B
	- With RIRO/LI Configuration at Int. #5	TS	-	-	-	-	8.4	10.0	A	A	8.5	10.1	A	B	18.5	19.2	B	B
	- With RIRO Configuration at Int. #5	TS	-	-	-	-	18.8	18.3	B	B	18.8	18.3	B	B	43.9	39.9	D	D
7	Monte Vista Dr. / Bundy Cyn. Rd.	TS	11.9	7.2	B	A	11.9	7.3	B	A	12.1	7.5	B	A	24.8	17.6	C	B
8	Cyn. Ranch Rd. / Bundy Cyn. Rd.	CSS	14.5	13.1	B	B	15.0	12.9	B	B	15.5	13.2	C	B	19.2	15.0	C	B
9	Orange St. / Canyon Dr.																	
	- Without Improvements	AWS	19.1	9.1	C	A	27.1	9.8	D	A	33.8	10.0	D	B	54.5	11.6	F	B
	- With Improvements	AWS	-	-	-	-	-	-	-	-	23.2	9.8	C	A	18.9	11.7	C	B
10	Cherry St. / N. Dwy.																	
	- With Full Access at Int. #5	CSS	-	-	-	-	10.9	10.5	B	B	11.0	10.5	B	B	11.0	10.6	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	-	-	-	-	13.6	13.1	B	B	13.6	13.2	B	B	13.8	13.4	B	B
	- With RIRO Configuration at Int. #5	CSS	-	-	-	-	13.5	13.1	B	B	13.6	13.2	B	B	13.8	13.4	B	B
11	Cherry St. / S. Dwy.																	
	- With Full Access at Int. #5	CSS	-	-	-	-	13.9	12.8	B	B	14.0	12.8	B	B	14.1	12.9	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	-	-	-	-	18.3	16.8	C	C	18.5	17.0	C	C	18.8	17.3	C	C
	- With RIRO Configuration at Int. #5	CSS	-	-	-	-	18.3	16.8	C	C	18.5	17.0	C	C	18.8	17.3	C	C
12	Cherry St. / Waite St.																	
	- With Full Access at Int. #5	CSS	10.5	10.2	B	B	11.2	10.7	B	B	11.3	10.8	B	B	11.5	11.0	B	B
	- With RIRO/LI Configuration at Int. #5	CSS	-	-	-	-	10.8	10.9	B	B	10.9	11.0	B	B	11.1	11.3	B	B
	- With RIRO Configuration at Int. #5	CSS	-	-	-	-	10.8	10.9	B	B	10.9	11.0	B	B	11.1	11.3	B	B
13	Sellers Rd. / Waite St.																	
	- With Full Access at Int. #5	CSS	9.3	8.7	A	A	9.5	8.9	A	A	9.5	8.9	A	A	9.8	9.1	A	A
	- With RIRO/LI Configuration at Int. #5	CSS	-	-	-	-	9.9	9.3	A	A	10.0	9.3	B	A	10.3	9.7	B	A
	- With RIRO Configuration at Int. #5	CSS	-	-	-	-	9.9	9.3	A	A	10.0	9.3	B	A	10.3	9.7	B	A
14	Orange St. / Lemon St.	AWS	8.5	8.1	A	A	9.0	8.4	A	A	9.1	8.5	A	A	9.2	8.6	A	A
15	Almond St. / Lemon St.	CSS	14.6	12.0	B	B	15.2	12.3	C	B	15.6	12.6	C	B	18.7	15.4	C	C
16	Almond St. / Waite St.	AWS	9.5	8.4	A	A	9.7	8.6	A	A	9.8	8.7	A	A	10.7	9.4	B	A

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop; BOLD = Improvement

[2] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6
BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

For EAPC (2025) traffic conditions, the following study area intersections are projected to operate at an unacceptable LOS during peak hours, with existing geometry:

- Orange Street / Bundy Canyon Road (#2)
- Orange Street / Canyon Drive (#9)
- I-15 SB Ramps / Bundy Canyon Drive (#3)

The intersection of Canyon Ranch Road / Bundy Canyon Road (#8) is anticipated to meet traffic signal warrants under EAPC traffic conditions, in addition to the intersection identified under E+P and EAP conditions.

B. Recommended Off-Site Improvements

For all future analysis scenarios, Bundy Canyon Road is proposed to include a continuous westbound right turn lane serving the I-15 NB on-ramp to address potential queuing issues between the I-15 NB on-ramp and Cherry Street. Therefore, the following improvements are proposed in addition to the potential configurations of Cherry Street / Bundy Canyon Road (#5):

I-15 NB Ramps / Bundy Canyon Road (#4)

- Provide a separate westbound right turn lane .

Cherry Street / Bundy Canyon Road (#5)

- Modify existing westbound right turn lane to provide a 3rd westbound thru lane with a defacto right turn lane.

Existing Plus Project (E+P) Conditions

Figure 6-A illustrates the recommended improvements for E+P conditions. The following improvements will allow the deficient intersections to operate at acceptable levels of service during the peak hours:

Orange Street / Bundy Canyon Road (#2)

- Modify striping for the northbound approach to provide a 1 left turn lane and 1 shared through/right lane.
- Modify striping for the southbound approach to provide a 1 left turn lane and 1 shared through/right lane.

Cherry Street / Bundy Canyon Road (#5)

- Full Access:
    - o Install traffic signal.
    - o Provide a separate southbound left turn lane.
    - o Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.
    - o This improvement may not be feasible due to the close proximity between the I-15/Bundy Canyon and Sellers/Bundy Canyon traffic signals.

- Alternative 1: Restrict intersection to right-in/right-out/left-in only (RIRO) configuration (no SB left turn movement).
    - o Modify existing two-way left turn lane median striping to provide a dedicated eastbound left turn lane.

- Alternative 2 (Preferred): Restrict intersection to right-in/right-out only (RIRO) configuration (no median break, no SB left and EB left turn movements).

Existing + Ambient + Project Conditions

Figure 6-B illustrates the recommended improvements for EAP conditions. The following improvement (in addition to E+P improvements) is anticipated to improve the new deficient intersection of Orange Street / Canyon Drive to operate at acceptable levels of service during the peak hours:

Orange Street / Canyon Drive (#9)

- Provide a separate southbound right turn lane.

Existing + Ambient + Project + Cumulative Conditions

Figure 6-C illustrates the recommended improvements for EAPC conditions. The following improvements (in addition to EAP improvements) are anticipated to improve deficient intersections to operate at acceptable levels of service during the peak hours:

Orange Street / Bundy Canyon Road (#2)

- Modify striping for the northbound approach to provide a 1 left turn lane and 1 through lane and 1 right turn lane with overlap phase.
- Modify striping for the southbound approach to provide a 1 left turn lane and 1 through lane and 1 right lane.

I-15 SB Ramps / Bundy Canyon Road (#3)

- Modify existing southbound shared through/right lane to shared left/through/right turn lane.
- Provide a separate eastbound right turn lane.
- Provide a separate southbound right turn lane *(recommended to address potential queueing issues)*.

Sellers Road / Bundy Canyon Road (#6)

- Construct 1 northbound left turn lane and 1 northbound shared though/right lane.
- Construct 1 southbound left turn lane and 1 southbound shared though/right lane.
- Provide 1 westbound left turn lanes.
- *South leg Improvements are for cumulative access purposes*

Orange Street / Canyon Drive (#9)

- Provide a separate northbound left turn lane
- Provide a separate eastbound left turn lane.

Funding Mechanisms

In order to address the cumulate traffic impacts from the proposed project and other developments in the area, the County has the following funding mechanisms available.

Transportation Uniform Mitigation Fee (TUMF)

The Transportation Uniform Mitigation Fee (TUMF) Program was established to assist in funding the Regional System of Highways and Arterials throughout Riverside County. TUMF allows developers to contribute toward sustaining the regional transportation system on a "fair share" basis. Managed by the Western Riverside Council of Governments (WRCOG), the program is not designed to be the only source of revenue but would complement funds generated by Measure A, local transportation fee programs, etc.

Development Impact Fees (DIF)

The development impact fee (DIF) is intended to construct or acquire needed facilities, preserve open space, and habitat needed to serve new developments. The transportation facilities include roads, bridges, and traffic signals.

C. C R

O -S

F 6-D - . C -

. F I-215 , S R B C , C , , C B , I-15 F . T C A . F 6-E 6-F - . S F 6-G.

T - .

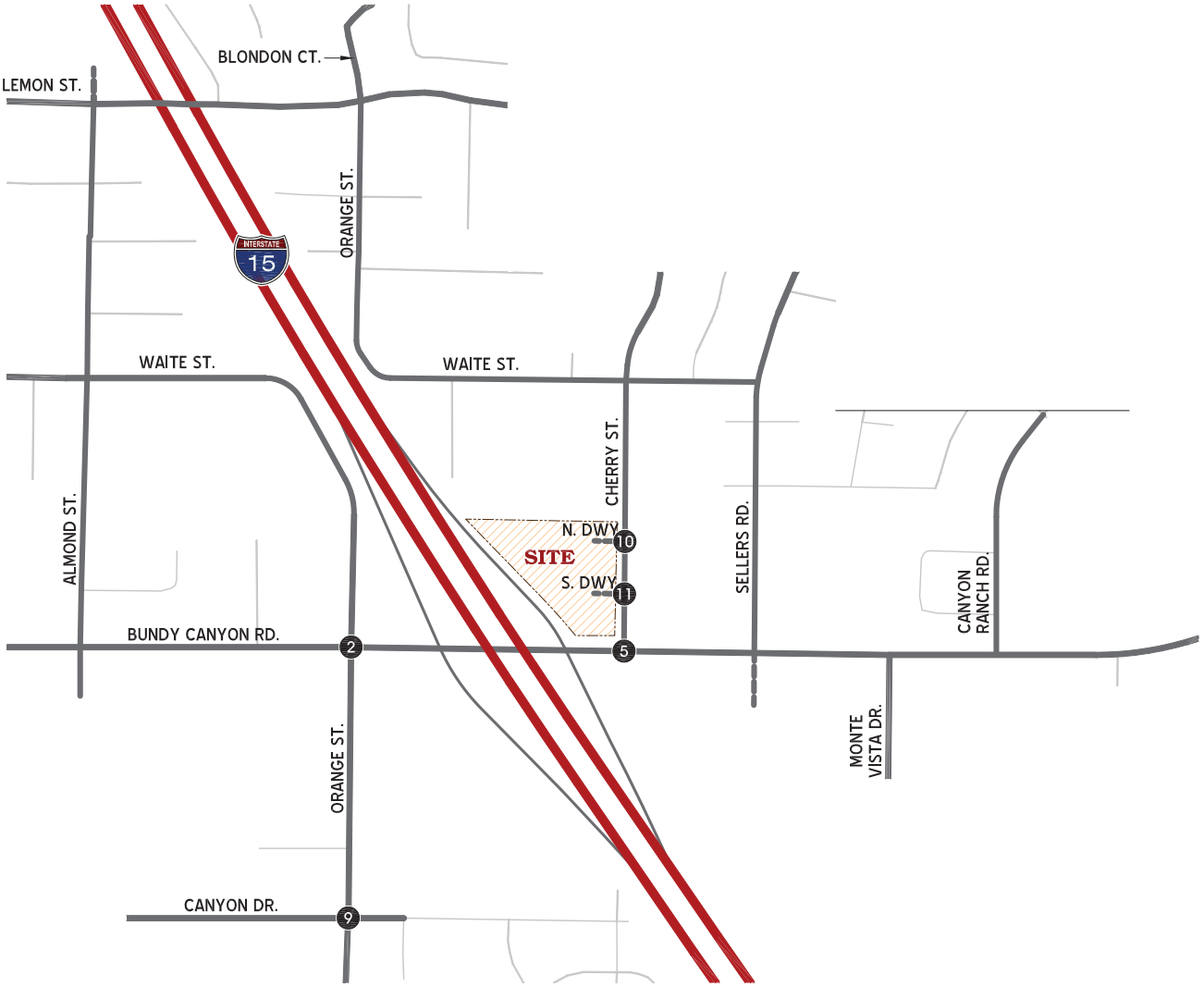
- P
- O -

.

- V .

A E 6-D, S P D B C R C S 245 . B C R ' R D R (S N . 114), 200 . T , P D C R .

FIGURE 6-A
E+P RECOMMENDED IMPROVEMENTS



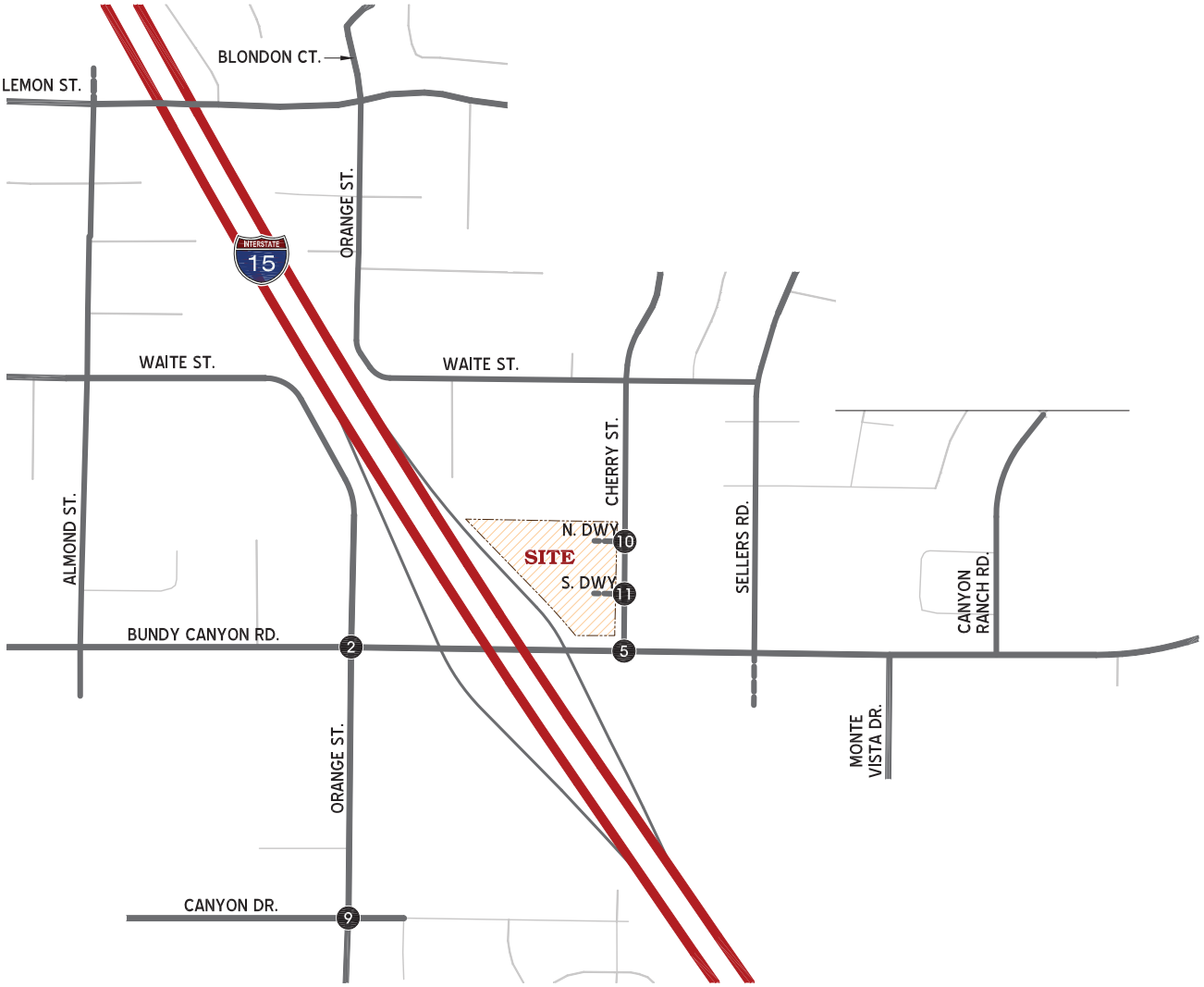
2. Orange St. / Bundy Cyn. Rd.	4. I-15 NB Ramps / Bundy Cyn. Rd.	5. Cherry St. / Bundy Cyn. Rd.	10. Cherry St. / N. Dwy.	11. Cherry St. / S. Dwy.
(RESTRIPE) (RESTRIPE) DEF (RESTRIPE) (RESTRIPE)		PREFERRED ALTERNATIVE (RIRO CONFIGURATION) DEF (RESTRIPE)		

LEGEND:

- # = INTERSECTION ID
- = EXISTING TRAFFIC SIGNAL
- = STOP SIGN
- DEF = DEFACTO RIGHT TURN LANE
- = EXISTING LANE
- = LANE IMPROVEMENT (E+P)
- = FUTURE PROJECT DRIVEWAY

N

FIGURE 6-B
EAP (2025) RECOMMENDED IMPROVEMENTS



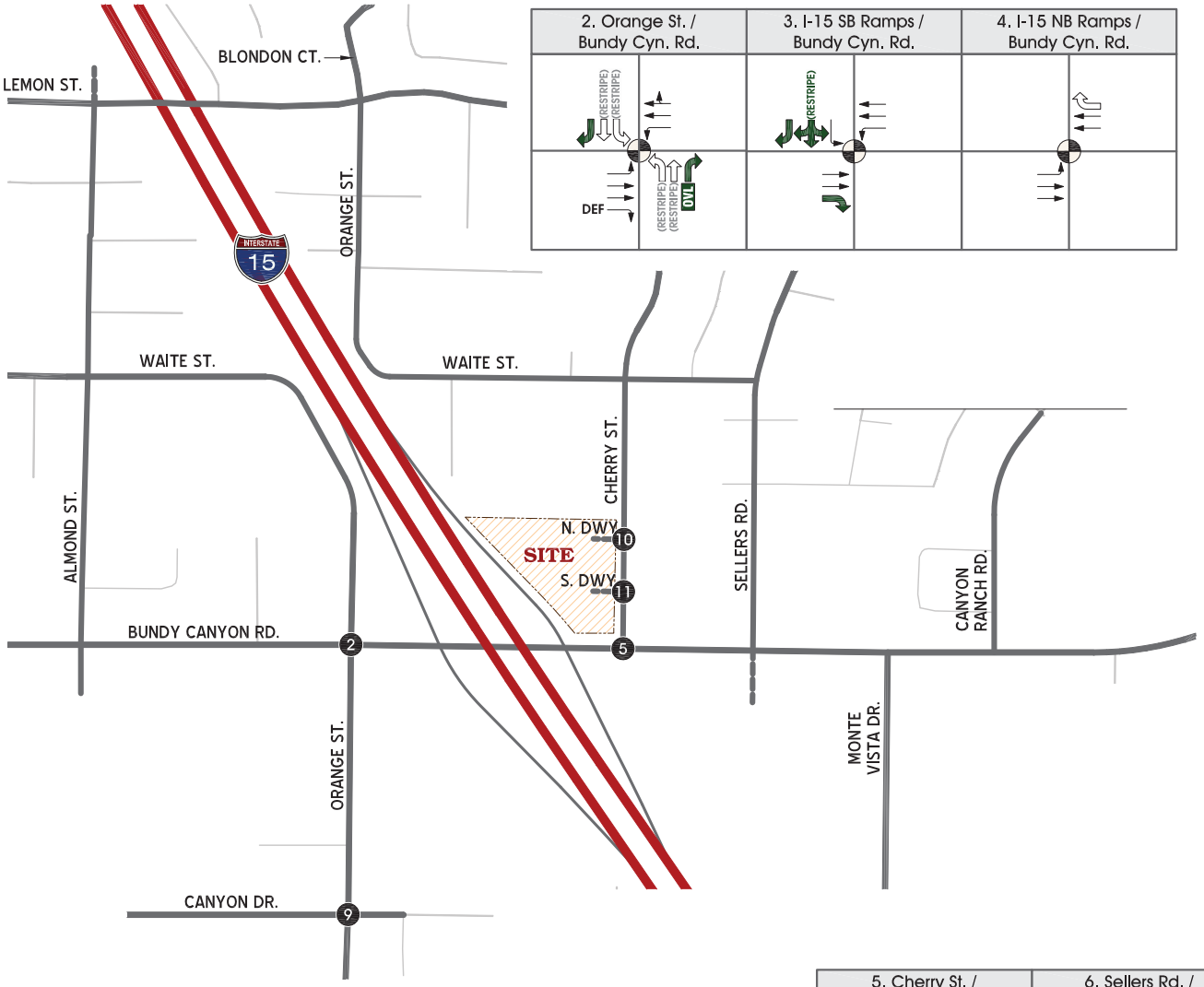
2. Orange St. / Bundy Cyn. Rd.	4. I-15 NB Ramps / Bundy Cyn. Rd.	5. Cherry St. / Bundy Cyn. Rd.	9. Orange St. / Canyon Dr.	10. Cherry St. / N. Dwy.	11. Cherry St. / S. Dwy.
(RESTRIPE) (RESTRIPE) DEF (RESTRIPE) (RESTRIPE)		PREFERRED ALTERNATIVE (RIRO CONFIGURATION) DEF (RESTRIPE)	S		

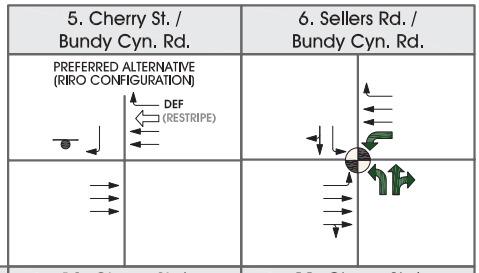
LEGEND:

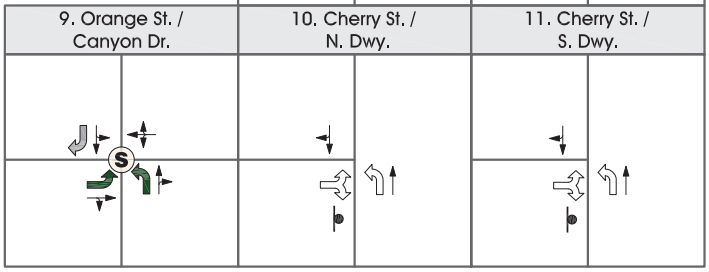
- # = INTERSECTION ID
- = EXISTING TRAFFIC SIGNAL
- S = EXISTING ALL WAY STOP
- = STOP SIGN
- DEF = DEFACTO RIGHT TURN LANE
- = EXISTING LANE
- = LANE IMPROVEMENT (EAP)
- = PREVIOUS LANE IMPROVEMENT (E+P)
- = FUTURE PROJECT DRIVEWAY

N

FIGURE 6-C
EAPC (2025) RECOMMENDED IMPROVEMENTS





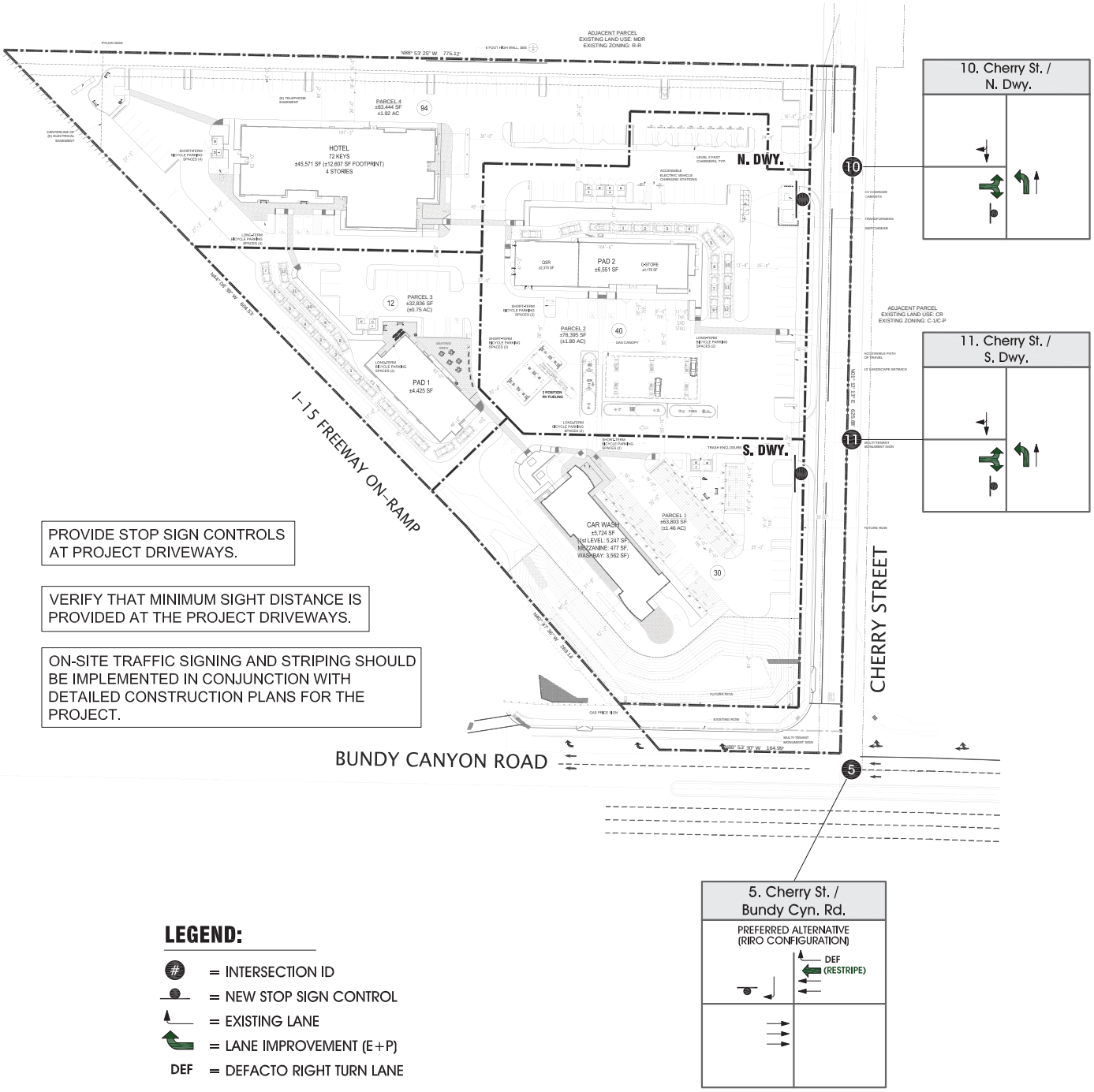


LEGEND:

- # = INTERSECTION ID
- = EXISTING TRAFFIC SIGNAL
- S = EXISTING ALL WAY STOP
- = STOP SIGN
- = EXISTING LANE
- = LANE IMPROVEMENT (EAPC)
- = PREVIOUS LANE IMPROVEMENT (EAP)
- = PREVIOUS LANE IMPROVEMENT (E+P)
- = FUTURE PROJECT DRIVEWAY
- DEF = DEFACTO RIGHT TURN LANE

N

FIGURE 6-D
ON-SITE CIRCULATION RECOMMENDATIONS



PROVIDE STOP SIGN CONTROLS AT PROJECT DRIVEWAYS.

VERIFY THAT MINIMUM SIGHT DISTANCE IS PROVIDED AT THE PROJECT DRIVEWAYS.

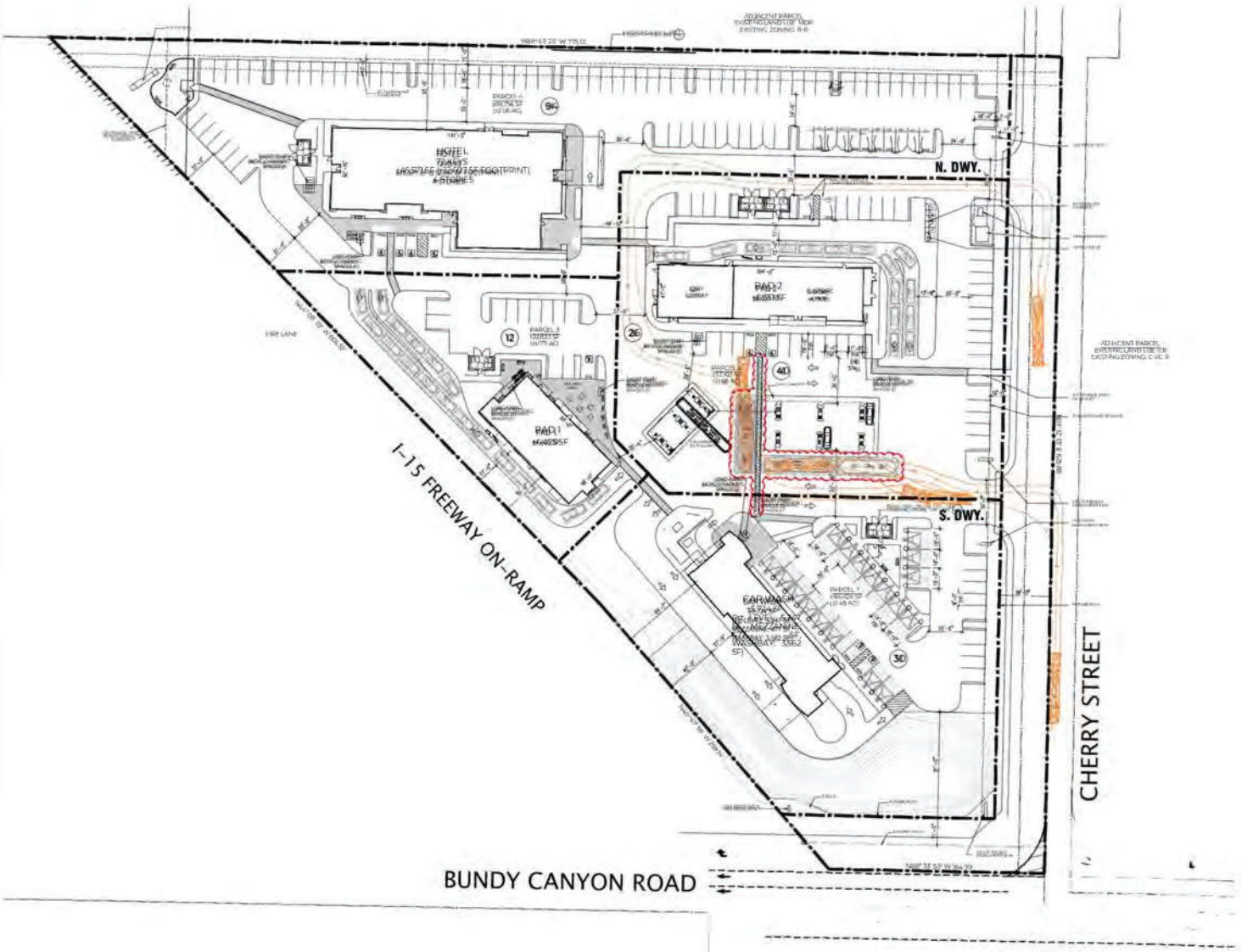
ON-SITE TRAFFIC SIGNING AND STRIPING SHOULD BE IMPLEMENTED IN CONJUNCTION WITH DETAILED CONSTRUCTION PLANS FOR THE PROJECT.

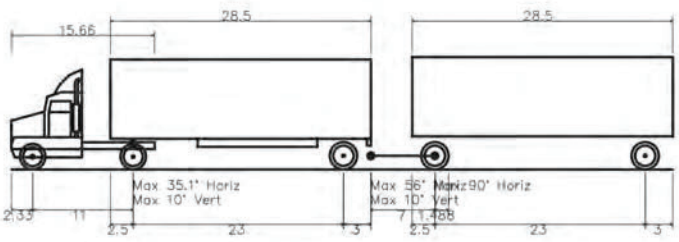
LEGEND:

- (#) = INTERSECTION ID
- = NEW STOP SIGN CONTROL
- = EXISTING LANE
- = LANE IMPROVEMENT (E+P)
- DEF = DEFACTO RIGHT TURN LANE

N

FIGURE 6-E
FUEL TANKER TRUCK PATH



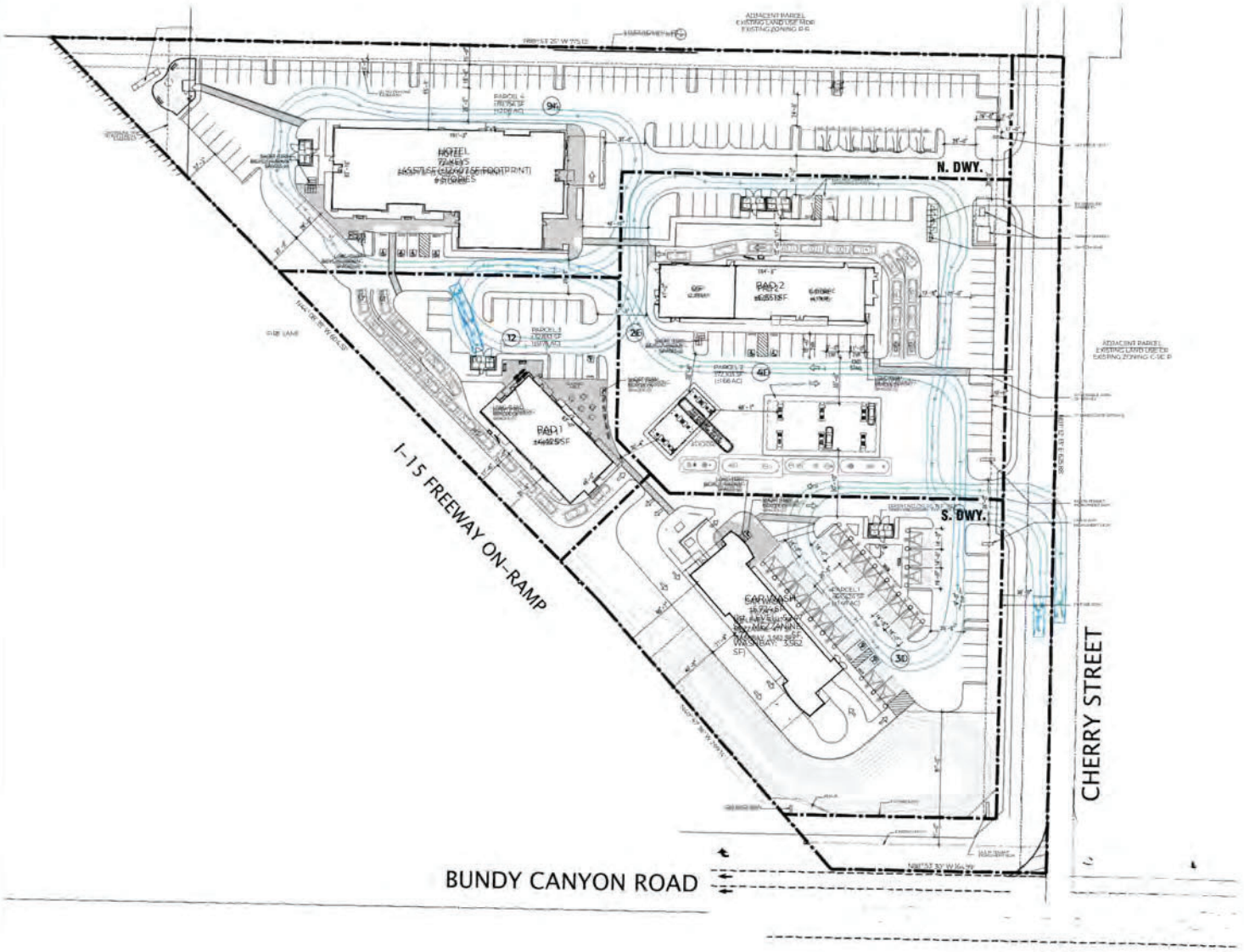


WB-67D - Double Trailer Combination

Overall Length	72.330ft
Overall Width	8.500ft
Overall Body Height	12.314ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	45.000ft

N

FIGURE 6-F
DELIVERY TRUCK PATH



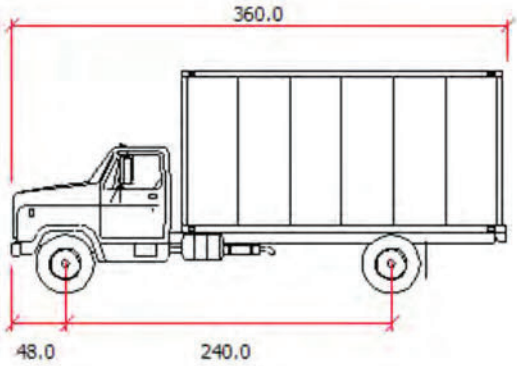
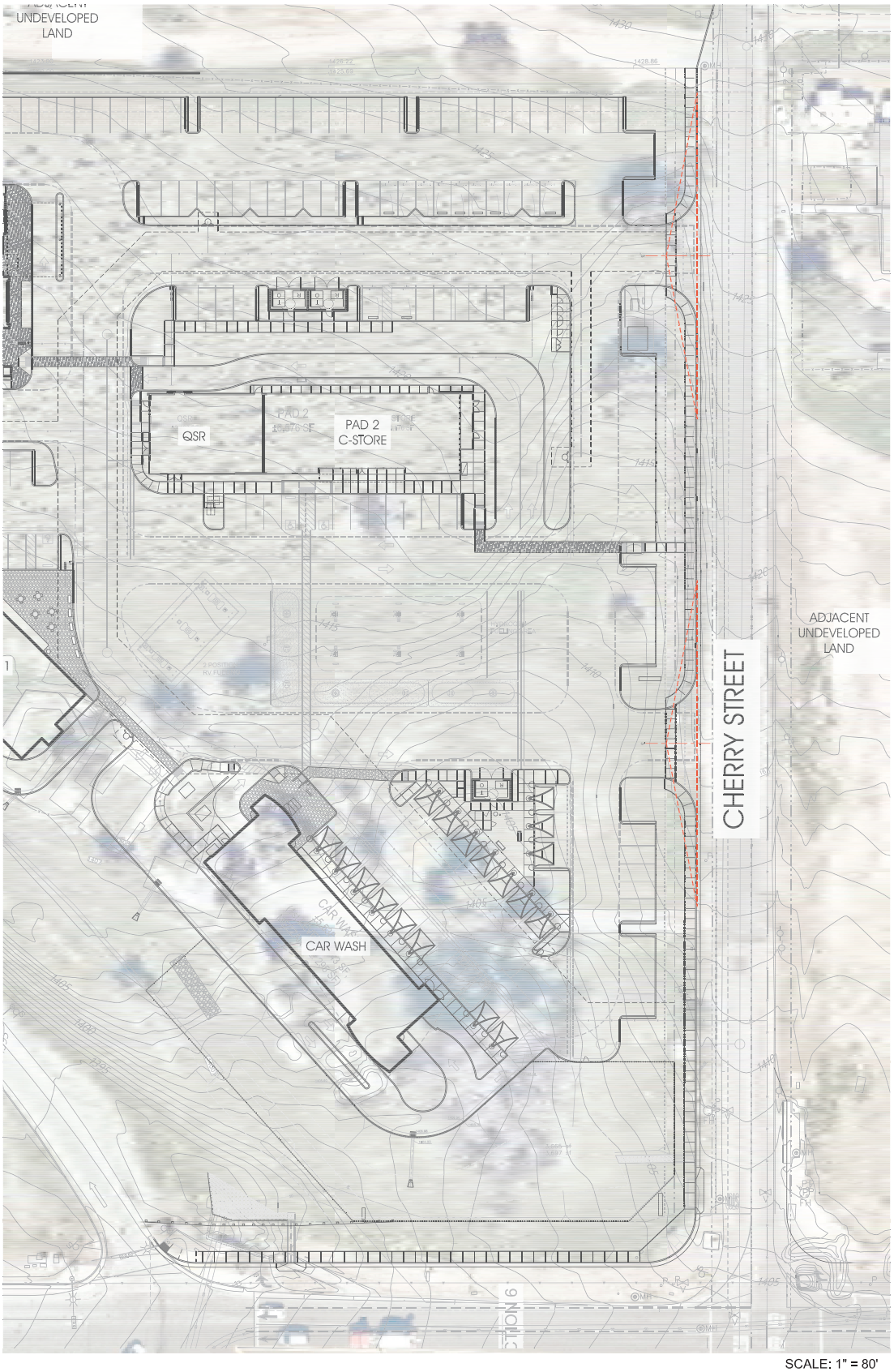


FIGURE 6- G
SIGHT DISTANCE



SCALE: 1" = 80'

N

APPENDIX A

SCOPING AGREEMENT

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ATTACHMENT A

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Wildomar Engineering Department requirements for the traffic impact analysis of the following project. The analysis must follow the latest City Traffic Impact Analysis Guidelines.

Project Identification

Case No. **PAR 22-0145**
Related Cases -
SP No.
EIR No.
GPA No.
CZ No.
Project Name: **Cherry Outpost**
Project Address: **North of Bundy Canyon Rd. and east of I-15**
Project Opening Year **2024**
Project Description: **84 room hotel, C-Store (w/18 fueling positions), 2 fast food restaurant w/drive-thru (5,200 sf total), and a car wash with a 120 foot tunnel**

	Consultant	Developer
Name:	**Trames Solutions, Inc.**	**J&T Management**
Address:	**Scott Sato**	**139 Rado Rd.**
	4225 Oceanside Blvd., #354H	**Corona, CA 92879**
	Oceanside, CA 92056	
Phone No:	**(949) 244-2436**	**951-280-3833 ext. 6**
Fax/Email	scott@tramessolutions.com	claudia@jtmgmt.com

Trip Generation Information

Trip Generation Source: ITE Trip Generation Manual, 11th Edition

Current General Plan Land Use: Commercial Retail
Current Zoning: Scenic Highway Commercial
Proposed General Plan Land Use: Commercial Retail
Proposed Zoning: Scenic Highway Commercial

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	-	-	-	**370**	**352**	**722**
PM Trips	-	-	-	**325**	**318**	**643**

Internal Trip Allowance **No** (**0** % Trip Discount)
Pass-By Trip Allowance **Yes** (**15** % Trip Discount)

Project Trip Distribution

Trip Geographic Distribution: (See attached exhibit for detailed assignment).
N _____ S _____ E _____ W _____

Background Traffic

Annual Ambient Growth Rate: **2.0** %
Other projects to be analyzed: City to Provide

Build-out Studies: Does this project require a Build-out Study? No. The project is consistent with the GP

Study Intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies).

1 Almond St./Bundy Canyon Rd.
2 Orange St./Bundy Canyon Rd.
3 I-15 SB Ramps/Bundy Canyon Rd.
4 I-15 NB Ramps/Bundy Canyon Rd.
5 Cherry St./Bundy Canyon Rd.
6 Sellers Rd./Bundy Canyon Rd.
7 Monte Vista Dr./Bundy Canyon Rd.
8 Canyon Ranch Rd./Bundy Canyon Rd.
9 Orange St./Canyon Dr.
10 Cherry St./N. Project Driveway
11 Cherry St./S. Project Driveway

Study Roadway Segments (For Build-out Studies):

1
2
3
4

Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of influence or one mile radius of boundaries? Yes

If so, name of jurisdiction: Lake Elsinore & Caltrans

Specific issues to be addressed in the Study

Existing
Existing+Ambient Growth+Project
Existing+Ambient Growth+Project+Cumulative

Intersections along Bundy Canyon will use the revised striping per the Bundy Canyon Road CIP
Pending the approved recommendaitons for Cherry/BundyCanyon, a signal design will be prepared
The C-store wil include truck traffic and the on-site routing will be included in the study
Truck traffic to/from the site is anticipated to occur outside of the peak hours.

Potential Screening Checks

Is your project screened from specific analyses

Is the project screened from VMT assessment? Yes

VMT screening justification

Retail Component

Project consists of less than 50,000 sf of commercial retail

Hotel Component

The proposed hotel will be local serving. There will be no conference/wedding facilities or restaurants to attact visitors from outside of the area. The OPR indicates that by adding retail opportunities and improve destination proximity, local-serving retail developments tends to shorten trips and reduce VMT. Similarly, the proposed hotel project will be located between similar type hotels in the Cities of Lake Elsinore (Holiday Inn Express 31573 Canyon Estates) and Murrieta (Comfort Inn 41005 California Oaks). The proposed hotel would be located approximately 3 miles south of the Lake Elsinore hotel and 6 miles north of the one in Murrieta. By siting the hotel along Bundy Canyon, this could result in a reduction of VMT by 1.5 miles to the north and 3 miles to the south. Therefore, the propsed hotel is consistent with the goals of SB 375 by potentially reducing the VMT along I-15 and can be considered to have a less than significant transportation impact.

VMT Analysis Scoping

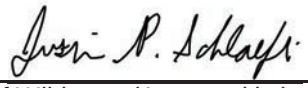
For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Coversion Factors (attach)

Signatures



TIA Preparer



4/26/23

City of Wildomar (Approved by)

TABLE 1

PROJECT TRIP GENERATION RATES[1]

Land Use	Quantity[2]		Peak Hour Trip Rates						Daily
			AM			PM			
			IN	OUT	Total	IN	OUT	Total	
Hotel	84	RM	0.26	0.20	0.46	0.30	0.29	0.59	7.99
Convenience Store/Gas Station - GFA (4-5.5k)	18.0	VFP	13.52	13.52	27.04	11.38	11.38	22.76	257.13
Fast-Food Restaurant w/ Drive-Through	5.2	TSF	22.75	21.86	44.61	17.18	15.85	33.03	467.48
Car Wash[3]	120	Feet	0.38	0.28	0.66	0.63	0.63	1.25	11.87

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] RM = Room; VFP = Vehicle Fueling Position; TSF = Thousand Square Feet; Feet = Linear Feet of the Tunnel

[3] NEC I-15/Clinton Keith Traffic Impact Analysis, January 2023, TJW Engineers, Inc.

TABLE 2

PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity[1]		Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Hotel	84	RM	22	17	39	25	24	49	671
Convenience Store/Gas Station - GFA (4-5.5k)	18.0	VFP	243	243	486	205	205	410	4,628
Pass-By (15%)			*-36*	*-36*	*-72*	*-31*	*-31*	*-62*	*-694*
Fast-Food Restaurant w/ Drive-Through	5.2	TSF	118	114	232	89	82	171	2,431
Pass-By (15%)			*-18*	*-17*	*-35*	*-13*	*-12*	*-25*	*-365*
Car Wash	120	Feet	46	34	80	76	76	152	1,424
Pass-By (AM 10%. PM 34%, ADT 10%)			*-5*	*-3*	*-8*	*-26*	*-26*	*-52*	*-142*
TOTAL NET TRIPS			370	352	722	325	318	643	7,953

[1] RM = Room; VFP = Vehicle Fueling Position; TSF = Thousand Square Feet; Feet = Linear Feet of the Tunnel

FIGURE 1
STUDY AREA



LEGEND:

- 9 = EXISTING INTERSECTION ANALYSIS LOCATION
- (2) = FUTURE INTERSECTION ANALYSIS LOCATION
- = FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY

N

FIGURE 2
SITE PLAN

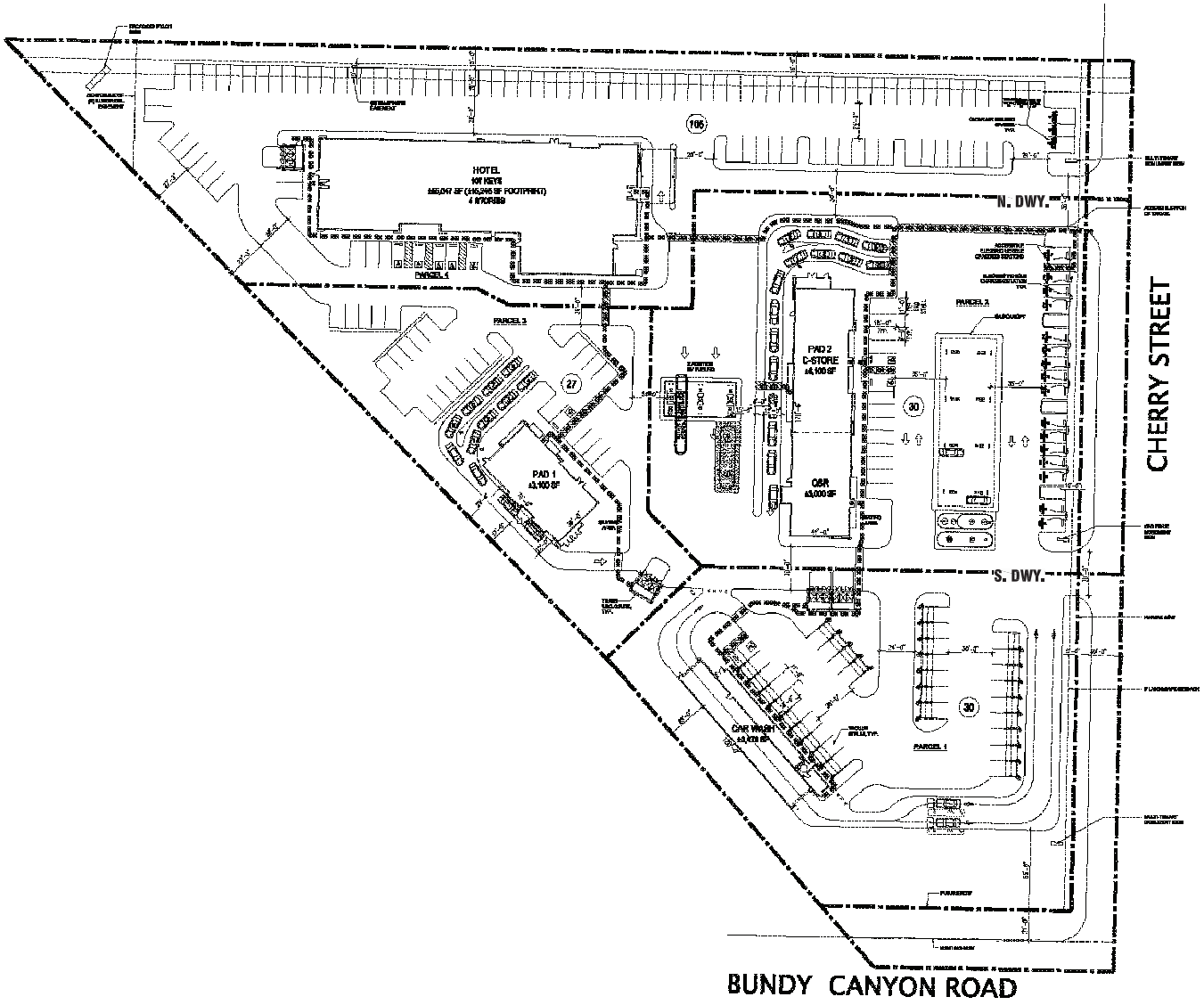


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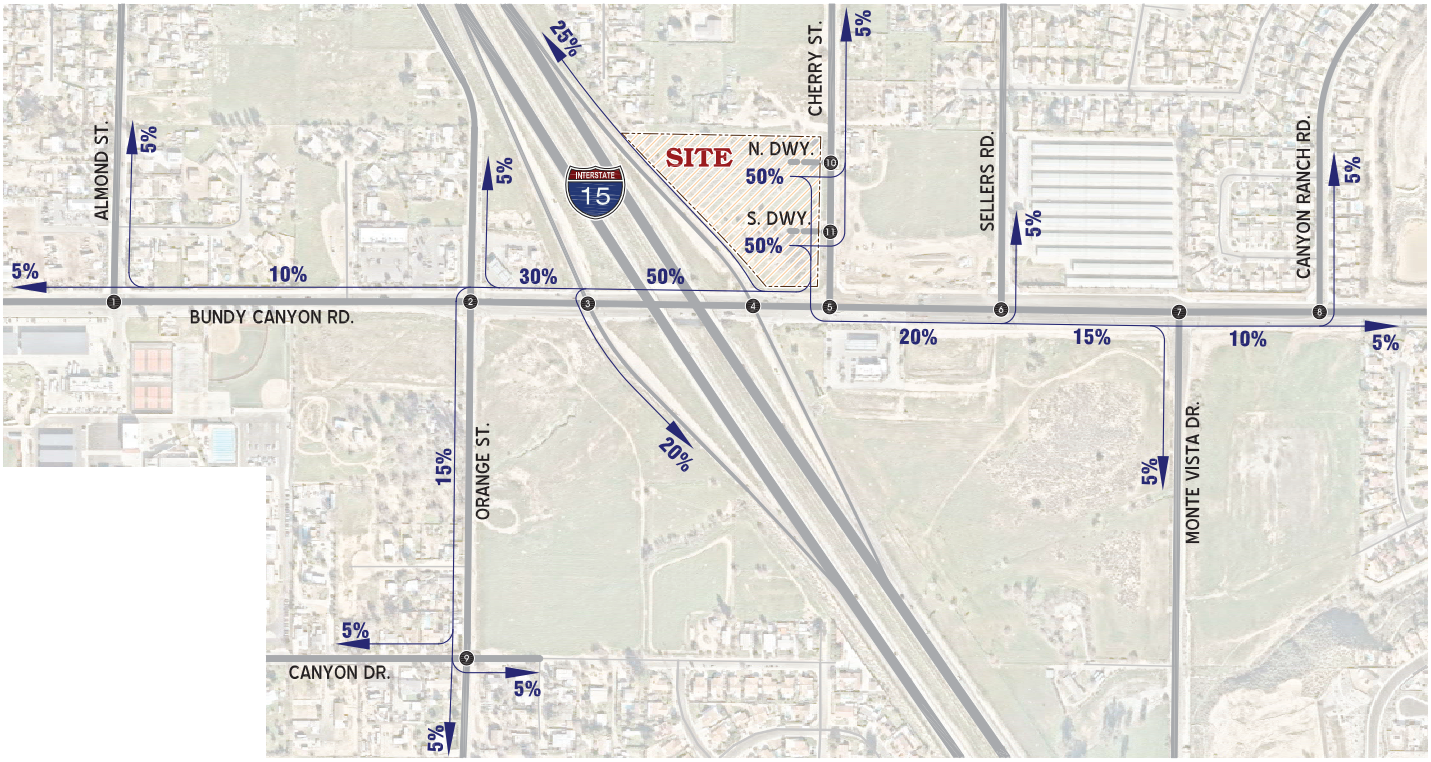
FIGURE 3
PROJECT TRIP DISTRIBUTION



LEGEND:

3 = INTERSECTION ID

= FUTURE ROADWAY / DIRT ROAD / PROJECT DRIVEWAY

10% = PERCENT TO/FROM PROJECT

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APPENDIX B

TRAFFIC COUNT WORKSHEETS

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Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Wildomar
N/S: Almonst Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 01_WLD_Alm_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Almond Street Southbound				Bundy Canyon Road Westbound				Almond Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	9	3	2	14	3	66	1	70	2	2	2	6	1	76	1	78	168
07:15 AM	16	5	5	26	3	66	6	75	2	2	6	10	3	91	2	96	207
07:30 AM	36	1	10	47	8	73	9	90	2	1	5	8	1	90	0	91	236
07:45 AM	24	4	5	33	8	70	8	86	3	2	7	12	1	96	4	101	232
Total	85	13	22	120	22	275	24	321	9	7	20	36	6	353	7	366	843
08:00 AM	8	13	12	33	19	71	15	105	12	11	16	39	4	98	13	115	292
08:15 AM	12	16	12	40	27	83	8	118	6	18	37	61	15	88	12	115	334
08:30 AM	10	5	4	19	7	68	6	81	6	7	5	18	9	98	3	110	228
08:45 AM	17	0	1	18	2	82	5	89	2	1	2	5	3	55	0	58	170
Total	47	34	29	110	55	304	34	393	26	37	60	123	31	339	28	398	1024
Grand Total	132	47	51	230	77	579	58	714	35	44	80	159	37	692	35	764	1867
Apprch %	57.4	20.4	22.2		10.8	81.1	8.1		22	27.7	50.3		4.8	90.6	4.6		
Total %	7.1	2.5	2.7	12.3	4.1	31	3.1	38.2	1.9	2.4	4.3	8.5	2	37.1	1.9	40.9	

	Almond Street Southbound				Bundy Canyon Road Westbound				Almond Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**36**	1	10	**47**	8	73	9	90	2	1	5	8	1	90	0	91	236
07:45 AM	24	4	5	33	8	70	8	86	3	2	7	12	1	96	4	101	232
08:00 AM	8	13	**12**	33	19	71	**15**	105	**12**	11	16	39	4	**98**	**13**	**115**	292
08:15 AM	12	**16**	12	40	**27**	**83**	8	**118**	6	**18**	**37**	**61**	**15**	88	12	115	**334**
Total Volume	80	34	39	153	62	297	40	399	23	32	65	120	21	372	29	422	1094
% App. Total	52.3	22.2	25.5		15.5	74.4	10		19.2	26.7	54.2		5	88.2	6.9		
PHF	.556	.531	.813	.814	.574	.895	.667	.845	.479	.444	.439	.492	.350	.949	.558	.917	.819

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Wildomar
N/S: Almonst Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 01_WLD_Alm_BC AM
Site Code : 20123414
Start Date : 5/2/2023
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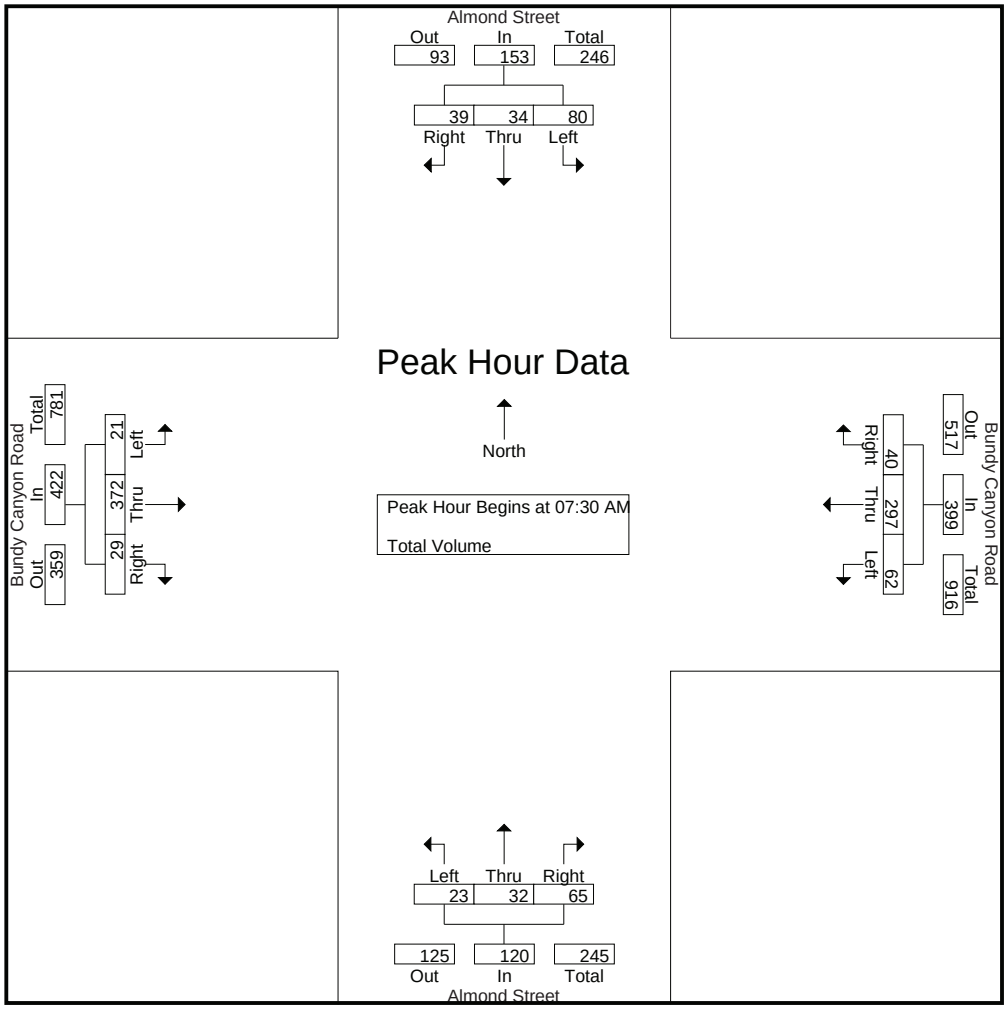

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:45 AM				07:45 AM			
+0 mins.	**36**	1	10	**47**	8	73	9	90	3	2	7	12	1	96	4	101
+15 mins.	24	4	5	33	8	70	8	86	**12**	11	16	39	4	**98**	**13**	**115**
+30 mins.	8	13	**12**	33	19	71	**15**	105	6	**18**	**37**	**61**	**15**	88	12	115
+45 mins.	12	**16**	12	40	**27**	**83**	8	**118**	6	7	5	18	9	98	3	110
Total Volume	80	34	39	153	62	297	40	399	27	38	65	130	29	380	32	441
% App. Total	52.3	22.2	25.5		15.5	74.4	10		20.8	29.2	50		6.6	86.2	7.3	
PHF	.556	.531	.813	.814	.574	.895	.667	.845	.563	.528	.439	.533	.483	.969	.615	.959

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City of Wildomar
N/S: Almonst Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 01_WLD_Alm_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Almond Street Southbound				Bundy Canyon Road Westbound				Almond Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	12	1	2	15	2	126	13	141	5	2	7	14	4	119	6	129	299
04:15 PM	11	0	7	18	1	123	8	132	0	1	2	3	4	83	0	87	240
04:30 PM	12	0	2	14	3	128	13	144	1	1	4	6	0	105	0	105	269
04:45 PM	12	0	4	16	0	120	12	132	4	2	2	8	1	111	1	113	269
Total	47	1	15	63	6	497	46	549	10	6	15	31	9	418	7	434	1077
05:00 PM	10	0	4	14	1	100	10	111	5	0	4	9	2	126	0	128	262
05:15 PM	8	0	1	9	0	117	10	127	4	1	4	9	1	97	0	98	243
05:30 PM	10	0	5	15	1	114	9	124	2	0	7	9	3	106	2	111	259
05:45 PM	11	0	5	16	3	103	9	115	0	0	1	1	4	115	0	119	251
Total	39	0	15	54	5	434	38	477	11	1	16	28	10	444	2	456	1015
Grand Total	86	1	30	117	11	931	84	1026	21	7	31	59	19	862	9	890	2092
Apprch %	73.5	0.9	25.6		1.1	90.7	8.2		35.6	11.9	52.5		2.1	96.9	1		
Total %	4.1	0	1.4	5.6	0.5	44.5	4	49	1	0.3	1.5	2.8	0.9	41.2	0.4	42.5	

	Almond Street Southbound				Bundy Canyon Road Westbound				Almond Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**12**	**1**	2	15	2	126	**13**	141	**5**	**2**	**7**	**14**	**4**	**119**	**6**	**129**	**299**
04:15 PM	11	0	**7**	**18**	1	123	8	132	0	1	2	3	4	83	0	87	240
04:30 PM	12	0	2	14	**3**	**128**	13	**144**	1	1	4	6	0	105	0	105	269
04:45 PM	12	0	4	16	0	120	12	132	4	2	2	8	1	111	1	113	269
Total Volume	47	1	15	63	6	497	46	549	10	6	15	31	9	418	7	434	1077
% App. Total	74.6	1.6	23.8		1.1	90.5	8.4		32.3	19.4	48.4		2.1	96.3	1.6		
PHF	.979	.250	.536	.875	.500	.971	.885	.953	.500	.750	.536	.554	.563	.878	.292	.841	.901

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City of Wildomar
N/S: Almonst Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 01_WLD_Alm_BC PM
Site Code : 20123414
Start Date : 5/2/2023
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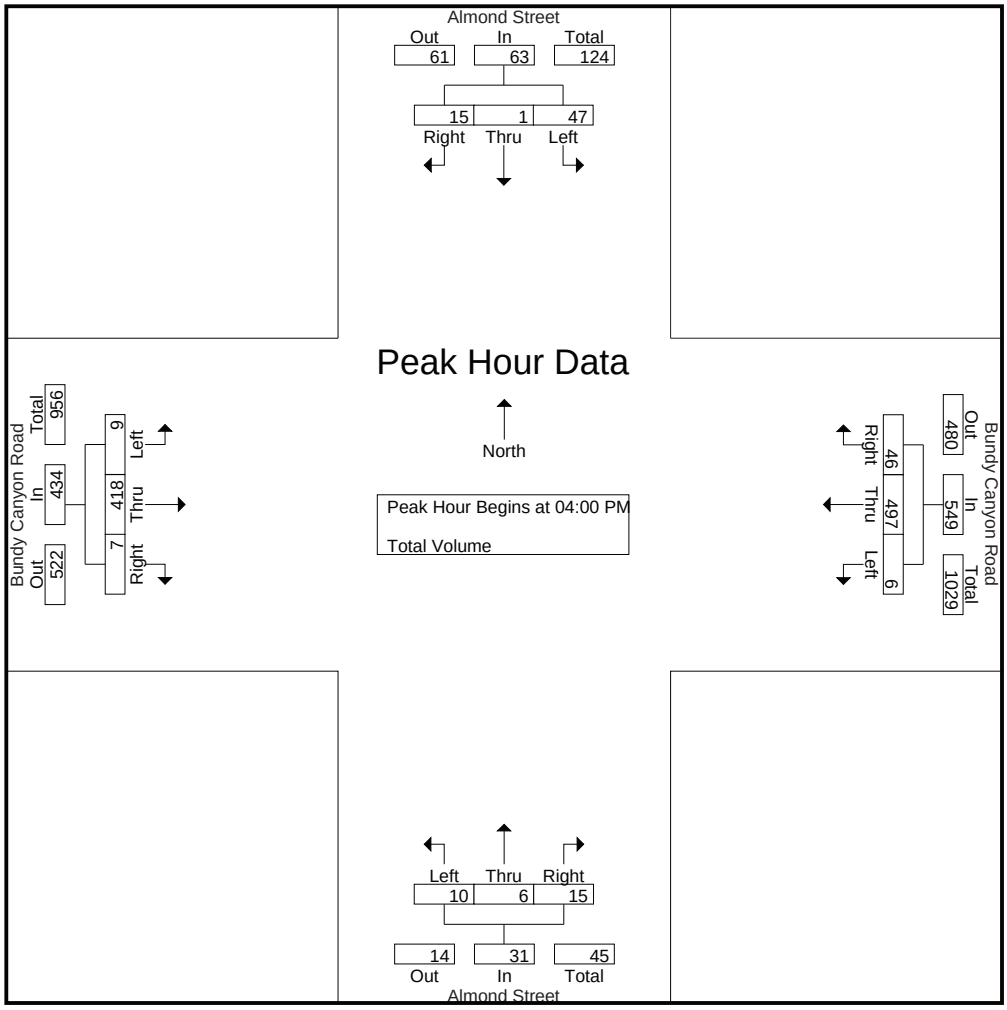

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:45 PM				05:00 PM			
+0 mins.	**12**	**1**	2	15	2	126	**13**	141	4	**2**	2	8	2	**126**	0	**128**
+15 mins.	11	0	**7**	**18**	1	123	8	132	**5**	0	4	**9**	1	97	0	98
+30 mins.	12	0	2	14	**3**	**128**	13	**144**	4	1	4	9	3	106	**2**	111
+45 mins.	12	0	4	16	0	120	12	132	2	0	**7**	9	**4**	115	0	119
Total Volume	47	1	15	63	6	497	46	549	15	3	17	35	10	444	2	456
% App. Total	74.6	1.6	23.8		1.1	90.5	8.4		42.9	8.6	48.6		2.2	97.4	0.4	
PHF	.979	.250	.536	.875	.500	.971	.885	.953	.750	.375	.607	.972	.625	.881	.250	.891

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City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 02_WLD_Orn_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	32	5	1	38	55	63	10	128	3	10	46	59	5	86	1	92	317
07:15 AM	34	7	1	42	59	71	18	148	4	9	57	70	4	100	2	106	366
07:30 AM	37	12	5	54	43	89	15	147	1	15	68	84	5	125	3	133	418
07:45 AM	58	12	1	71	54	89	12	155	3	9	80	92	5	116	5	126	444
Total	161	36	8	205	211	312	55	578	11	43	251	305	19	427	11	457	1545
08:00 AM	40	15	3	58	82	101	16	199	0	13	85	98	6	106	4	116	471
08:15 AM	48	11	2	61	94	104	19	217	4	17	88	109	7	111	8	126	513
08:30 AM	33	7	1	41	58	88	16	162	2	17	84	103	6	111	6	123	429
08:45 AM	38	5	0	43	35	83	19	137	2	5	40	47	3	65	2	70	297
Total	159	38	6	203	269	376	70	715	8	52	297	357	22	393	20	435	1710
Grand Total	320	74	14	408	480	688	125	1293	19	95	548	662	41	820	31	892	3255
Apprch %	78.4	18.1	3.4		37.1	53.2	9.7		2.9	14.4	82.8		4.6	91.9	3.5		
Total %	9.8	2.3	0.4	12.5	14.7	21.1	3.8	39.7	0.6	2.9	16.8	20.3	1.3	25.2	1	27.4	

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**58**	12	1	**71**	54	89	12	155	3	9	80	92	5	**116**	5	**126**	444
08:00 AM	40	**15**	**3**	58	82	101	16	199	0	13	85	98	6	106	4	116	471
08:15 AM	48	11	2	61	**94**	**104**	**19**	**217**	**4**	**17**	**88**	**109**	**7**	111	**8**	126	**513**
08:30 AM	33	7	1	41	58	88	16	162	2	17	84	103	6	111	6	123	429
Total Volume	179	45	7	231	288	382	63	733	9	56	337	402	24	444	23	491	1857
% App. Total	77.5	19.5	3		39.3	52.1	8.6		2.2	13.9	83.8		4.9	90.4	4.7		
PHF	.772	.750	.583	.813	.766	.918	.829	.844	.563	.824	.957	.922	.857	.957	.719	.974	.905

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City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 02_WLD_Orn_BC AM
Site Code : 20123414
Start Date : 5/2/2023
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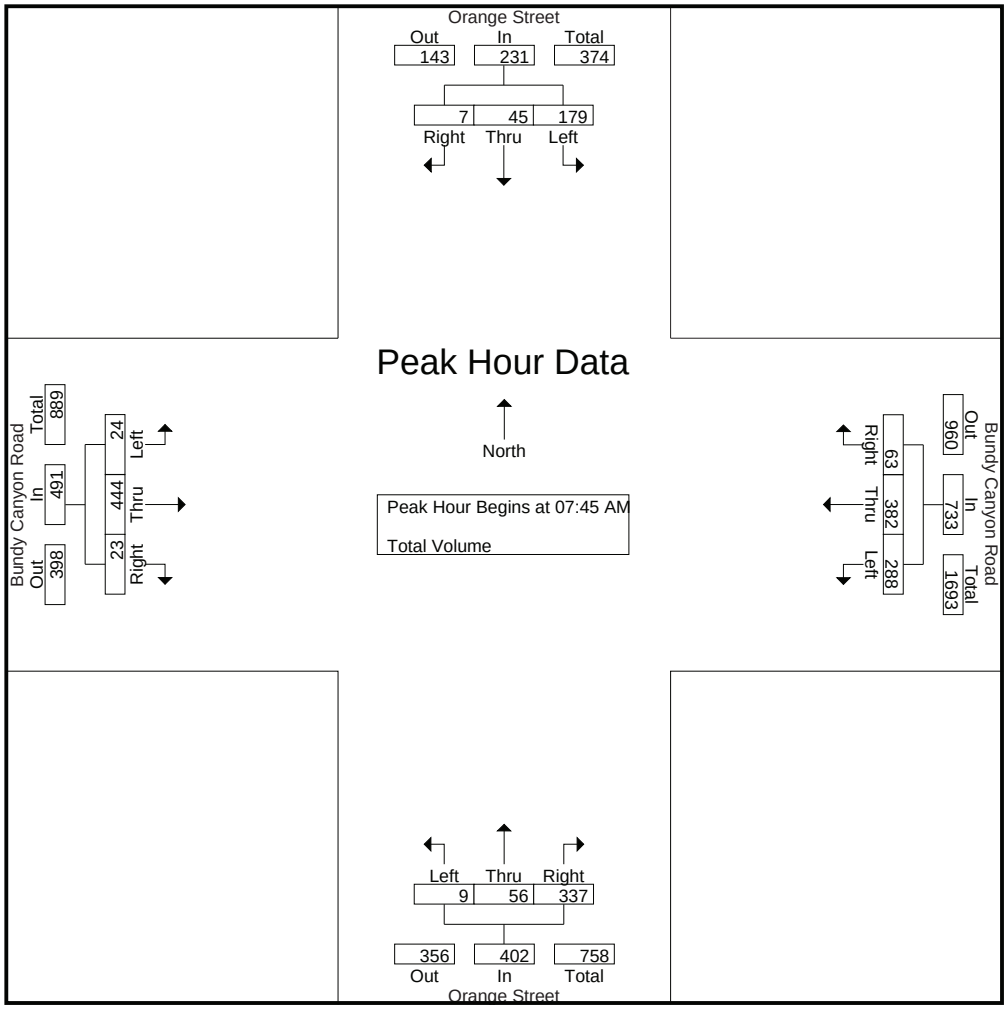

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:45 AM				07:45 AM				07:30 AM			
+0 mins.	37	12	**5**	54	54	89	12	155	3	9	80	92	5	**125**	3	**133**
+15 mins.	**58**	12	1	**71**	82	101	16	199	0	13	85	98	5	116	5	126
+30 mins.	40	**15**	3	58	**94**	**104**	**19**	**217**	**4**	**17**	**88**	**109**	6	106	4	116
+45 mins.	48	11	2	61	58	88	16	162	2	17	84	103	**7**	111	**8**	126
Total Volume	183	50	11	244	288	382	63	733	9	56	337	402	23	458	20	501
% App. Total	75	20.5	4.5		39.3	52.1	8.6		2.2	13.9	83.8		4.6	91.4	4	
PHF	.789	.833	.550	.859	.766	.918	.829	.844	.563	.824	.957	.922	.821	.916	.625	.942

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City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 02_WLD_Orn_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	33	10	6	49	51	133	36	220	1	6	44	51	4	114	4	122	442
04:15 PM	31	8	5	44	52	135	39	226	8	10	36	54	7	88	7	102	426
04:30 PM	27	7	4	38	45	128	29	202	5	9	43	57	6	113	6	125	422
04:45 PM	20	5	4	29	44	136	39	219	1	15	63	79	5	105	7	117	444
Total	111	30	19	160	192	532	143	867	15	40	186	241	22	420	24	466	1734
05:00 PM	21	2	0	23	59	109	40	208	4	12	36	52	8	138	2	148	431
05:15 PM	30	4	2	36	34	119	36	189	2	12	48	62	4	104	6	114	401
05:30 PM	27	10	2	39	59	126	40	225	1	10	37	48	2	118	5	125	437
05:45 PM	21	15	2	38	45	102	42	189	2	6	42	50	4	107	7	118	395
Total	99	31	6	136	197	456	158	811	9	40	163	212	18	467	20	505	1664
Grand Total	210	61	25	296	389	988	301	1678	24	80	349	453	40	887	44	971	3398
Apprch %	70.9	20.6	8.4		23.2	58.9	17.9		5.3	17.7	77		4.1	91.3	4.5		
Total %	6.2	1.8	0.7	8.7	11.4	29.1	8.9	49.4	0.7	2.4	10.3	13.3	1.2	26.1	1.3	28.6	

	Orange Street Southbound				Bundy Canyon Road Westbound				Orange Street Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**33**	**10**	**6**	**49**	51	133	36	220	1	6	44	51	4	**114**	4	122	442
04:15 PM	31	8	5	44	**52**	135	**39**	**226**	**8**	10	36	54	**7**	88	**7**	102	426
04:30 PM	27	7	4	38	45	128	29	202	5	9	43	57	6	113	6	**125**	422
04:45 PM	20	5	4	29	44	**136**	39	219	1	**15**	**63**	**79**	5	105	7	117	**444**
Total Volume	111	30	19	160	192	532	143	867	15	40	186	241	22	420	24	466	1734
% App. Total	69.4	18.8	11.9		22.1	61.4	16.5		6.2	16.6	77.2		4.7	90.1	5.2		
PHF	.841	.750	.792	.816	.923	.978	.917	.959	.469	.667	.738	.763	.786	.921	.857	.932	.976

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City of Wildomar
N/S: Orange Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 02_WLD_Orn_BC PM
Site Code : 20123414
Start Date : 5/2/2023
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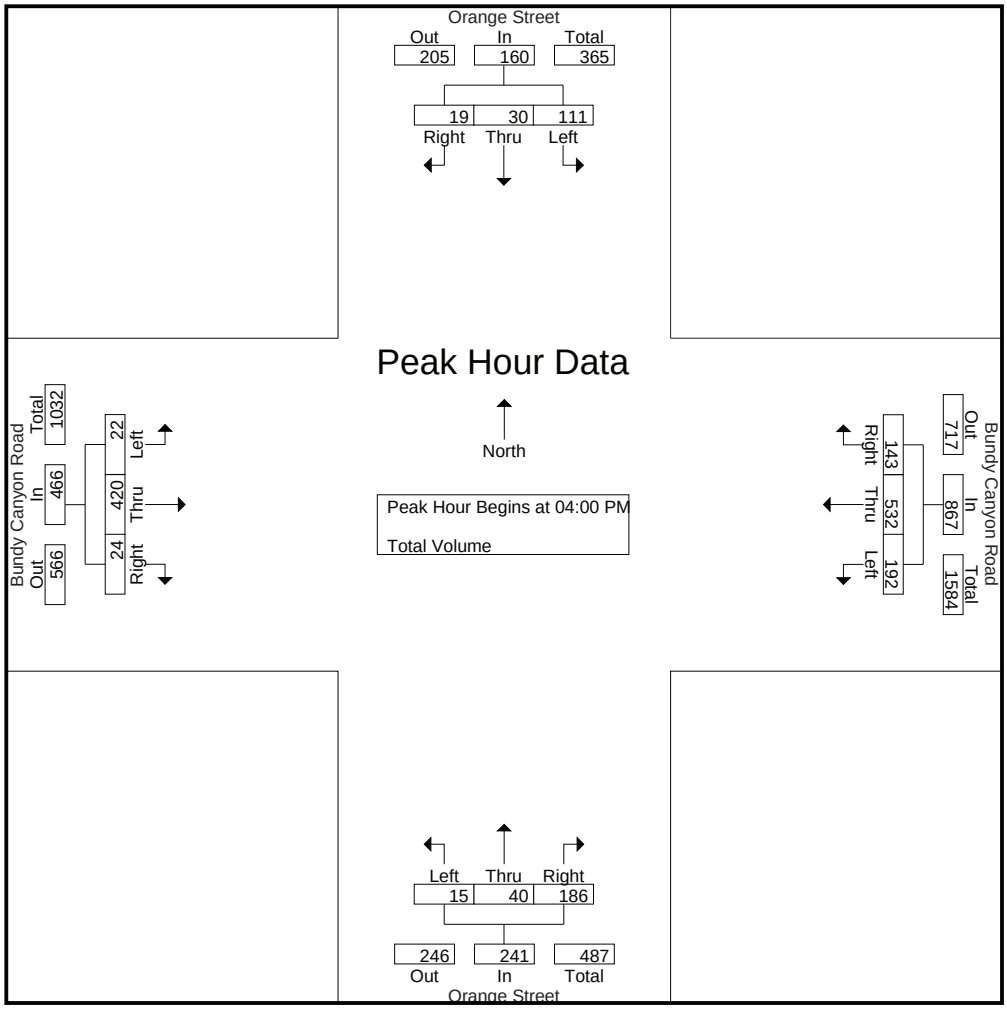

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:30 PM				05:00 PM			
+0 mins.	**33**	**10**	**6**	**49**	51	133	36	220	**5**	9	43	57	**8**	**138**	2	**148**
+15 mins.	31	8	5	44	**52**	135	**39**	**226**	1	**15**	**63**	**79**	4	104	6	114
+30 mins.	27	7	4	38	45	128	29	202	4	12	36	52	2	118	5	125
+45 mins.	20	5	4	29	44	**136**	39	219	2	12	48	62	4	107	**7**	118
Total Volume	111	30	19	160	192	532	143	867	12	48	190	250	18	467	20	505
% App. Total	69.4	18.8	11.9		22.1	61.4	16.5		4.8	19.2	76		3.6	92.5	4	
PHF	.841	.750	.792	.816	.923	.978	.917	.959	.600	.800	.754	.791	.563	.846	.714	.853

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City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 03_WLD_15S_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	56	1	45	102	53	92	0	145	0	0	0	0	0	96	67	163	410
07:15 AM	49	0	47	96	69	117	0	186	0	0	0	0	0	91	100	191	473
07:30 AM	72	2	28	102	105	125	0	230	0	0	0	0	0	94	136	230	562
07:45 AM	68	1	48	117	90	122	0	212	0	0	0	0	0	108	146	254	583
Total	245	4	168	417	317	456	0	773	0	0	0	0	0	389	449	838	2028
08:00 AM	61	3	80	144	74	152	0	226	0	0	0	0	0	116	115	231	601
08:15 AM	72	1	96	169	60	127	0	187	0	0	0	0	0	128	128	256	612
08:30 AM	60	0	55	115	48	103	0	151	0	0	0	0	0	112	120	232	498
08:45 AM	35	1	34	70	66	123	0	189	0	0	0	0	0	73	89	162	421
Total	228	5	265	498	248	505	0	753	0	0	0	0	0	429	452	881	2132
Grand Total	473	9	433	915	565	961	0	1526	0	0	0	0	0	818	901	1719	4160
Apprch %	51.7	1	47.3		37	63	0		0	0	0		0	47.6	52.4		
Total %	11.4	0.2	10.4	22	13.6	23.1	0	36.7	0	0	0	0	0	19.7	21.7	41.3	

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**72**	2	28	102	**105**	125	0	**230**	0	0	0	0	0	94	136	230	562
07:45 AM	68	1	48	117	90	122	0	212	0	0	0	0	0	108	**146**	254	583
08:00 AM	61	**3**	80	144	74	**152**	0	226	0	0	0	0	0	116	115	231	601
08:15 AM	72	1	**96**	**169**	60	127	0	187	0	0	0	0	0	**128**	128	**256**	**612**
Total Volume	273	7	252	532	329	526	0	855	0	0	0	0	0	446	525	971	2358
% App. Total	51.3	1.3	47.4		38.5	61.5	0		0	0	0		0	45.9	54.1		
PHF	.948	.583	.656	.787	.783	.865	.000	.929	.000	.000	.000	.000	.000	.871	.899	.948	.963

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City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 03_WLD_15S_BC AM
Site Code : 20123414
Start Date : 5/2/2023
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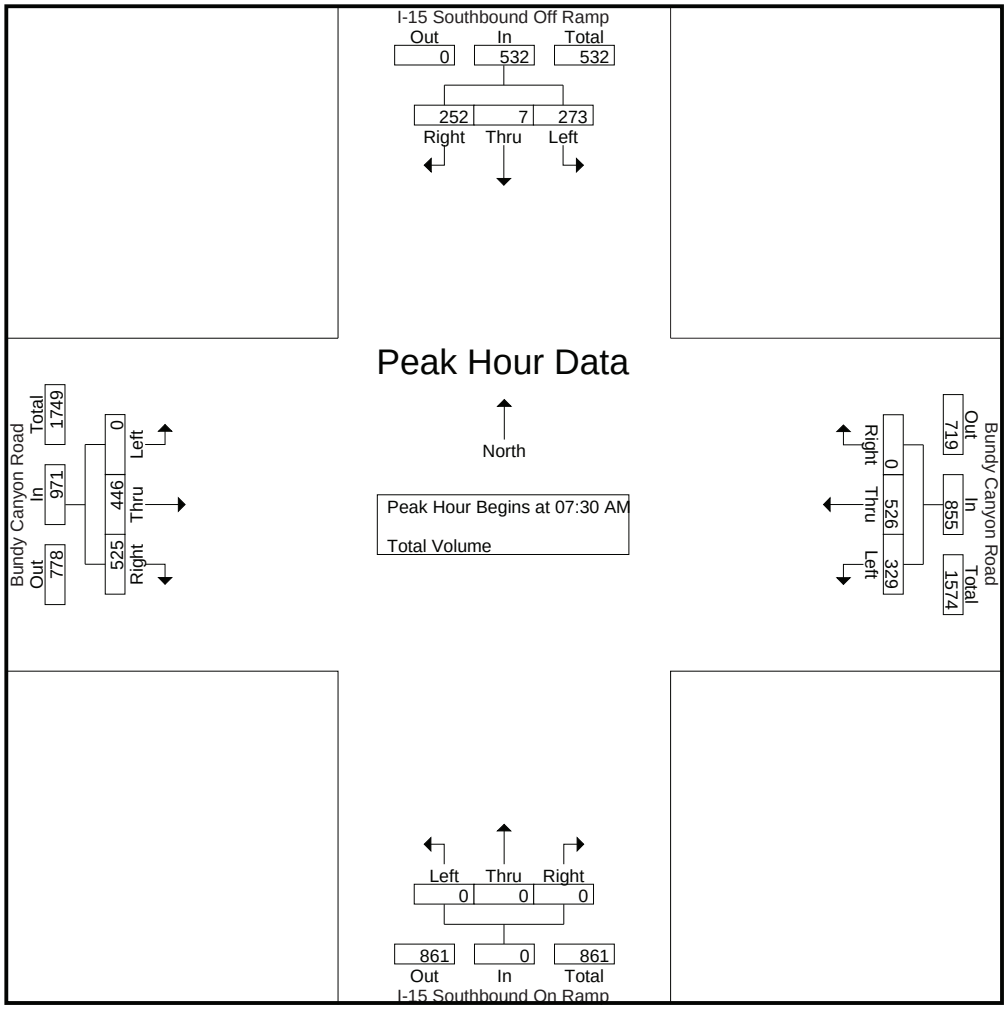

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:30 AM				07:00 AM				07:45 AM			
+0 mins.	68	1	48	117	**105**	125	0	**230**	0	0	0	0	0	108	**146**	254
+15 mins.	61	**3**	80	144	90	122	0	212	0	0	0	0	0	116	115	231
+30 mins.	**72**	1	**96**	**169**	74	**152**	0	226	0	0	0	0	0	**128**	128	**256**
+45 mins.	60	0	55	115	60	127	0	187	0	0	0	0	0	112	120	232
Total Volume	261	5	279	545	329	526	0	855	0	0	0	0	0	464	509	973
% App. Total	47.9	0.9	51.2		38.5	61.5	0		0	0	0		0	47.7	52.3	
PHF	.906	.417	.727	.806	.783	.865	.000	.929	.000	.000	.000	.000	.000	.906	.872	.950

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City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 03_WLD_15S_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	99	0	55	154	47	199	0	246	0	0	0	0	0	124	74	198	598
04:15 PM	104	1	43	148	54	185	0	239	0	0	0	0	0	90	61	151	538
04:30 PM	112	0	47	159	40	167	0	207	0	0	0	0	0	122	61	183	549
04:45 PM	95	1	51	147	44	175	0	219	0	0	0	0	0	116	86	202	568
Total	410	2	196	608	185	726	0	911	0	0	0	0	0	452	282	734	2253
05:00 PM	111	1	59	171	42	152	0	194	0	0	0	0	0	126	70	196	561
05:15 PM	83	0	51	134	38	164	0	202	0	0	0	0	0	127	55	182	518
05:30 PM	113	0	66	179	37	156	0	193	0	0	0	0	0	109	71	180	552
05:45 PM	110	0	54	164	28	152	0	180	0	0	0	0	0	118	59	177	521
Total	417	1	230	648	145	624	0	769	0	0	0	0	0	480	255	735	2152
Grand Total	827	3	426	1256	330	1350	0	1680	0	0	0	0	0	932	537	1469	4405
Apprch %	65.8	0.2	33.9		19.6	80.4	0		0	0	0		0	63.4	36.6		
Total %	18.8	0.1	9.7	28.5	7.5	30.6	0	38.1	0	0	0	0	0	21.2	12.2	33.3	

	I-15 Southbound Off Ramp Southbound				Bundy Canyon Road Westbound				I-15 Southbound On Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	99	0	**55**	154	47	**199**	0	**246**	0	0	0	0	0	**124**	74	198	**598**
04:15 PM	104	**1**	43	148	**54**	185	0	239	0	0	0	0	0	90	61	151	538
04:30 PM	**112**	0	47	**159**	40	167	0	207	0	0	0	0	0	122	61	183	549
04:45 PM	95	1	51	147	44	175	0	219	0	0	0	0	0	116	**86**	**202**	568
Total Volume	410	2	196	608	185	726	0	911	0	0	0	0	0	452	282	734	2253
% App. Total	67.4	0.3	32.2		20.3	79.7	0		0	0	0		0	61.6	38.4		
PHF	.915	.500	.891	.956	.856	.912	.000	.926	.000	.000	.000	.000	.000	.911	.820	.908	.942

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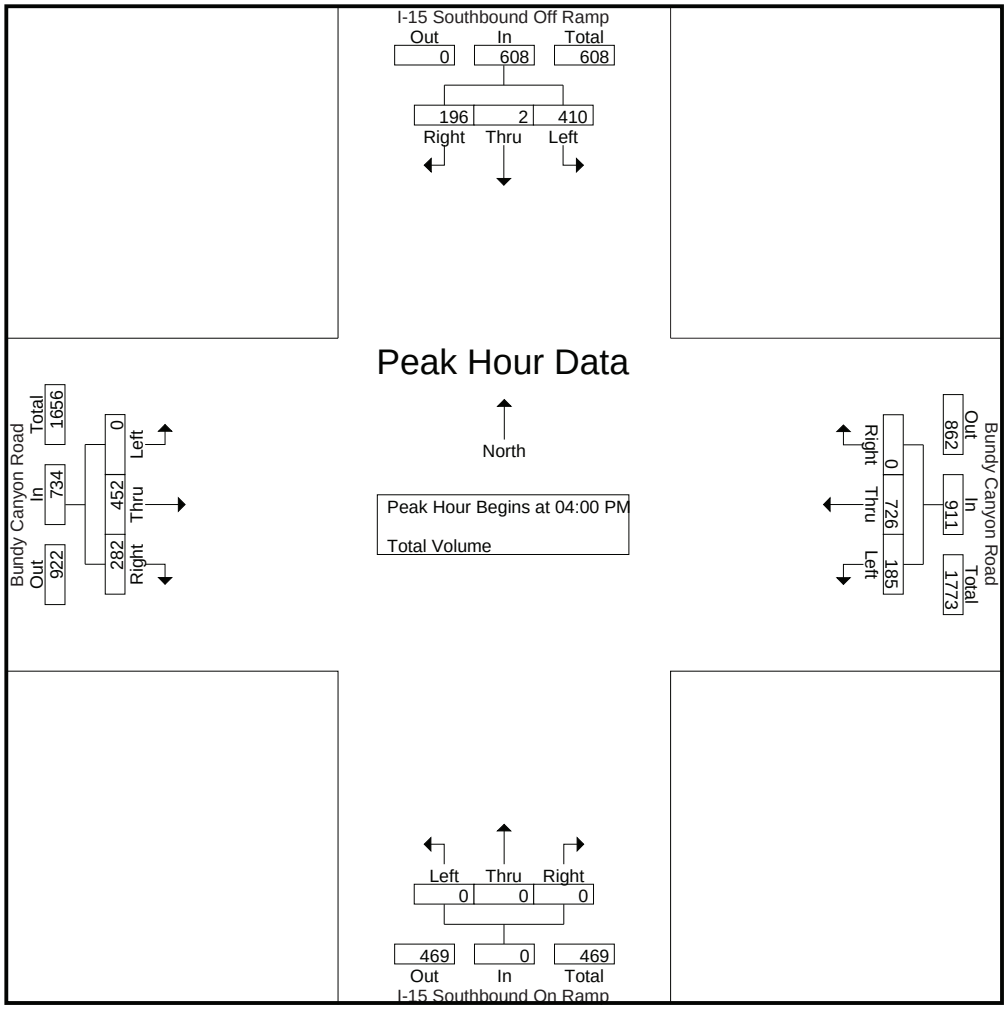
City of Wildomar
N/S: I-15 Southbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 03_WLD_15S_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:00 PM				04:00 PM				04:30 PM			
+0 mins.	111	**1**	59	171	47	**199**	0	**246**	0	0	0	0	0	122	61	183
+15 mins.	83	0	51	134	**54**	185	0	239	0	0	0	0	0	116	**86**	**202**
+30 mins.	**113**	0	**66**	**179**	40	167	0	207	0	0	0	0	0	126	70	196
+45 mins.	110	0	54	164	44	175	0	219	0	0	0	0	0	**127**	55	182
Total Volume	417	1	230	648	185	726	0	911	0	0	0	0	0	491	272	763
% App. Total	64.4	0.2	35.5		20.3	79.7	0		0	0	0		0	64.4	35.6	
PHF	.923	.250	.871	.905	.856	.912	.000	.926	.000	.000	.000	.000	.000	.967	.791	.944

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City of Wildomar
N/S: I-15 Northbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 04_WLD_15N_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	113	63	176	36	0	19	55	50	105	0	155	386
07:15 AM	0	0	0	0	0	126	100	226	49	0	25	74	43	101	0	144	444
07:30 AM	0	0	0	0	0	181	78	259	58	0	34	92	44	117	0	161	512
07:45 AM	0	0	0	0	0	135	80	215	74	0	50	124	50	137	0	187	526
Total	0	0	0	0	0	555	321	876	217	0	128	345	187	460	0	647	1868
08:00 AM	0	0	0	0	0	130	61	191	88	0	56	144	43	112	0	155	490
08:15 AM	0	0	0	0	0	122	82	204	59	0	51	110	73	136	0	209	523
08:30 AM	0	0	0	0	0	103	64	167	63	1	32	96	49	118	0	167	430
08:45 AM	0	0	0	0	0	116	59	175	63	0	40	103	36	74	0	110	388
Total	0	0	0	0	0	471	266	737	273	1	179	453	201	440	0	641	1831
Grand Total	0	0	0	0	0	1026	587	1613	490	1	307	798	388	900	0	1288	3699
Apprch %	0	0	0		0	63.6	36.4		61.4	0.1	38.5		30.1	69.9	0		
Total %	0	0	0	0	0	27.7	15.9	43.6	13.2	0	8.3	21.6	10.5	24.3	0	34.8	

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	**181**	78	**259**	58	0	34	92	44	117	0	161	512
07:45 AM	0	0	0	0	0	135	80	215	74	0	50	124	50	**137**	0	187	**526**
08:00 AM	0	0	0	0	0	130	61	191	**88**	0	**56**	**144**	43	112	0	155	490
08:15 AM	0	0	0	0	0	122	**82**	204	59	0	51	110	**73**	136	0	**209**	523
Total Volume	0	0	0	0	0	568	301	869	279	0	191	470	210	502	0	712	2051
% App. Total	0	0	0		0	65.4	34.6		59.4	0	40.6		29.5	70.5	0		
PHF	.000	.000	.000	.000	.000	.785	.918	.839	.793	.000	.853	.816	.719	.916	.000	.852	.975

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City of Wildomar
N/S: I-15 Northbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 04_WLD_15N_BC AM
Site Code : 20123414
Start Date : 5/2/2023
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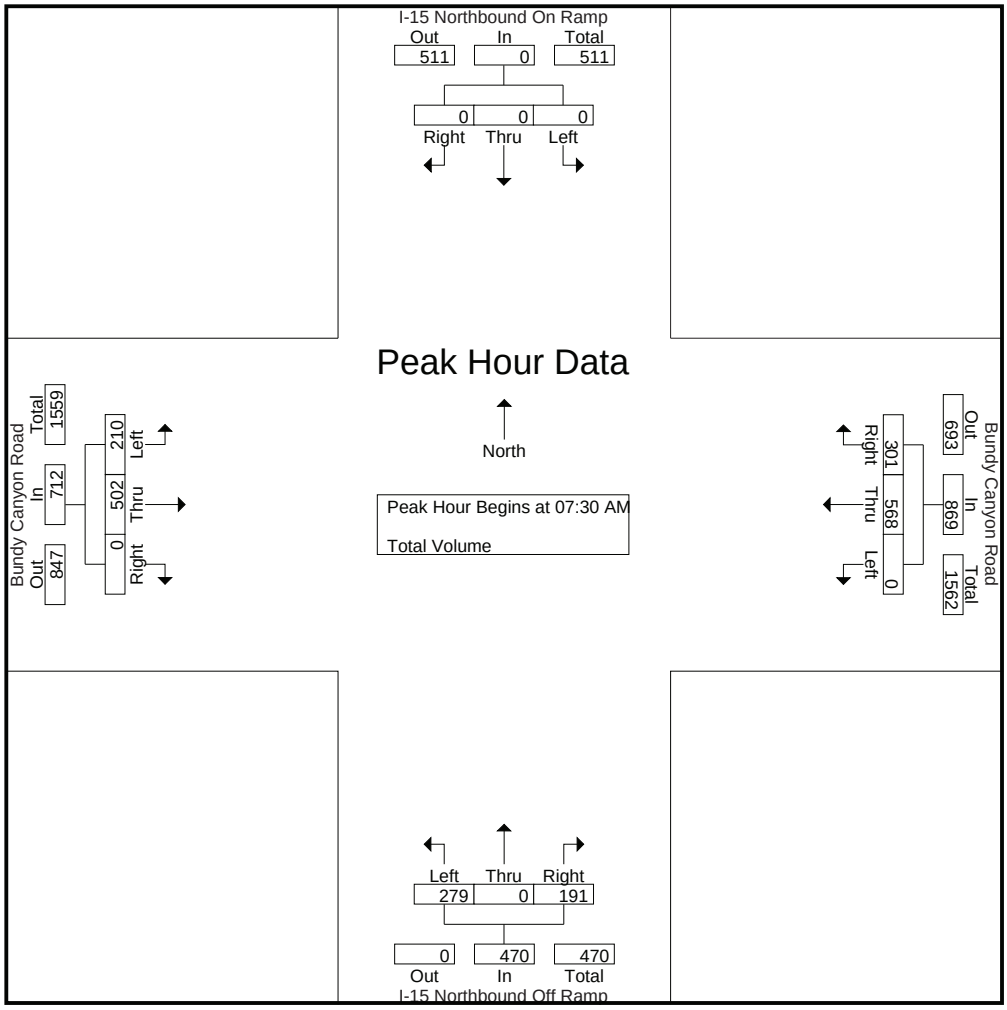

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:45 AM				07:45 AM			
+0 mins.	0	0	0	0	0	126	**100**	226	74	0	50	124	50	**137**	0	187
+15 mins.	0	0	0	0	0	**181**	78	**259**	**88**	0	**56**	**144**	43	112	0	155
+30 mins.	0	0	0	0	0	135	80	215	59	0	51	110	**73**	136	0	**209**
+45 mins.	0	0	0	0	0	130	61	191	63	**1**	32	96	49	118	0	167
Total Volume	0	0	0	0	0	572	319	891	284	1	189	474	215	503	0	718
% App. Total	0	0	0		0	64.2	35.8		59.9	0.2	39.9		29.9	70.1	0	
PHF	.000	.000	.000	.000	.000	.790	.798	.860	.807	.250	.844	.823	.736	.918	.000	.859

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City of Wildomar
N/S: I-15 Northbound Ramps
E/W: Bundy Canyon Road
Weather: Clear

File Name : 04_WLD_15N_BC PM
Site Code : 20123414
Start Date : 5/2/2023
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Groups Printed- Total Volume

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	129	58	187	106	0	88	194	30	182	0	212	593
04:15 PM	0	0	0	0	0	136	50	186	121	0	84	205	27	171	0	198	589
04:30 PM	0	0	0	0	0	107	58	165	103	2	96	201	42	199	0	241	607
04:45 PM	0	0	0	0	0	107	44	151	104	1	92	197	35	176	0	211	559
Total	0	0	0	0	0	479	210	689	434	3	360	797	134	728	0	862	2348
05:00 PM	0	0	0	0	0	87	47	134	98	0	100	198	27	192	0	219	551
05:15 PM	0	0	0	0	0	94	55	149	108	2	113	223	37	179	0	216	588
05:30 PM	0	0	0	0	0	112	45	157	85	1	99	185	26	184	0	210	552
05:45 PM	0	0	0	0	0	72	42	114	117	0	81	198	33	187	0	220	532
Total	0	0	0	0	0	365	189	554	408	3	393	804	123	742	0	865	2223
Grand Total	0	0	0	0	0	844	399	1243	842	6	753	1601	257	1470	0	1727	4571
Apprch %	0	0	0		0	67.9	32.1		52.6	0.4	47		14.9	85.1	0		
Total %	0	0	0	0	0	18.5	8.7	27.2	18.4	0.1	16.5	35	5.6	32.2	0	37.8	

	I-15 Northbound On Ramp Southbound				Bundy Canyon Road Westbound				I-15 Northbound Off Ramp Northbound				Bundy Canyon Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	129	**58**	**187**	106	0	88	194	30	182	0	212	593
04:15 PM	0	0	0	0	0	**136**	50	186	**121**	0	84	**205**	27	171	0	198	589
04:30 PM	0	0	0	0	0	107	58	165	103	**2**	**96**	201	**42**	**199**	0	**241**	**607**
04:45 PM	0	0	0	0	0	107	44	151	104	1	92	197	35	176	0	211	559
Total Volume	0	0	0	0	0	479	210	689	434	3	360	797	134	728	0	862	2348
% App. Total	0	0	0		0	69.5	30.5		54.5	0.4	45.2		15.5	84.5	0		
PHF	.000	.000	.000	.000	.000	.881	.905	.921	.897	.375	.938	.972	.798	.915	.000	.894	.967

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City of Wildomar
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E/W: Bundy Canyon Road
Weather: Clear

File Name : 04_WLD_15N_BC PM
Site Code : 20123414
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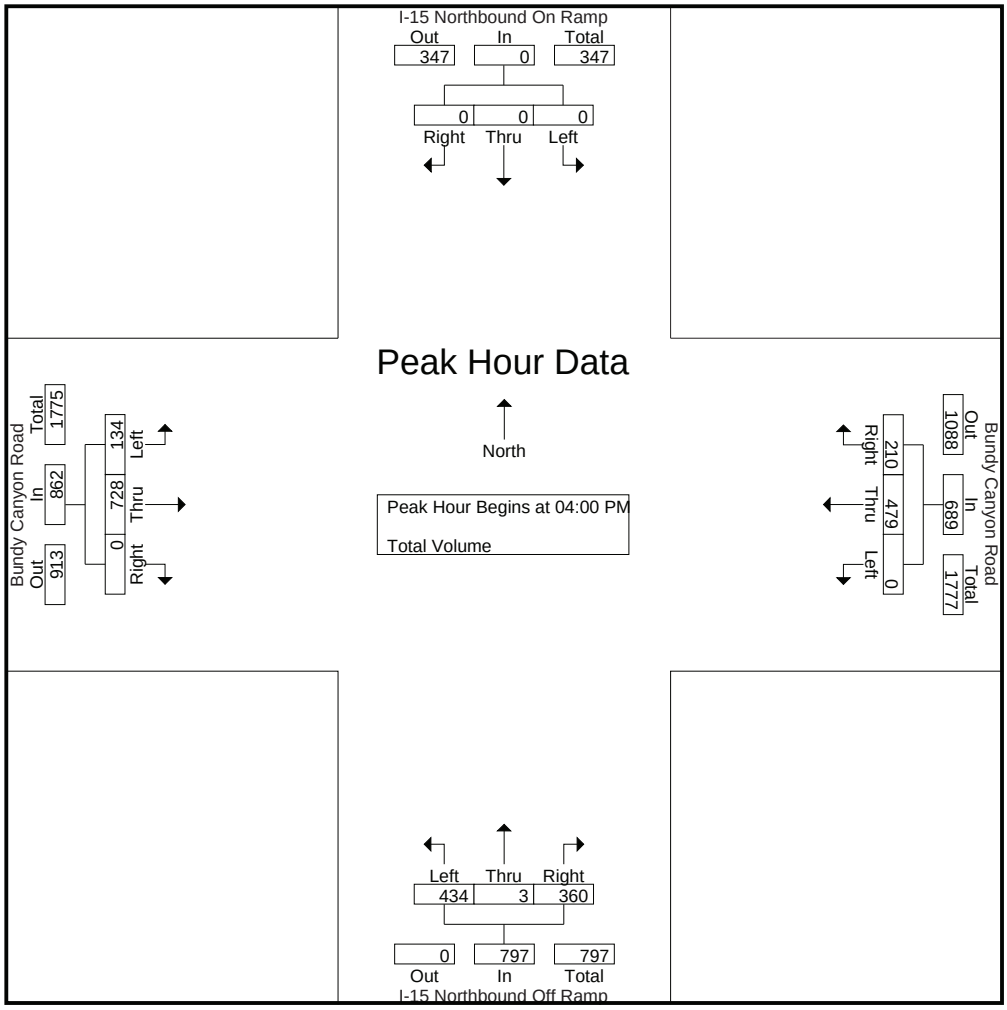

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	129	**58**	**187**	103	**2**	96	201	**42**	**199**	0	**241**
+15 mins.	0	0	0	0	0	**136**	50	186	104	1	92	197	35	176	0	211
+30 mins.	0	0	0	0	0	107	58	165	98	0	100	198	27	192	0	219
+45 mins.	0	0	0	0	0	107	44	151	**108**	2	**113**	**223**	37	179	0	216
Total Volume	0	0	0	0	0	479	210	689	413	5	401	819	141	746	0	887
% App. Total	0	0	0		0	69.5	30.5		50.4	0.6	49		15.9	84.1	0	
PHF	.000	.000	.000	.000	.000	.881	.905	.921	.956	.625	.887	.918	.839	.937	.000	.920

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City of Wildomar
N/S: Cherry Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 05_WLD_Cherry_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Cherry Street Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	12	12	174	1	175	4	122	126	313
07:15 AM	3	18	21	220	3	223	2	124	126	370
07:30 AM	4	21	25	243	2	245	6	147	153	423
07:45 AM	3	19	22	200	1	201	16	174	190	413
Total	10	70	80	837	7	844	28	567	595	1519
08:00 AM	2	9	11	187	2	189	11	160	171	371
08:15 AM	4	16	20	194	1	195	10	169	179	394
08:30 AM	4	9	13	149	1	150	6	140	146	309
08:45 AM	1	8	9	183	2	185	10	104	114	308
Total	11	42	53	713	6	719	37	573	610	1382
Grand Total	21	112	133	1550	13	1563	65	1140	1205	2901
Apprch %	15.8	84.2		99.2	0.8		5.4	94.6		
Total %	0.7	3.9	4.6	53.4	0.4	53.9	2.2	39.3	41.5	

	Cherry Street Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	**4**	**21**	**25**	**243**	**2**	**245**	6	147	153	**423**
07:45 AM	3	19	22	200	1	201	**16**	**174**	**190**	413
08:00 AM	2	9	11	187	2	189	11	160	171	371
08:15 AM	4	16	20	194	1	195	10	169	179	394
Total Volume	13	65	78	824	6	830	43	650	693	1601
% App. Total	16.7	83.3		99.3	0.7		6.2	93.8		
PHF	.813	.774	.780	.848	.750	.847	.672	.934	.912	.946

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City of Wildomar
N/S: Cherry Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 05_WLD_Cherry_BC AM
Site Code : 20123414
Start Date : 5/2/2023
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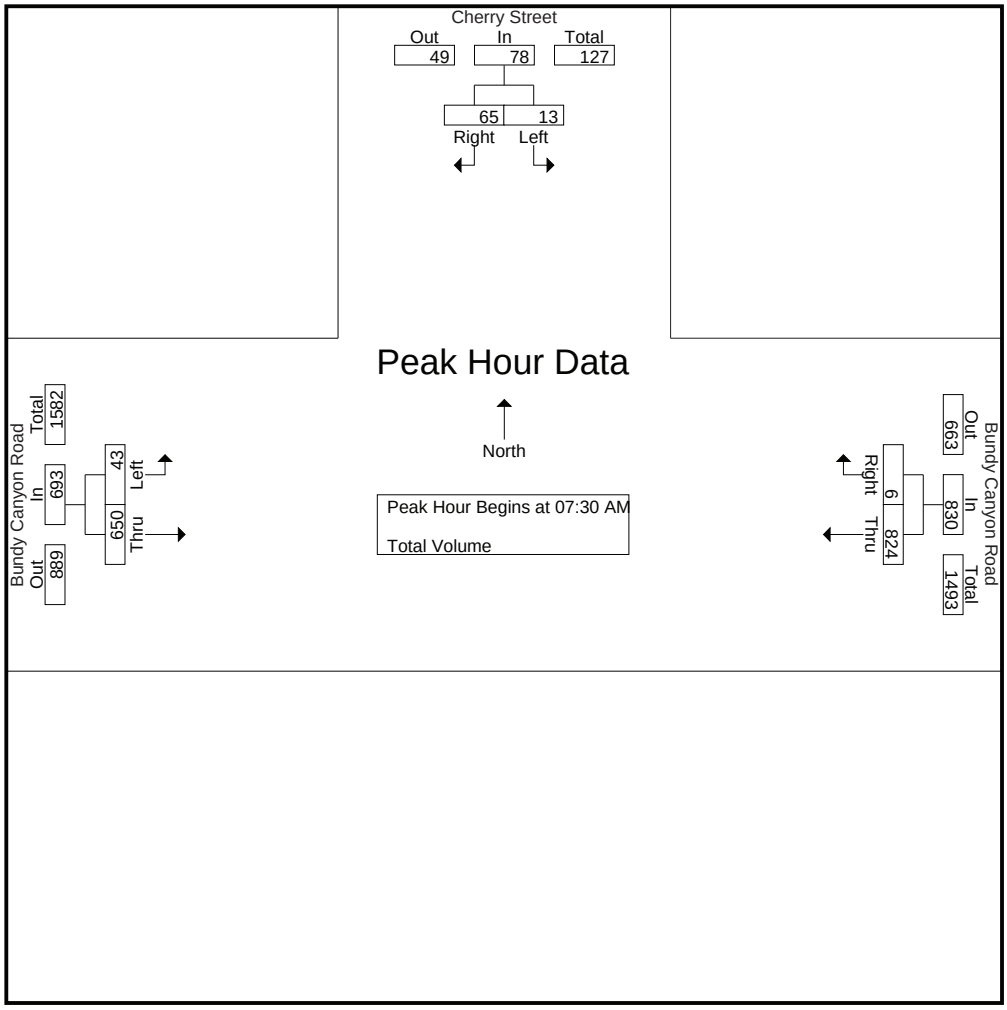

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:15 AM			07:30 AM		
+0 mins.	0	12	12	220	**3**	223	6	147	153
+15 mins.	3	18	21	**243**	2	**245**	**16**	**174**	**190**
+30 mins.	**4**	**21**	**25**	200	1	201	11	160	171
+45 mins.	3	19	22	187	2	189	10	169	179
Total Volume	10	70	80	850	8	858	43	650	693
% App. Total	12.5	87.5		99.1	0.9		6.2	93.8	
PHF	.625	.833	.800	.874	.667	.876	.672	.934	.912

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City of Wildomar
N/S: Cherry Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 05_WLD_Cherry_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Cherry Street Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	2	13	15	178	5	183	14	258	272	470
04:15 PM	2	11	13	180	9	189	13	244	257	459
04:30 PM	0	12	12	153	4	157	19	274	293	462
04:45 PM	1	11	12	145	3	148	19	247	266	426
Total	5	47	52	656	21	677	65	1023	1088	1817
05:00 PM	0	10	10	131	2	133	15	280	295	438
05:15 PM	0	13	13	155	8	163	16	275	291	467
05:30 PM	1	8	9	135	4	139	13	272	285	433
05:45 PM	2	8	10	128	4	132	11	259	270	412
Total	3	39	42	549	18	567	55	1086	1141	1750
Grand Total	8	86	94	1205	39	1244	120	2109	2229	3567
Apprch %	8.5	91.5		96.9	3.1		5.4	94.6		
Total %	0.2	2.4	2.6	33.8	1.1	34.9	3.4	59.1	62.5	

	Cherry Street Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**2**	**13**	**15**	178	5	183	14	258	272	**470**
04:15 PM	2	11	13	**180**	**9**	**189**	13	244	257	459
04:30 PM	0	12	12	153	4	157	**19**	**274**	**293**	462
04:45 PM	1	11	12	145	3	148	19	247	266	426
Total Volume	5	47	52	656	21	677	65	1023	1088	1817
% App. Total	9.6	90.4		96.9	3.1		6	94		
PHF	.625	.904	.867	.911	.583	.896	.855	.933	.928	.966

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City of Wildomar
N/S: Cherry Street
E/W: Bundy Canyon Road
Weather: Clear

File Name : 05_WLD_Cherry_BC PM
Site Code : 20123414
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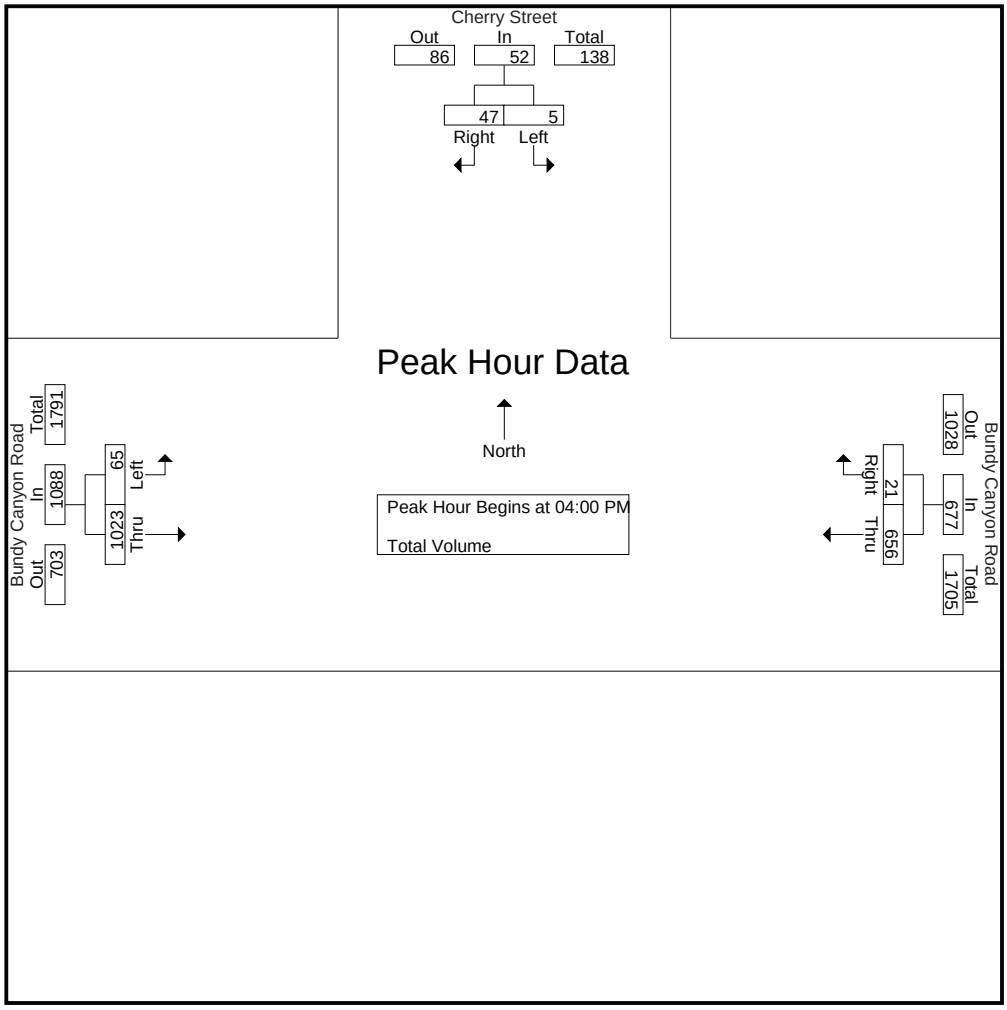

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:30 PM		
+0 mins.	**2**	**13**	**15**	178	5	183	**19**	274	293
+15 mins.	2	11	13	**180**	**9**	**189**	19	247	266
+30 mins.	0	12	12	153	4	157	15	**280**	**295**
+45 mins.	1	11	12	145	3	148	16	275	291
Total Volume	5	47	52	656	21	677	69	1076	1145
% App. Total	9.6	90.4		96.9	3.1		6	94	
PHF	.625	.904	.867	.911	.583	.896	.908	.961	.970

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City of Wildomar
N/S: Sellers Road
E/W: Bundy Canyon Road
Weather: Clear

File Name : 06_WLD_Sellers_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Sellers Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	6	18	24	139	6	145	9	109	118	287
07:15 AM	11	15	26	220	5	225	11	118	129	380
07:30 AM	11	30	41	199	2	201	8	136	144	386
07:45 AM	16	22	38	179	10	189	15	162	177	404
Total	44	85	129	737	23	760	43	525	568	1457
08:00 AM	7	25	32	160	9	169	19	144	163	364
08:15 AM	6	11	17	166	3	169	21	147	168	354
08:30 AM	4	13	17	148	0	148	18	142	160	325
08:45 AM	3	15	18	157	11	168	13	85	98	284
Total	20	64	84	631	23	654	71	518	589	1327
Grand Total	64	149	213	1368	46	1414	114	1043	1157	2784
Apprch %	30	70		96.7	3.3		9.9	90.1		
Total %	2.3	5.4	7.7	49.1	1.7	50.8	4.1	37.5	41.6	

	Sellers Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	11	15	26	**220**	5	**225**	11	118	129	380
07:30 AM	11	**30**	**41**	199	2	201	8	136	144	386
07:45 AM	**16**	22	38	179	**10**	189	15	**162**	**177**	**404**
08:00 AM	7	25	32	160	9	169	**19**	144	163	364
Total Volume	45	92	137	758	26	784	53	560	613	1534
% App. Total	32.8	67.2		96.7	3.3		8.6	91.4		
PHF	.703	.767	.835	.861	.650	.871	.697	.864	.866	.949

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City of Wildomar
N/S: Sellers Road
E/W: Bundy Canyon Road
Weather: Clear

File Name : 06_WLD_Sellers_BC AM
Site Code : 20123414
Start Date : 5/2/2023
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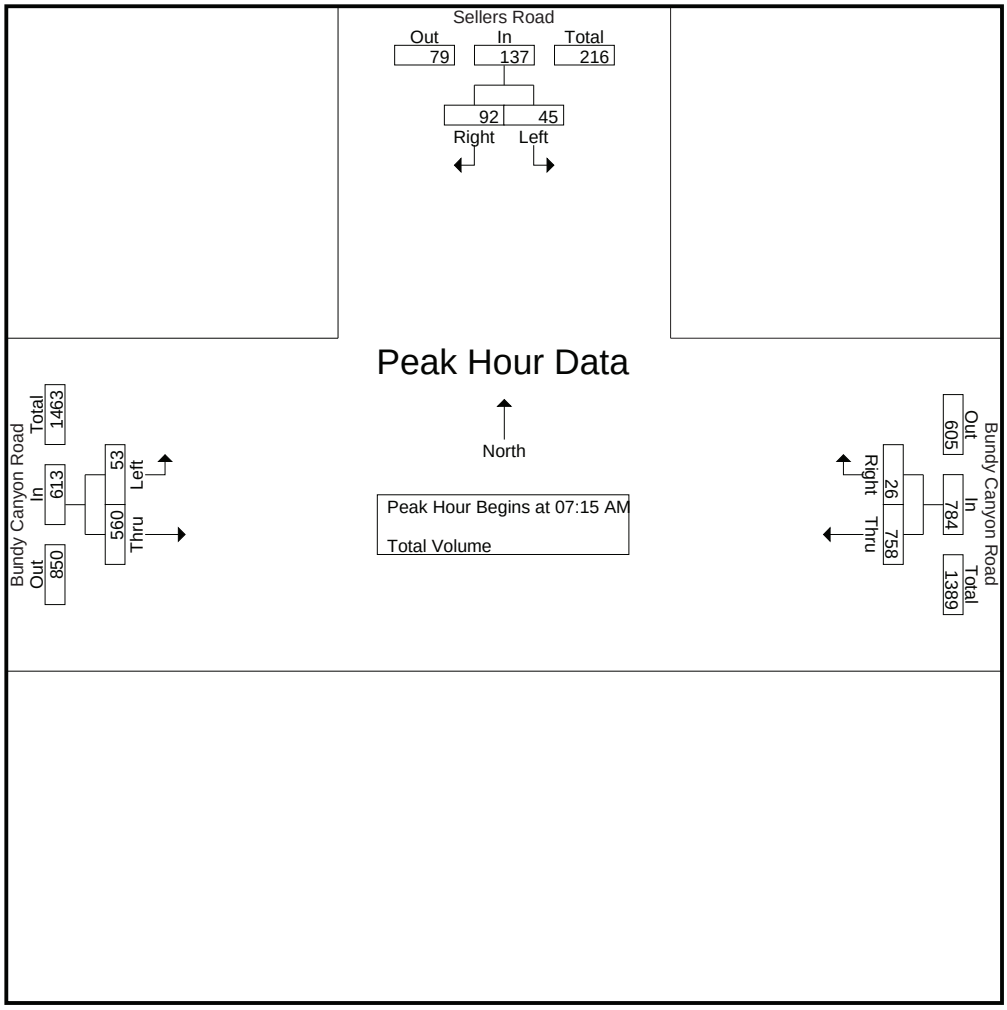

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:45 AM		
+0 mins.	11	15	26	**220**	5	**225**	15	**162**	**177**
+15 mins.	11	**30**	**41**	199	2	201	19	144	163
+30 mins.	**16**	22	38	179	**10**	189	**21**	147	168
+45 mins.	7	25	32	160	9	169	18	142	160
Total Volume	45	92	137	758	26	784	73	595	668
% App. Total	32.8	67.2		96.7	3.3		10.9	89.1	
PHF	.703	.767	.835	.861	.650	.871	.869	.918	.944

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City of Wildomar
N/S: Sellers Road
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Weather: Clear

File Name : 06_WLD_Sellers_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Sellers Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	4	15	19	145	10	155	26	207	233	407
04:15 PM	8	14	22	164	8	172	35	228	263	457
04:30 PM	12	12	24	132	15	147	29	242	271	442
04:45 PM	12	21	33	122	9	131	23	229	252	416
Total	36	62	98	563	42	605	113	906	1019	1722
05:00 PM	2	12	14	123	7	130	35	240	275	419
05:15 PM	5	21	26	144	10	154	26	249	275	455
05:30 PM	8	13	21	117	13	130	32	243	275	426
05:45 PM	1	14	15	119	15	134	23	251	274	423
Total	16	60	76	503	45	548	116	983	1099	1723
Grand Total	52	122	174	1066	87	1153	229	1889	2118	3445
Apprch %	29.9	70.1		92.5	7.5		10.8	89.2		
Total %	1.5	3.5	5.1	30.9	2.5	33.5	6.6	54.8	61.5	

	Sellers Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	8	14	22	**164**	8	**172**	**35**	228	263	**457**
04:30 PM	**12**	12	24	132	**15**	147	29	**242**	271	442
04:45 PM	12	**21**	**33**	122	9	131	23	229	252	416
05:00 PM	2	12	14	123	7	130	35	240	**275**	419
Total Volume	34	59	93	541	39	580	122	939	1061	1734
% App. Total	36.6	63.4		93.3	6.7		11.5	88.5		
PHF	.708	.702	.705	.825	.650	.843	.871	.970	.965	.949

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City of Wildomar
N/S: Sellers Road
E/W: Bundy Canyon Road
Weather: Clear

File Name : 06_WLD_Sellers_BC PM
Site Code : 20123414
Start Date : 5/2/2023
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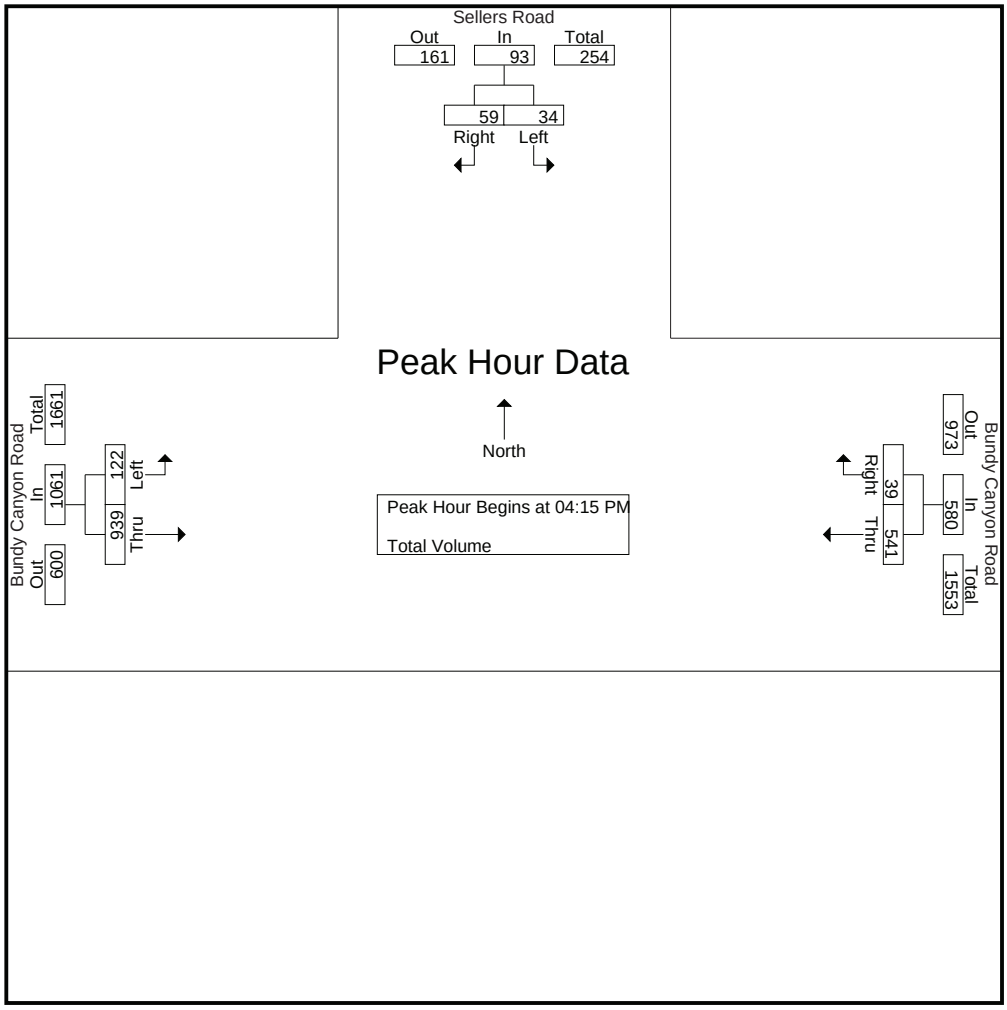

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			05:00 PM		
+0 mins.	4	15	19	145	10	155	**35**	240	**275**
+15 mins.	8	14	22	**164**	8	**172**	26	249	275
+30 mins.	**12**	12	24	132	**15**	147	32	243	275
+45 mins.	12	**21**	**33**	122	9	131	23	**251**	274
Total Volume	36	62	98	563	42	605	116	983	1099
% App. Total	36.7	63.3		93.1	6.9		10.6	89.4	
PHF	.750	.738	.742	.858	.700	.879	.829	.979	.999

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City of Wildomar
N/S: Monte Vista Drive
E/W: Bundy Canyon Road
Weather: Clear

File Name : 07_WLD_MV_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Bundy Canyon Road Westbound			Monte Vista Drive Northbound			Bundy Canyon Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	9	149	158	1	5	6	97	12	109	273
07:15 AM	35	200	235	5	7	12	118	15	133	380
07:30 AM	60	196	256	3	16	19	120	28	148	423
07:45 AM	51	171	222	12	33	45	135	41	176	443
Total	155	716	871	21	61	82	470	96	566	1519
08:00 AM	24	148	172	15	21	36	147	9	156	364
08:15 AM	17	166	183	5	16	21	141	15	156	360
08:30 AM	26	134	160	2	15	17	124	8	132	309
08:45 AM	9	155	164	7	15	22	92	8	100	286
Total	76	603	679	29	67	96	504	40	544	1319
Grand Total	231	1319	1550	50	128	178	974	136	1110	2838
Apprch %	14.9	85.1		28.1	71.9		87.7	12.3		
Total %	8.1	46.5	54.6	1.8	4.5	6.3	34.3	4.8	39.1	

	Bundy Canyon Road Westbound			Monte Vista Drive Northbound			Bundy Canyon Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	35	**200**	235	5	7	12	118	15	133	380
07:30 AM	**60**	196	**256**	3	16	19	120	28	148	423
07:45 AM	51	171	222	12	**33**	**45**	135	**41**	**176**	**443**
08:00 AM	24	148	172	**15**	21	36	**147**	9	156	364
Total Volume	170	715	885	35	77	112	520	93	613	1610
% App. Total	19.2	80.8		31.2	68.8		84.8	15.2		
PHF	.708	.894	.864	.583	.583	.622	.884	.567	.871	.909

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City of Wildomar
N/S: Monte Vista Drive
E/W: Bundy Canyon Road
Weather: Clear

File Name : 07_WLD_MV_BC AM
Site Code : 20123414
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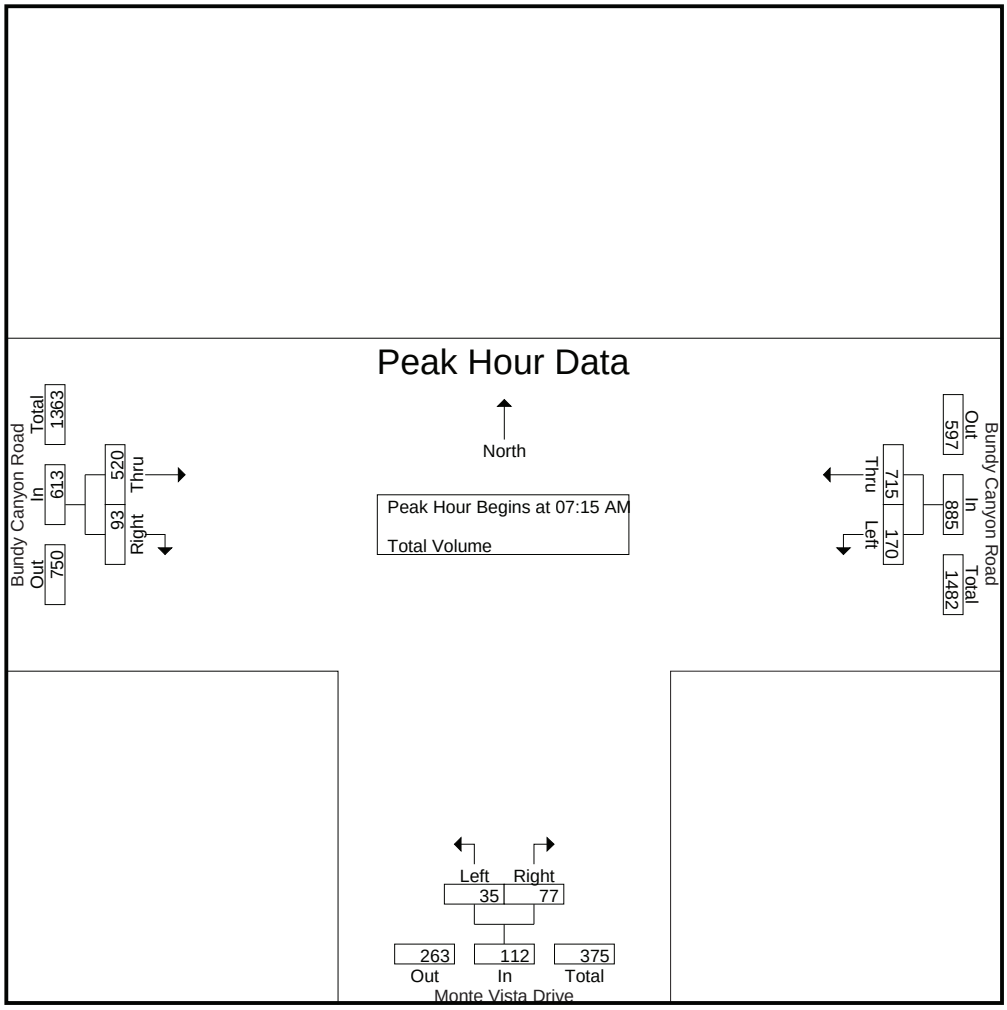

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:30 AM			07:30 AM		
+0 mins.	35	**200**	235	3	16	19	120	28	148
+15 mins.	**60**	196	**256**	12	**33**	**45**	135	**41**	**176**
+30 mins.	51	171	222	**15**	21	36	**147**	9	156
+45 mins.	24	148	172	5	16	21	141	15	156
Total Volume	170	715	885	35	86	121	543	93	636
% App. Total	19.2	80.8		28.9	71.1		85.4	14.6	
PHF	.708	.894	.864	.583	.652	.672	.923	.567	.903

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City of Wildomar
N/S: Monte Vista Drive
E/W: Bundy Canyon Road
Weather: Clear

File Name : 07_WLD_MV_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Bundy Canyon Road Westbound			Monte Vista Drive Northbound			Bundy Canyon Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	13	150	163	5	29	34	200	4	204	401
04:15 PM	11	153	164	5	16	21	226	6	232	417
04:30 PM	13	146	159	6	26	32	274	5	279	470
04:45 PM	13	138	151	3	18	21	235	9	244	416
Total	50	587	637	19	89	108	935	24	959	1704
05:00 PM	8	115	123	3	15	18	228	2	230	371
05:15 PM	7	140	147	5	19	24	267	5	272	443
05:30 PM	14	125	139	6	18	24	245	7	252	415
05:45 PM	18	123	141	7	20	27	254	9	263	431
Total	47	503	550	21	72	93	994	23	1017	1660
Grand Total	97	1090	1187	40	161	201	1929	47	1976	3364
Apprch %	8.2	91.8		19.9	80.1		97.6	2.4		
Total %	2.9	32.4	35.3	1.2	4.8	6	57.3	1.4	58.7	

	Bundy Canyon Road Westbound			Monte Vista Drive Northbound			Bundy Canyon Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**13**	150	163	5	**29**	**34**	200	4	204	401
04:15 PM	11	**153**	**164**	5	16	21	226	6	232	417
04:30 PM	13	146	159	**6**	26	32	**274**	5	**279**	**470**
04:45 PM	13	138	151	3	18	21	235	**9**	244	416
Total Volume	50	587	637	19	89	108	935	24	959	1704
% App. Total	7.8	92.2		17.6	82.4		97.5	2.5		
PHF	.962	.959	.971	.792	.767	.794	.853	.667	.859	.906

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City of Wildomar
N/S: Monte Vista Drive
E/W: Bundy Canyon Road
Weather: Clear

File Name : 07_WLD_MV_BC PM
Site Code : 20123414
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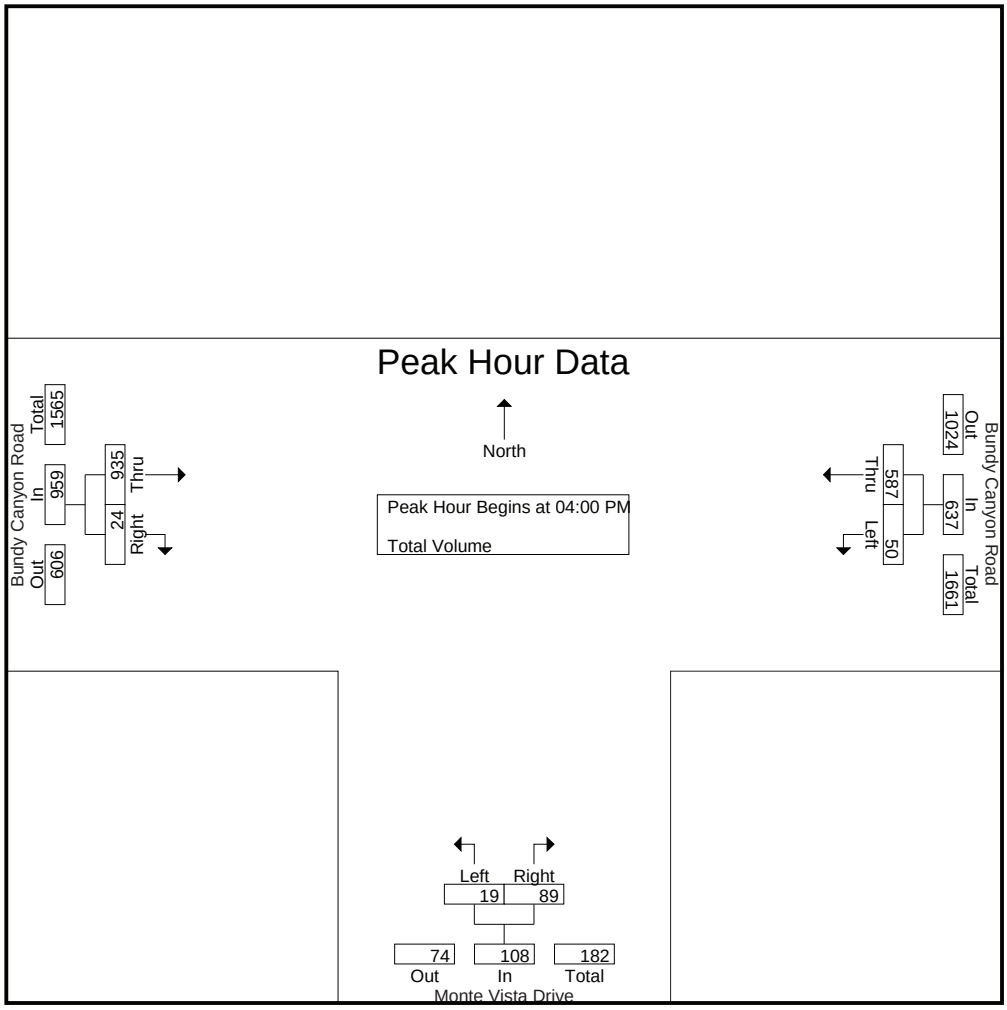

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:30 PM		
+0 mins.	**13**	150	163	5	**29**	**34**	**274**	5	**279**
+15 mins.	11	**153**	**164**	5	16	21	235	**9**	244
+30 mins.	13	146	159	**6**	26	32	228	2	230
+45 mins.	13	138	151	3	18	21	267	5	272
Total Volume	50	587	637	19	89	108	1004	21	1025
% App. Total	7.8	92.2		17.6	82.4		98	2	
PHF	.962	.959	.971	.792	.767	.794	.916	.583	.918

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City of Wildomar
N/S: Canyon Ranch Road
E/W: Bundy Canyon Road
Weather: Clear

File Name : 08_WLD_CR_BC AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Canyon Ranch Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	1	7	8	161	2	163	3	103	106	277
07:15 AM	6	20	26	219	1	220	3	119	122	368
07:30 AM	2	24	26	235	0	235	4	135	139	400
07:45 AM	1	13	14	225	2	227	11	159	170	411
Total	10	64	74	840	5	845	21	516	537	1456
08:00 AM	3	12	15	161	5	166	8	154	162	343
08:15 AM	1	1	2	191	4	195	2	149	151	348
08:30 AM	2	9	11	160	3	163	8	137	145	319
08:45 AM	3	9	12	169	6	175	6	91	97	284
Total	9	31	40	681	18	699	24	531	555	1294
Grand Total	19	95	114	1521	23	1544	45	1047	1092	2750
Apprch %	16.7	83.3		98.5	1.5		4.1	95.9		
Total %	0.7	3.5	4.1	55.3	0.8	56.1	1.6	38.1	39.7	

	Canyon Ranch Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	**6**	20	**26**	219	1	220	3	119	122	368
07:30 AM	2	**24**	26	**235**	0	**235**	4	135	139	400
07:45 AM	1	13	14	225	2	227	**11**	**159**	**170**	**411**
08:00 AM	3	12	15	161	**5**	166	8	154	162	343
Total Volume	12	69	81	840	8	848	26	567	593	1522
% App. Total	14.8	85.2		99.1	0.9		4.4	95.6		
PHF	.500	.719	.779	.894	.400	.902	.591	.892	.872	.926

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City of Wildomar
N/S: Canyon Ranch Road
E/W: Bundy Canyon Road
Weather: Clear

File Name : 08_WLD_CR_BC AM
Site Code : 20123414
Start Date : 5/2/2023
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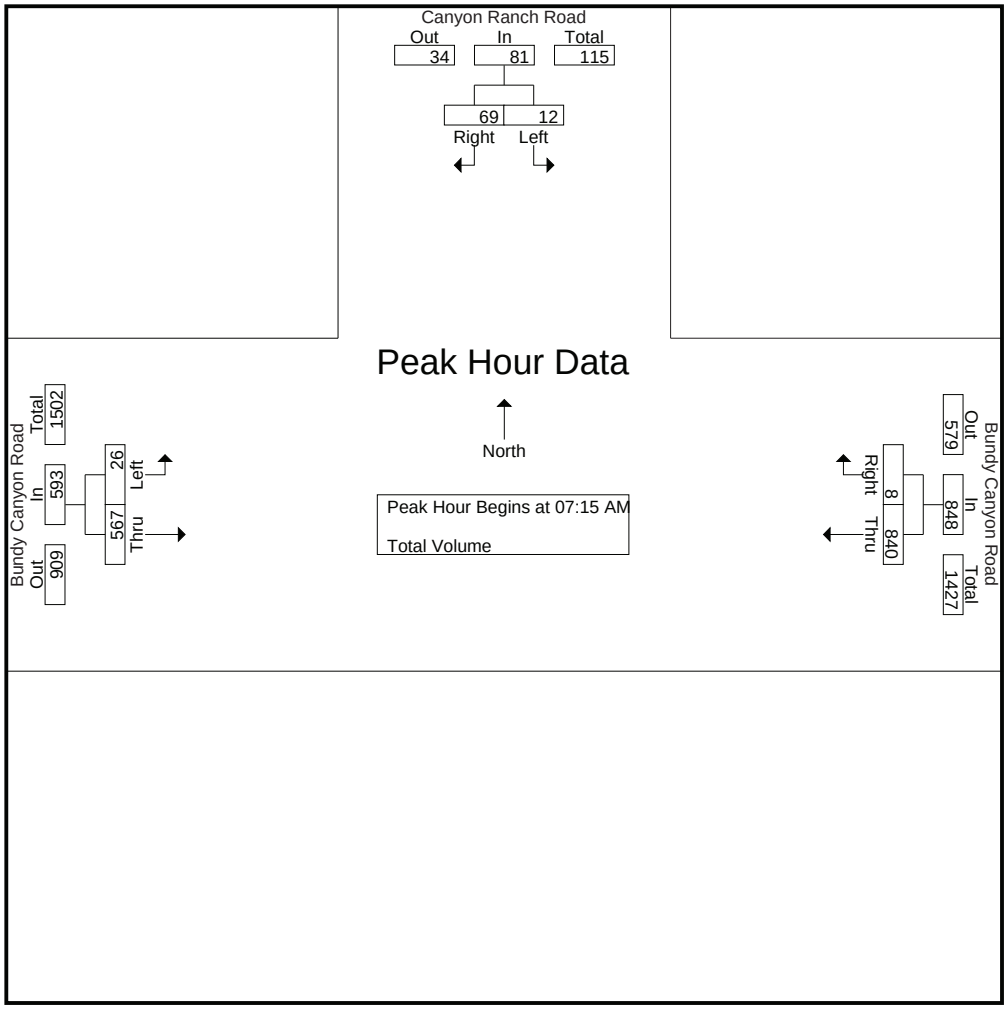

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:45 AM		
+0 mins.	**6**	20	**26**	219	1	220	**11**	**159**	**170**
+15 mins.	2	**24**	26	**235**	0	**235**	8	154	162
+30 mins.	1	13	14	225	2	227	2	149	151
+45 mins.	3	12	15	161	**5**	166	8	137	145
Total Volume	12	69	81	840	8	848	29	599	628
% App. Total	14.8	85.2		99.1	0.9		4.6	95.4	
PHF	.500	.719	.779	.894	.400	.902	.659	.942	.924

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City of Wildomar
N/S: Canyon Ranch Road
E/W: Bundy Canyon Road
Weather: Clear

File Name : 08_WLD_CR_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Canyon Ranch Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	2	5	7	172	5	177	11	221	232	416
04:15 PM	2	8	10	175	4	179	10	233	243	432
04:30 PM	4	5	9	147	5	152	16	274	290	451
04:45 PM	2	12	14	136	2	138	8	234	242	394
Total	10	30	40	630	16	646	45	962	1007	1693
05:00 PM	1	3	4	126	6	132	13	240	253	389
05:15 PM	2	4	6	160	5	165	19	271	290	461
05:30 PM	3	5	8	125	2	127	11	256	267	402
05:45 PM	6	8	14	135	5	140	8	260	268	422
Total	12	20	32	546	18	564	51	1027	1078	1674
Grand Total	22	50	72	1176	34	1210	96	1989	2085	3367
Apprch %	30.6	69.4		97.2	2.8		4.6	95.4		
Total %	0.7	1.5	2.1	34.9	1	35.9	2.9	59.1	61.9	

	Canyon Ranch Road Southbound			Bundy Canyon Road Westbound			Bundy Canyon Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	**4**	5	9	147	5	152	16	**274**	**290**	451
04:45 PM	2	**12**	**14**	136	2	138	8	234	242	394
05:00 PM	1	3	4	126	**6**	132	13	240	253	389
05:15 PM	2	4	6	**160**	5	**165**	**19**	271	290	**461**
Total Volume	9	24	33	569	18	587	56	1019	1075	1695
% App. Total	27.3	72.7		96.9	3.1		5.2	94.8		
PHF	.563	.500	.589	.889	.750	.889	.737	.930	.927	.919

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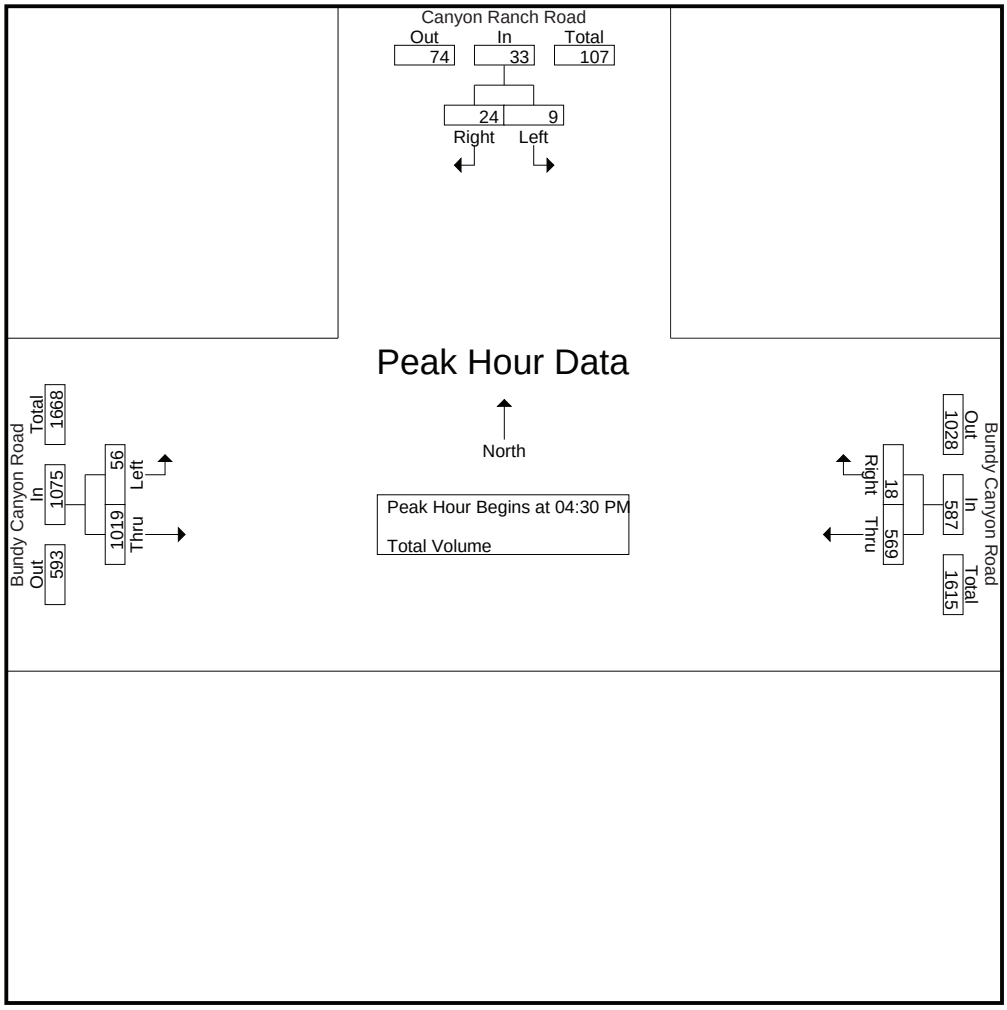
City of Wildomar
N/S: Canyon Ranch Road
E/W: Bundy Canyon Road
Weather: Clear

File Name : 08_WLD_CR_BC PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			05:00 PM		
+0 mins.	2	5	7	172	**5**	177	13	240	253
+15 mins.	2	8	10	**175**	4	**179**	**19**	**271**	**290**
+30 mins.	**4**	5	9	147	5	152	11	256	267
+45 mins.	2	**12**	**14**	136	2	138	8	260	268
Total Volume	10	30	40	630	16	646	51	1027	1078
% App. Total	25	75		97.5	2.5		4.7	95.3	
PHF	.625	.625	.714	.900	.800	.902	.671	.947	.929

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City of Wildomar
N/S: Orange Street
E/W: Canyon Drive
Weather: Clear

File Name : 09_WLD_Orn_Cyn AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Orange Street Southbound				Canyon Drive Westbound				Orange Street Northbound				Canyon Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	15	39	55	0	2	5	7	5	30	1	36	30	2	1	33	131
07:15 AM	0	15	53	68	1	0	8	9	10	23	0	33	35	1	5	41	151
07:30 AM	1	35	27	63	0	1	8	9	10	34	1	45	35	1	8	44	161
07:45 AM	1	25	39	65	1	1	9	11	30	47	0	77	33	1	13	47	200
Total	3	90	158	251	2	4	30	36	55	134	2	191	133	5	27	165	643
08:00 AM	6	27	78	111	0	2	11	13	41	45	2	88	41	0	20	61	273
08:15 AM	1	22	92	115	0	3	7	10	60	42	1	103	68	1	26	95	323
08:30 AM	1	27	44	72	1	3	8	12	21	36	1	58	56	0	15	71	213
08:45 AM	4	26	14	44	0	0	6	6	4	27	1	32	17	2	4	23	105
Total	12	102	228	342	1	8	32	41	126	150	5	281	182	3	65	250	914
Grand Total	15	192	386	593	3	12	62	77	181	284	7	472	315	8	92	415	1557
Apprch %	2.5	32.4	65.1		3.9	15.6	80.5		38.3	60.2	1.5		75.9	1.9	22.2		
Total %	1	12.3	24.8	38.1	0.2	0.8	4	4.9	11.6	18.2	0.4	30.3	20.2	0.5	5.9	26.7	

	Orange Street Southbound				Canyon Drive Westbound				Orange Street Northbound				Canyon Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	1	25	39	65	**1**	1	9	11	30	**47**	0	77	33	**1**	13	47	200
08:00 AM	**6**	**27**	78	111	0	2	**11**	**13**	41	45	**2**	88	41	0	20	61	273
08:15 AM	1	22	**92**	**115**	0	**3**	7	10	**60**	42	1	**103**	**68**	1	**26**	**95**	**323**
08:30 AM	1	27	44	72	1	3	8	12	21	36	1	58	56	0	15	71	213
Total Volume	9	101	253	363	2	9	35	46	152	170	4	326	198	2	74	274	1009
% App. Total	2.5	27.8	69.7		4.3	19.6	76.1		46.6	52.1	1.2		72.3	0.7	27		
PHF	.375	.935	.688	.789	.500	.750	.795	.885	.633	.904	.500	.791	.728	.500	.712	.721	.781

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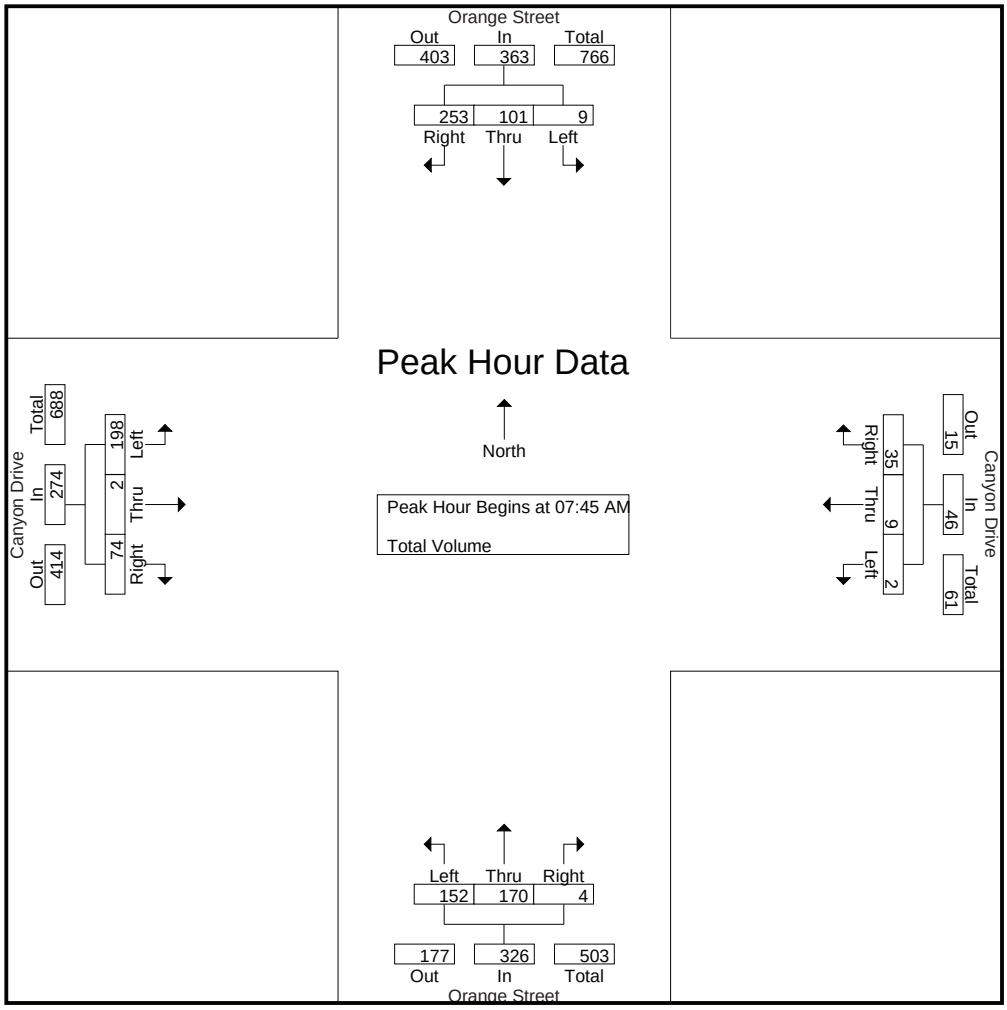
City of Wildomar
N/S: Orange Street
E/W: Canyon Drive
Weather: Clear

File Name : 09_WLD_Orn_Cyn AM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	1	25	39	65	**1**	1	9	11	30	**47**	0	77	33	**1**	13	47
+15 mins.	**6**	**27**	78	111	0	2	**11**	**13**	41	45	**2**	88	41	0	20	61
+30 mins.	1	22	**92**	**115**	0	**3**	7	10	**60**	42	1	**103**	**68**	1	**26**	**95**
+45 mins.	1	27	44	72	1	3	8	12	21	36	1	58	56	0	15	71
Total Volume	9	101	253	363	2	9	35	46	152	170	4	326	198	2	74	274
% App. Total	2.5	27.8	69.7		4.3	19.6	76.1		46.6	52.1	1.2		72.3	0.7	27	
PHF	.375	.935	.688	.789	.500	.750	.795	.885	.633	.904	.500	.791	.728	.500	.712	.721

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City of Wildomar
N/S: Orange Street
E/W: Canyon Drive
Weather: Clear

File Name : 09_WLD_Orn_Cyn PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 1

Groups Printed- Total Volume

	Orange Street Southbound				Canyon Drive Westbound				Orange Street Northbound				Canyon Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	12	44	12	68	0	1	2	3	3	28	1	32	24	1	6	31	134
04:15 PM	5	48	15	68	1	1	3	5	1	34	0	35	11	1	5	17	125
04:30 PM	5	41	16	62	0	2	8	10	4	37	1	42	13	4	4	21	135
04:45 PM	8	28	19	55	0	0	5	5	3	55	0	58	25	1	2	28	146
Total	30	161	62	253	1	4	18	23	11	154	2	167	73	7	17	97	540
05:00 PM	7	34	15	56	0	2	5	7	4	34	0	38	10	2	5	17	118
05:15 PM	6	32	11	49	1	2	9	12	0	48	1	49	12	5	2	19	129
05:30 PM	11	40	19	70	0	0	6	6	6	25	0	31	10	1	1	12	119
05:45 PM	7	27	32	66	0	0	7	7	6	30	1	37	11	3	4	18	128
Total	31	133	77	241	1	4	27	32	16	137	2	155	43	11	12	66	494
Grand Total	61	294	139	494	2	8	45	55	27	291	4	322	116	18	29	163	1034
Apprch %	12.3	59.5	28.1		3.6	14.5	81.8		8.4	90.4	1.2		71.2	11	17.8		
Total %	5.9	28.4	13.4	47.8	0.2	0.8	4.4	5.3	2.6	28.1	0.4	31.1	11.2	1.7	2.8	15.8	

	Orange Street Southbound				Canyon Drive Westbound				Orange Street Northbound				Canyon Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**12**	44	12	**68**	0	1	2	3	3	28	**1**	32	24	1	**6**	**31**	134
04:15 PM	5	**48**	15	68	**1**	1	3	5	1	34	0	35	11	1	5	17	125
04:30 PM	5	41	16	62	0	**2**	**8**	**10**	**4**	37	1	42	13	**4**	4	21	135
04:45 PM	8	28	**19**	55	0	0	5	5	3	**55**	0	**58**	**25**	1	2	28	**146**
Total Volume	30	161	62	253	1	4	18	23	11	154	2	167	73	7	17	97	540
% App. Total	11.9	63.6	24.5		4.3	17.4	78.3		6.6	92.2	1.2		75.3	7.2	17.5		
PHF	.625	.839	.816	.930	.250	.500	.563	.575	.688	.700	.500	.720	.730	.438	.708	.782	.925

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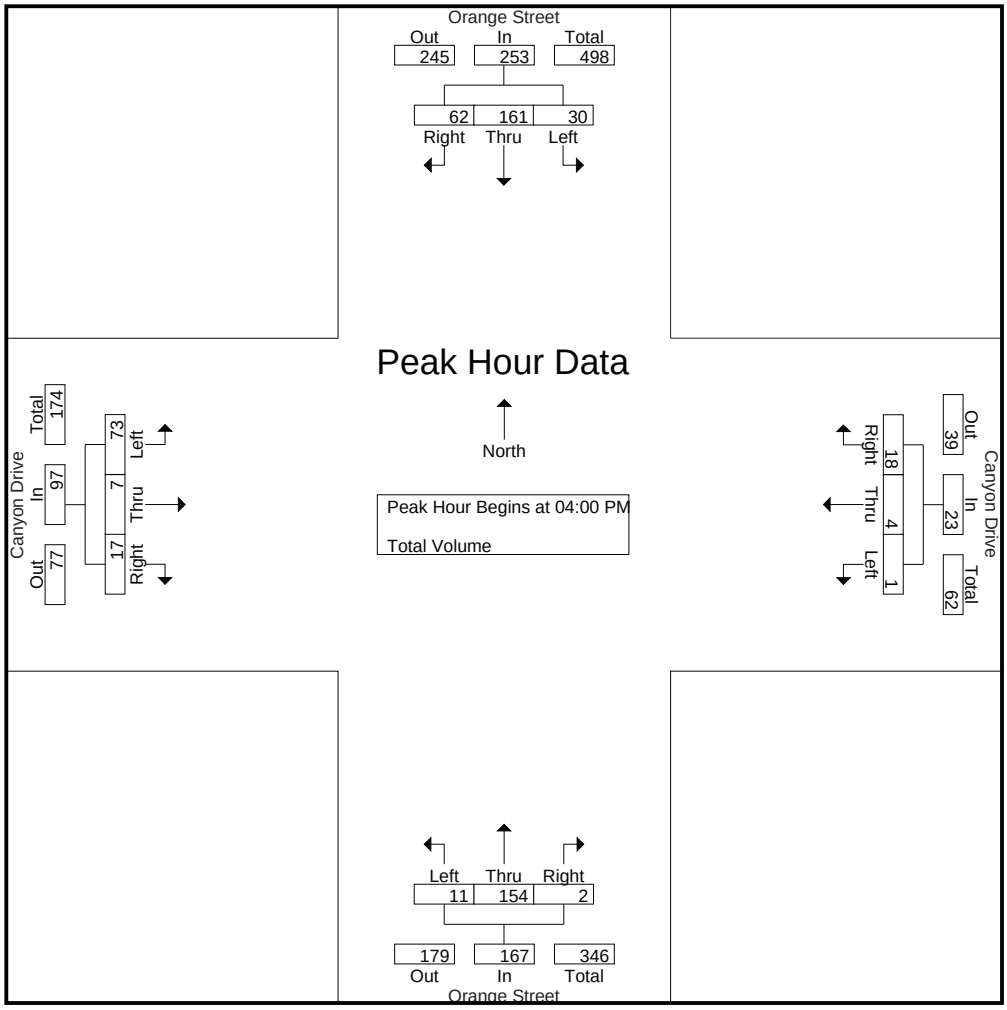
City of Wildomar
N/S: Orange Street
E/W: Canyon Drive
Weather: Clear

File Name : 09_WLD_Orn_Cyn PM
Site Code : 20123414
Start Date : 5/2/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:30 PM				04:30 PM				04:00 PM			
+0 mins.	**12**	44	12	**68**	0	**2**	8	10	**4**	37	**1**	42	24	1	**6**	**31**
+15 mins.	5	**48**	15	68	0	0	5	5	3	**55**	0	**58**	11	1	5	17
+30 mins.	5	41	16	62	0	2	5	7	4	34	0	38	13	**4**	4	21
+45 mins.	8	28	**19**	55	**1**	2	**9**	**12**	0	48	1	49	**25**	1	2	28
Total Volume	30	161	62	253	1	6	27	34	11	174	2	187	73	7	17	97
% App. Total	11.9	63.6	24.5		2.9	17.6	79.4		5.9	93	1.1		75.3	7.2	17.5	
PHF	.625	.839	.816	.930	.250	.750	.750	.708	.688	.791	.500	.806	.730	.438	.708	.782

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City of Wildomar
N/S: Cherry Street
E/W: Waite Street
Weather: Clear

File Name : 04_WDM_Cherry_Waite AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Cherry Street Southbound				Waite Street Westbound				Cherry Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	1	0	1	4	9	0	13	0	0	1	1	0	5	7	12	27
07:15 AM	0	0	0	0	7	14	0	21	3	0	1	4	0	12	12	24	49
07:30 AM	1	2	0	3	3	17	0	20	4	0	0	4	0	20	11	31	58
07:45 AM	3	2	1	6	9	19	1	29	4	3	1	8	0	20	7	27	70
Total	4	5	1	10	23	59	1	83	11	3	3	17	0	57	37	94	204
08:00 AM	0	0	1	1	6	29	2	37	2	0	2	4	1	22	12	35	77
08:15 AM	0	0	1	1	6	23	0	29	5	0	0	5	0	15	9	24	59
08:30 AM	1	1	0	2	6	14	0	20	6	0	1	7	0	16	11	27	56
08:45 AM	0	1	0	1	6	17	0	23	5	0	1	6	1	11	8	20	50
Total	1	2	2	5	24	83	2	109	18	0	4	22	2	64	40	106	242
Grand Total	5	7	3	15	47	142	3	192	29	3	7	39	2	121	77	200	446
Apprch %	33.3	46.7	20		24.5	74	1.6		74.4	7.7	17.9		1	60.5	38.5		
Total %	1.1	1.6	0.7	3.4	10.5	31.8	0.7	43	6.5	0.7	1.6	8.7	0.4	27.1	17.3	44.8	

	Cherry Street Southbound				Waite Street Westbound				Cherry Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	**2**	0	3	3	17	0	20	4	0	0	4	0	20	11	31	58
07:45 AM	**3**	2	**1**	**6**	**9**	19	1	29	4	**3**	1	**8**	0	20	7	27	70
08:00 AM	0	0	1	1	6	**29**	**2**	**37**	2	0	**2**	4	**1**	**22**	**12**	**35**	**77**
08:15 AM	0	0	1	1	6	23	0	29	**5**	0	0	5	0	15	9	24	59
Total Volume	4	4	3	11	24	88	3	115	15	3	3	21	1	77	39	117	264
% App. Total	36.4	36.4	27.3		20.9	76.5	2.6		71.4	14.3	14.3		0.9	65.8	33.3		
PHF	.333	.500	.750	.458	.667	.759	.375	.777	.750	.250	.375	.656	.250	.875	.813	.836	.857

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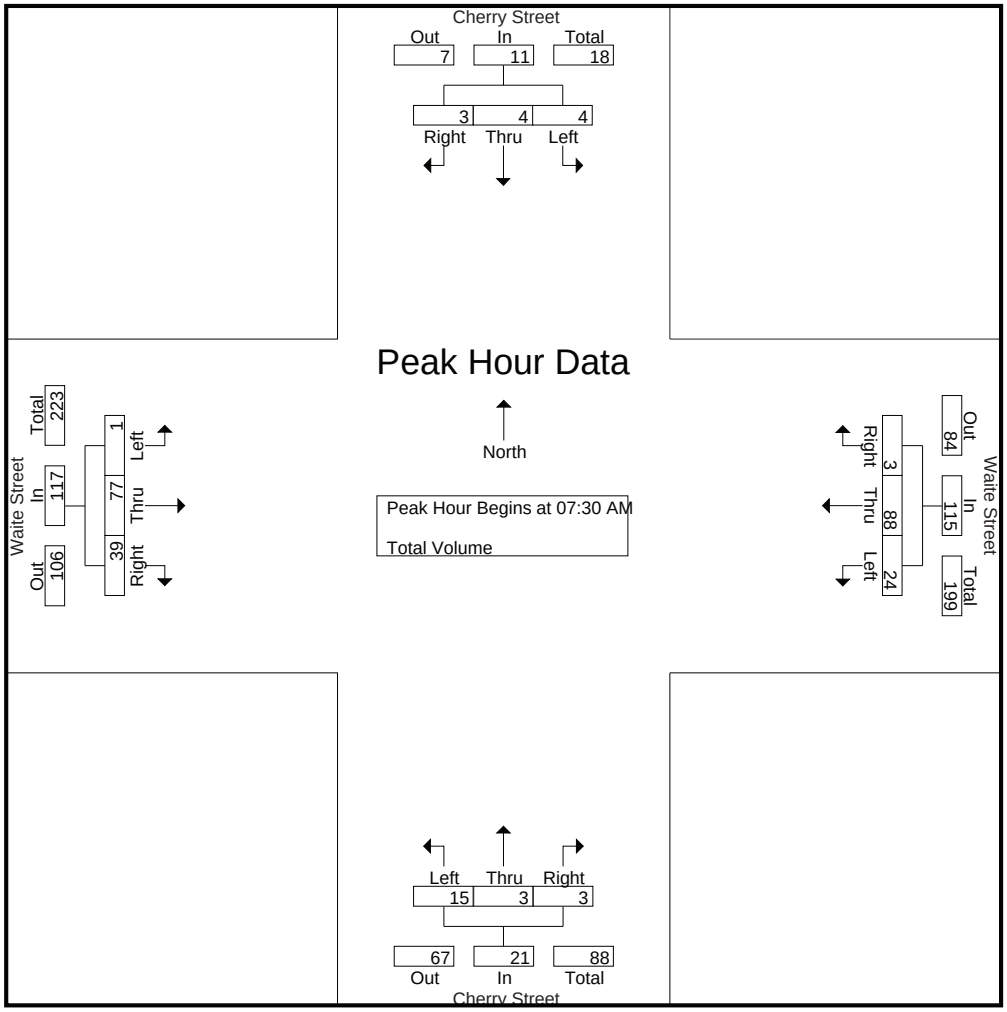
City of Wildomar
N/S: Cherry Street
E/W: Waite Street
Weather: Clear

File Name : 04_WDM_Cherry_Waite AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:45 AM				07:15 AM			
+0 mins.	1	**2**	0	3	3	17	0	20	4	**3**	1	**8**	0	12	**12**	24
+15 mins.	**3**	2	**1**	**6**	**9**	19	1	29	2	0	**2**	4	0	20	11	31
+30 mins.	0	0	1	1	6	**29**	**2**	**37**	5	0	0	5	0	20	7	27
+45 mins.	0	0	1	1	6	23	0	29	**6**	0	1	7	**1**	**22**	12	**35**
Total Volume	4	4	3	11	24	88	3	115	17	3	4	24	1	74	42	117
% App. Total	36.4	36.4	27.3		20.9	76.5	2.6		70.8	12.5	16.7		0.9	63.2	35.9	
PHF	.333	.500	.750	.458	.667	.759	.375	.777	.708	.250	.500	.750	.250	.841	.875	.836

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City of Wildomar
N/S: Cherry Street
E/W: Waite Street
Weather: Clear

File Name : 04_WDM_Cherry_Waite PM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Cherry Street Southbound				Waite Street Westbound				Cherry Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	4	10	0	14	17	0	5	22	0	14	8	22	58
04:15 PM	0	2	1	3	3	8	0	11	20	0	3	23	1	14	6	21	58
04:30 PM	0	2	0	2	0	7	0	7	24	2	4	30	1	9	4	14	53
04:45 PM	0	1	0	1	5	9	0	14	23	1	3	27	1	9	12	22	64
Total	0	5	1	6	12	34	0	46	84	3	15	102	3	46	30	79	233
05:00 PM	0	2	0	2	2	9	0	11	12	3	6	21	0	15	7	22	56
05:15 PM	0	0	0	0	6	12	0	18	23	1	10	34	0	13	8	21	73
05:30 PM	0	0	1	1	2	15	0	17	29	0	6	35	0	4	6	10	63
05:45 PM	0	0	0	0	1	10	0	11	22	0	8	30	0	11	8	19	60
Total	0	2	1	3	11	46	0	57	86	4	30	120	0	43	29	72	252
Grand Total	0	7	2	9	23	80	0	103	170	7	45	222	3	89	59	151	485
Apprch %	0	77.8	22.2		22.3	77.7	0		76.6	3.2	20.3		2	58.9	39.1		
Total %	0	1.4	0.4	1.9	4.7	16.5	0	21.2	35.1	1.4	9.3	45.8	0.6	18.4	12.2	31.1	

	Cherry Street Southbound				Waite Street Westbound				Cherry Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	1	0	1	5	9	0	14	23	1	3	27	**1**	9	**12**	**22**	64
05:00 PM	0	**2**	0	**2**	2	9	0	11	12	**3**	6	21	0	**15**	7	22	56
05:15 PM	0	0	0	0	**6**	12	0	**18**	23	1	**10**	34	0	13	8	21	**73**
05:30 PM	0	0	**1**	1	2	**15**	0	17	**29**	0	6	**35**	0	4	6	10	63
Total Volume	0	3	1	4	15	45	0	60	87	5	25	117	1	41	33	75	256
% App. Total	0	75	25		25	75	0		74.4	4.3	21.4		1.3	54.7	44		
PHF	.000	.375	.250	.500	.625	.750	.000	.833	.750	.417	.625	.836	.250	.683	.688	.852	.877

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City of Wildomar
N/S: Cherry Street
E/W: Waite Street
Weather: Clear

File Name : 04_WDM_Cherry_Waite PM
Site Code : 20124388
Start Date : 4/23/2024
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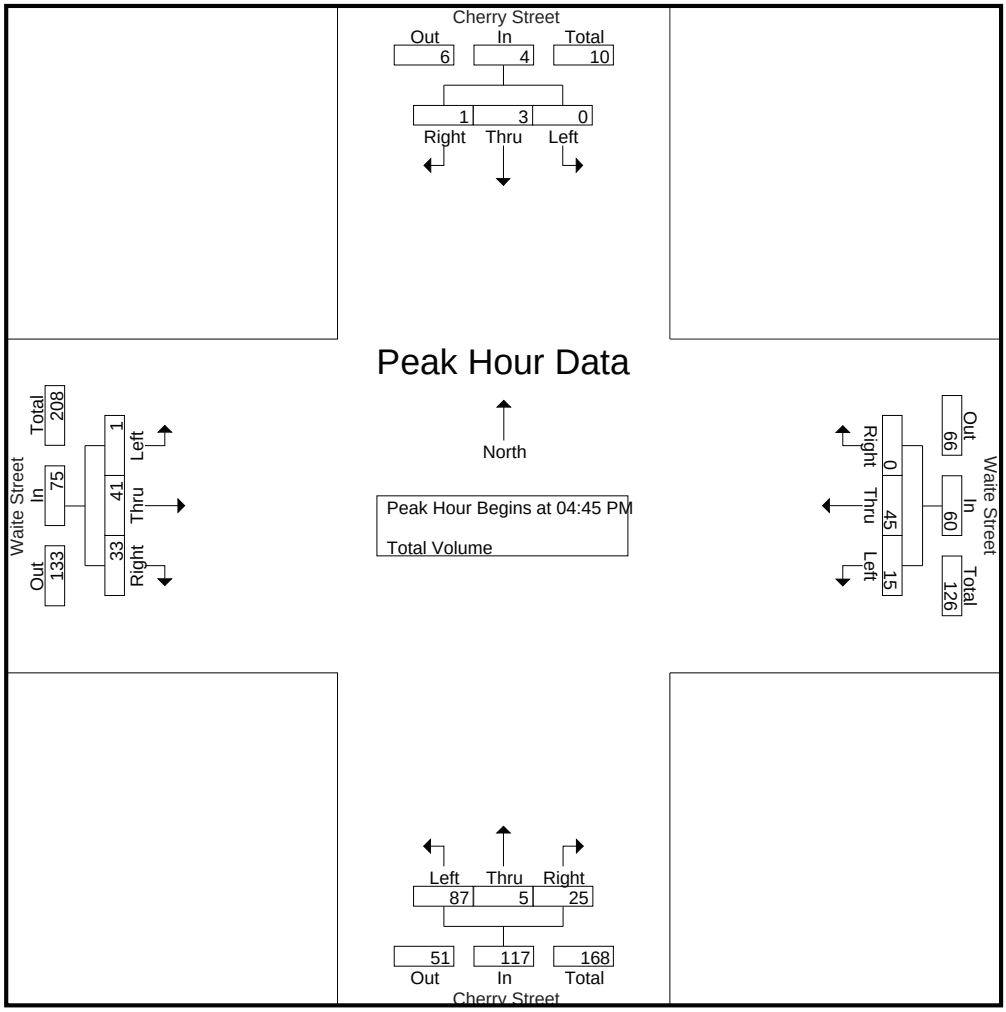

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:45 PM				05:00 PM				04:00 PM			
+0 mins.	0	**2**	**1**	**3**	5	9	0	14	12	**3**	6	21	0	**14**	8	**22**
+15 mins.	0	2	0	2	2	9	0	11	23	1	**10**	34	**1**	14	6	21
+30 mins.	0	1	0	1	**6**	12	0	**18**	**29**	0	6	**35**	1	9	4	14
+45 mins.	0	2	0	2	2	**15**	0	17	22	0	8	30	1	9	**12**	22
Total Volume	0	7	1	8	15	45	0	60	86	4	30	120	3	46	30	79
% App. Total	0	87.5	12.5		25	75	0		71.7	3.3	25		3.8	58.2	38	
PHF	.000	.875	.250	.667	.625	.750	.000	.833	.741	.333	.750	.857	.750	.821	.625	.898

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City of Wildomar
N/S: Sellers Road
E/W: Waite Street
Weather: Clear

File Name : 05_WDM_Sel_Waite AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Sellers Road Southbound			Sellers Road Northbound			Waite Street Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
07:00 AM	4	2	6	4	1	5	1	4	5	16
07:15 AM	6	3	9	10	0	10	2	13	15	34
07:30 AM	6	6	12	8	3	11	4	20	24	47
07:45 AM	11	3	14	19	1	20	3	20	23	57
Total	27	14	41	41	5	46	10	57	67	154
08:00 AM	7	6	13	24	3	27	6	15	21	61
08:15 AM	5	3	8	19	3	22	6	7	13	43
08:30 AM	6	1	7	14	4	18	5	13	18	43
08:45 AM	6	7	13	14	2	16	2	9	11	40
Total	24	17	41	71	12	83	19	44	63	187
Grand Total	51	31	82	112	17	129	29	101	130	341
Apprch %	62.2	37.8		86.8	13.2		22.3	77.7		
Total %	15	9.1	24	32.8	5	37.8	8.5	29.6	38.1	

	Sellers Road Southbound			Sellers Road Northbound			Waite Street Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	6	**6**	12	8	**3**	11	4	**20**	**24**	47
07:45 AM	**11**	3	**14**	19	1	20	3	20	23	57
08:00 AM	7	6	13	**24**	3	**27**	**6**	15	21	**61**
08:15 AM	5	3	8	19	3	22	6	7	13	43
Total Volume	29	18	47	70	10	80	19	62	81	208
% App. Total	61.7	38.3		87.5	12.5		23.5	76.5		
PHF	.659	.750	.839	.729	.833	.741	.792	.775	.844	.852

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City of Wildomar
N/S: Sellers Road
E/W: Waite Street
Weather: Clear

File Name : 05_WDM_Sel_Waite AM
Site Code : 20124388
Start Date : 4/23/2024
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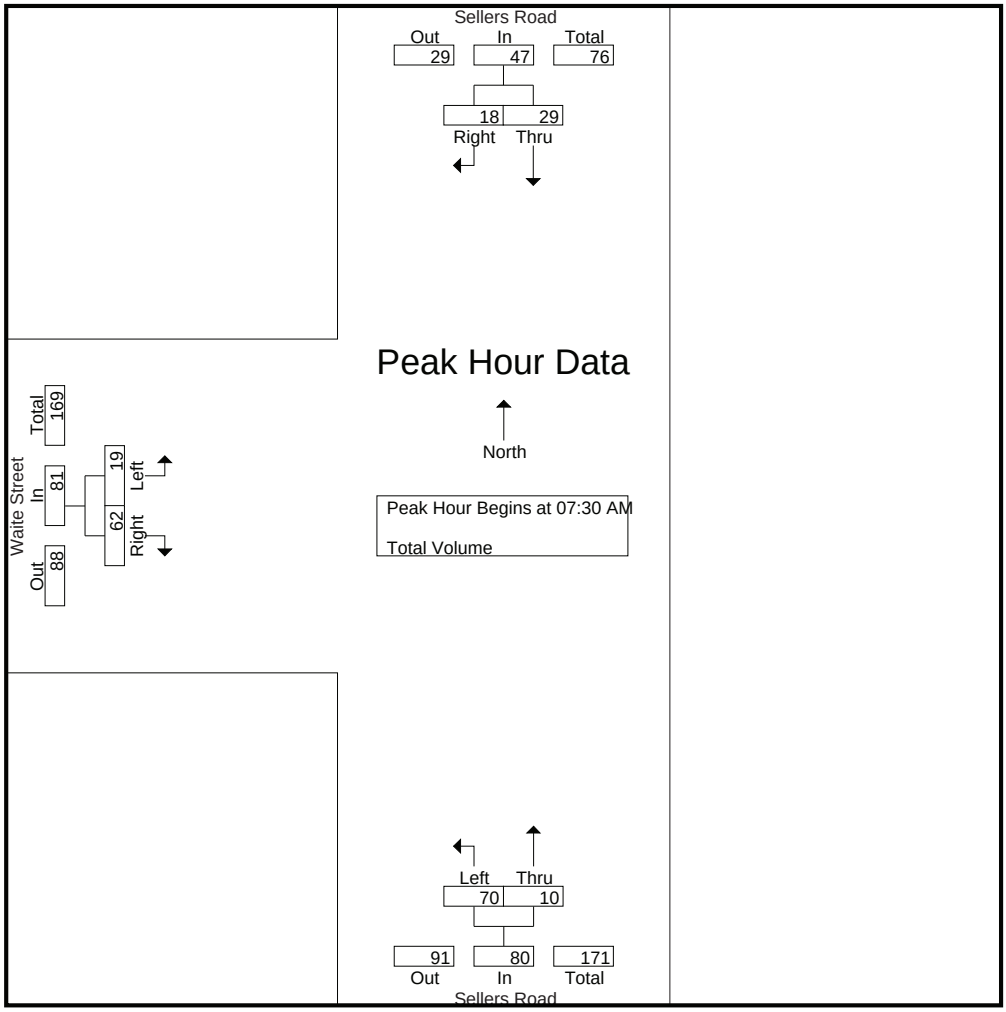

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:45 AM			07:15 AM		
+0 mins.	6	3	9	19	1	20	2	13	15
+15 mins.	6	**6**	12	**24**	3	**27**	4	**20**	**24**
+30 mins.	**11**	3	**14**	19	3	22	3	20	23
+45 mins.	7	6	13	14	**4**	18	**6**	15	21
Total Volume	30	18	48	76	11	87	15	68	83
% App. Total	62.5	37.5		87.4	12.6		18.1	81.9	
PHF	.682	.750	.857	.792	.688	.806	.625	.850	.865

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City of Wildomar
N/S: Sellers Road
E/W: Waite Street
Weather: Clear

File Name : 05_WDM_Sel_Waite PM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Sellers Road Southbound			Sellers Road Northbound			Waite Street Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	4	3	7	11	11	22	3	8	11	40
04:15 PM	2	0	2	8	10	18	0	13	13	33
04:30 PM	5	0	5	5	7	12	2	6	8	25
04:45 PM	4	1	5	8	8	16	7	3	10	31
Total	15	4	19	32	36	68	12	30	42	129
05:00 PM	2	1	3	10	16	26	3	13	16	45
05:15 PM	1	5	6	9	6	15	2	10	12	33
05:30 PM	3	1	4	16	6	22	0	7	7	33
05:45 PM	2	1	3	10	10	20	1	9	10	33
Total	8	8	16	45	38	83	6	39	45	144
Grand Total	23	12	35	77	74	151	18	69	87	273
Apprch %	65.7	34.3		51	49		20.7	79.3		
Total %	8.4	4.4	12.8	28.2	27.1	55.3	6.6	25.3	31.9	

	Sellers Road Southbound			Sellers Road Northbound			Waite Street Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	2	1	3	10	**16**	**26**	**3**	**13**	**16**	**45**
05:15 PM	1	**5**	**6**	9	6	15	2	10	12	33
05:30 PM	**3**	1	4	**16**	6	22	0	7	7	33
05:45 PM	2	1	3	10	10	20	1	9	10	33
Total Volume	8	8	16	45	38	83	6	39	45	144
% App. Total	50	50		54.2	45.8		13.3	86.7		
PHF	.667	.400	.667	.703	.594	.798	.500	.750	.703	.800

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File Name : 05_WDM_Sel_Waite PM
Site Code : 20124388
Start Date : 4/23/2024
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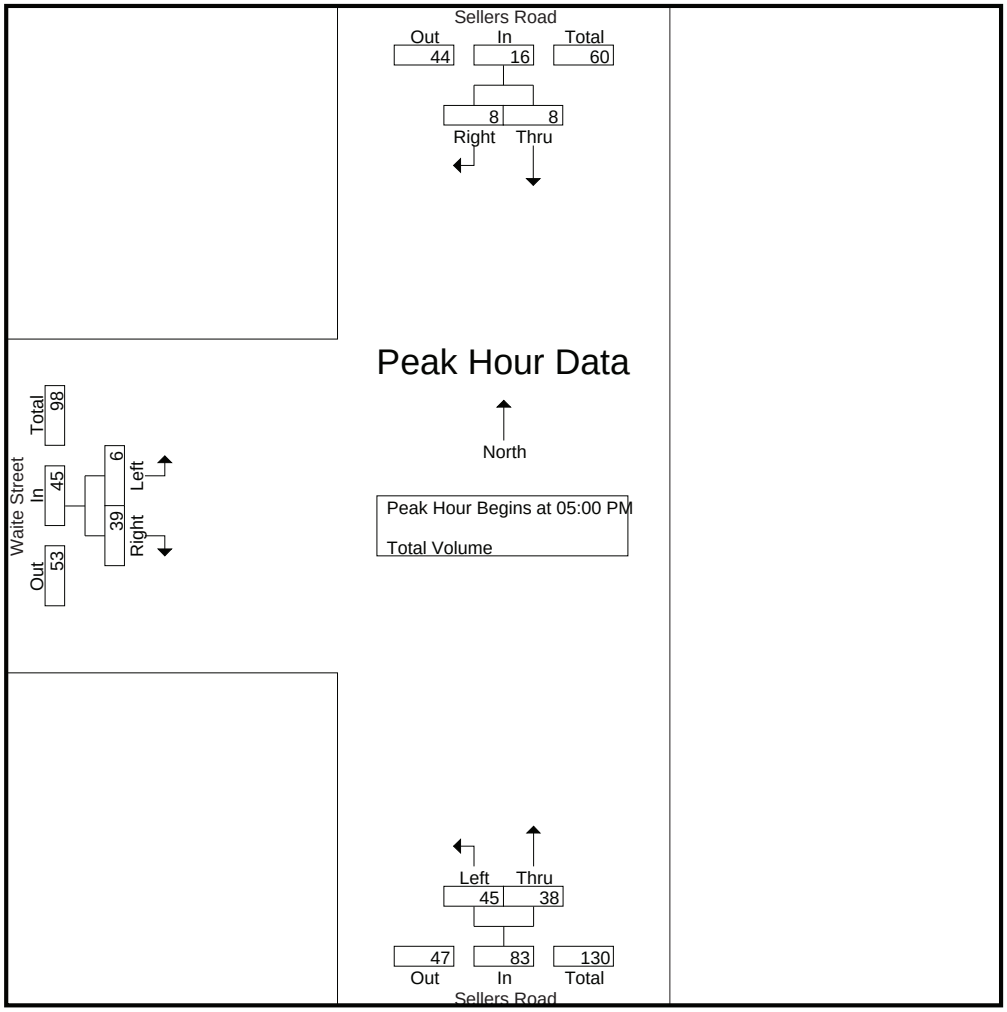

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			05:00 PM			04:15 PM		
+0 mins.	4	**3**	**7**	10	**16**	**26**	0	**13**	13
+15 mins.	2	0	2	9	6	15	2	6	8
+30 mins.	**5**	0	5	**16**	6	22	**7**	3	10
+45 mins.	4	1	5	10	10	20	3	13	**16**
Total Volume	15	4	19	45	38	83	12	35	47
% App. Total	78.9	21.1		54.2	45.8		25.5	74.5	
PHF	.750	.333	.679	.703	.594	.798	.429	.673	.734

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City of Wildomar
N/S: Blondon Court/Orange Street
E/W: Lemon Street
Weather: Clear

File Name : 01_WDM_Blon_Lemon AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Blondon Court Southbound				Lemon Street Westbound				Orange Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	6	10	1	17	10	1	2	13	2	3	5	10	41
07:15 AM	0	4	9	13	8	17	0	25	21	1	1	23	1	5	9	15	76
07:30 AM	0	5	7	12	6	14	1	21	23	0	1	24	4	6	13	23	80
07:45 AM	0	4	6	10	1	22	0	23	25	1	4	30	0	4	21	25	88
Total	0	13	23	36	21	63	2	86	79	3	8	90	7	18	48	73	285
08:00 AM	0	3	7	10	7	29	0	36	28	1	0	29	6	8	22	36	111
08:15 AM	0	2	3	5	3	19	1	23	35	0	1	36	5	10	19	34	98
08:30 AM	0	3	2	5	4	14	0	18	20	0	0	20	1	14	24	39	82
08:45 AM	0	0	1	1	2	14	0	16	18	0	0	18	1	8	18	27	62
Total	0	8	13	21	16	76	1	93	101	1	1	103	13	40	83	136	353
Grand Total	0	21	36	57	37	139	3	179	180	4	9	193	20	58	131	209	638
Apprch %	0	36.8	63.2		20.7	77.7	1.7		93.3	2.1	4.7		9.6	27.8	62.7		
Total %	0	3.3	5.6	8.9	5.8	21.8	0.5	28.1	28.2	0.6	1.4	30.3	3.1	9.1	20.5	32.8	

	Blondon Court Southbound				Lemon Street Westbound				Orange Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**4**	6	**10**	1	22	0	23	25	**1**	**4**	30	0	4	21	25	88
08:00 AM	0	3	**7**	10	**7**	**29**	0	**36**	28	1	0	29	**6**	8	22	36	**111**
08:15 AM	0	2	3	5	3	19	**1**	23	**35**	0	1	**36**	5	10	19	34	98
08:30 AM	0	3	2	5	4	14	0	18	20	0	0	20	1	**14**	**24**	**39**	82
Total Volume	0	12	18	30	15	84	1	100	108	2	5	115	12	36	86	134	379
% App. Total	0	40	60		15	84	1		93.9	1.7	4.3		9	26.9	64.2		
PHF	.000	.750	.643	.750	.536	.724	.250	.694	.771	.500	.313	.799	.500	.643	.896	.859	.854

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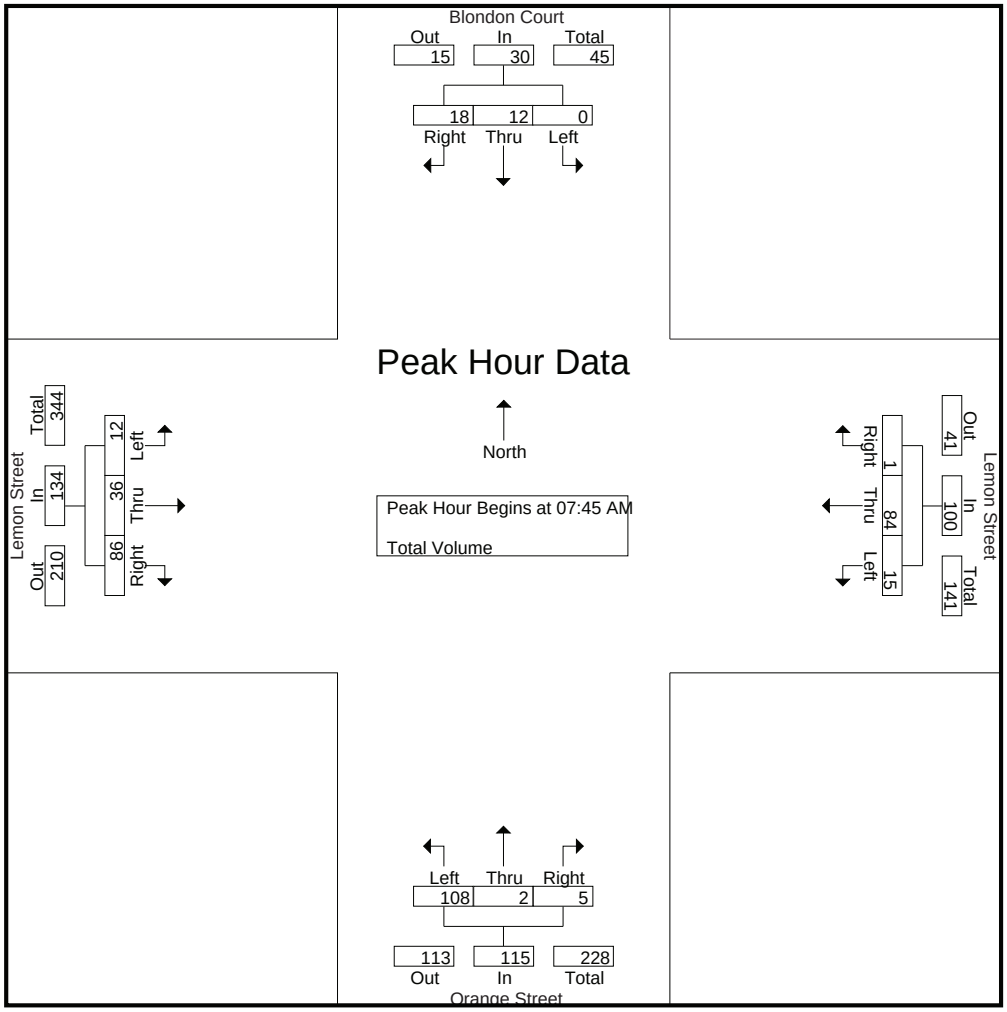
City of Wildomar
N/S: Blondon Court/Orange Street
E/W: Lemon Street
Weather: Clear

File Name : 01_WDM_Blon_Lemon AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:30 AM				08:00 AM			
+0 mins.	0	4	**9**	**13**	**8**	17	0	25	23	0	1	24	**6**	8	22	36
+15 mins.	0	**5**	7	12	6	14	**1**	21	25	**1**	**4**	30	5	10	19	34
+30 mins.	0	4	6	10	1	22	0	23	28	1	0	29	1	**14**	**24**	**39**
+45 mins.	0	3	7	10	7	**29**	0	**36**	**35**	0	1	**36**	1	8	18	27
Total Volume	0	16	29	45	22	82	1	105	111	2	6	119	13	40	83	136
% App. Total	0	35.6	64.4		21	78.1	1		93.3	1.7	5		9.6	29.4	61	
PHF	.000	.800	.806	.865	.688	.707	.250	.729	.793	.500	.375	.826	.542	.714	.865	.872

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City of Wildomar
N/S: Blondon Court/Orange Street
E/W: Lemon Street
Weather: Clear

File Name : 01_WDM_Blon_Lemon PM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Blondon Court Southbound				Lemon Street Westbound				Orange Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	3	4	2	12	0	14	18	2	6	26	4	17	18	39	83
04:15 PM	0	1	2	3	4	12	0	16	19	1	6	26	4	13	18	35	80
04:30 PM	0	0	2	2	3	12	0	15	14	5	6	25	2	17	12	31	73
04:45 PM	0	1	2	3	3	8	0	11	19	5	7	31	3	14	25	42	87
Total	0	3	9	12	12	44	0	56	70	13	25	108	13	61	73	147	323
05:00 PM	0	2	0	2	1	7	1	9	14	1	7	22	2	13	17	32	65
05:15 PM	0	0	1	1	4	12	0	16	19	2	10	31	3	14	14	31	79
05:30 PM	0	0	3	3	2	9	0	11	30	5	6	41	4	15	7	26	81
05:45 PM	0	6	2	8	0	11	0	11	22	4	3	29	3	15	15	33	81
Total	0	8	6	14	7	39	1	47	85	12	26	123	12	57	53	122	306
Grand Total	0	11	15	26	19	83	1	103	155	25	51	231	25	118	126	269	629
Apprch %	0	42.3	57.7		18.4	80.6	1		67.1	10.8	22.1		9.3	43.9	46.8		
Total %	0	1.7	2.4	4.1	3	13.2	0.2	16.4	24.6	4	8.1	36.7	4	18.8	20	42.8	

	Blondon Court Southbound				Lemon Street Westbound				Orange Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	**3**	**4**	2	**12**	0	14	18	2	6	26	**4**	**17**	18	39	83
04:15 PM	0	1	2	3	**4**	12	0	**16**	**19**	1	6	26	4	13	18	35	80
04:30 PM	0	0	2	2	3	12	0	15	14	**5**	6	25	2	17	12	31	73
04:45 PM	0	1	2	3	3	8	0	11	19	5	**7**	**31**	3	14	**25**	**42**	**87**
Total Volume	0	3	9	12	12	44	0	56	70	13	25	108	13	61	73	147	323
% App. Total	0	25	75		21.4	78.6	0		64.8	12	23.1		8.8	41.5	49.7		
PHF	.000	.750	.750	.750	.750	.917	.000	.875	.921	.650	.893	.871	.813	.897	.730	.875	.928

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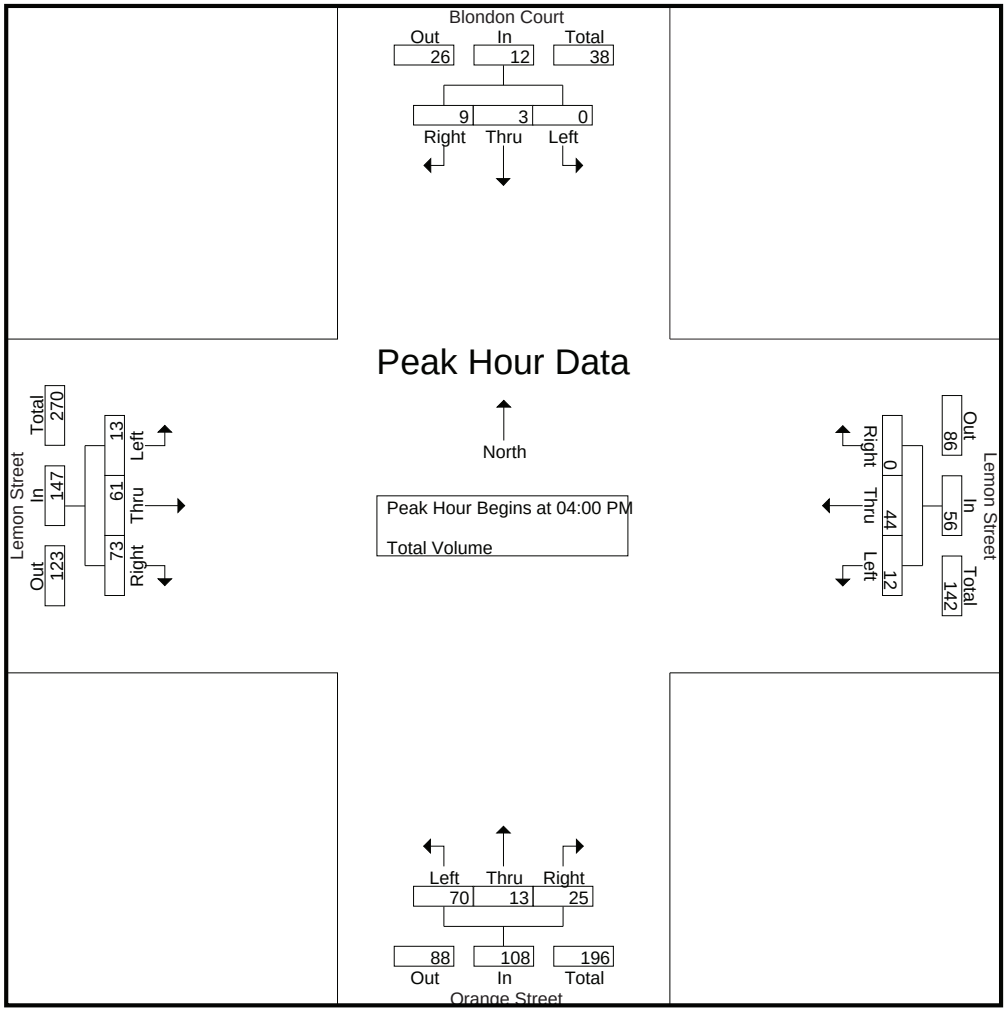
City of Wildomar
N/S: Blondon Court/Orange Street
E/W: Lemon Street
Weather: Clear

File Name : 01_WDM_Blon_Lemon PM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM				04:00 PM				04:45 PM				04:00 PM			
+0 mins.	0	2	0	2	2	**12**	0	14	19	**5**	7	31	**4**	**17**	18	39
+15 mins.	0	0	1	1	**4**	12	0	**16**	14	1	7	22	4	13	18	35
+30 mins.	0	0	**3**	3	3	12	0	15	19	2	**10**	31	2	17	12	31
+45 mins.	0	**6**	2	**8**	3	8	0	11	**30**	5	6	**41**	3	14	**25**	**42**
Total Volume	0	8	6	14	12	44	0	56	82	13	30	125	13	61	73	147
% App. Total	0	57.1	42.9		21.4	78.6	0		65.6	10.4	24		8.8	41.5	49.7	
PHF	.000	.333	.500	.438	.750	.917	.000	.875	.683	.650	.750	.762	.813	.897	.730	.875

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City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 02_WDM_Alm_Lemon AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	13	9	0	22	8	0	8	16	0	14	12	26	64
07:15 AM	0	0	0	0	25	25	0	50	11	0	16	27	0	12	16	28	105
07:30 AM	0	1	0	1	36	20	0	56	12	0	22	34	1	16	22	39	130
07:45 AM	0	1	0	1	31	28	1	60	27	0	32	59	0	16	21	37	157
Total	0	2	0	2	105	82	1	188	58	0	78	136	1	58	71	130	456
08:00 AM	0	1	0	1	51	29	0	80	18	1	39	58	0	28	12	40	179
08:15 AM	0	1	0	1	45	30	0	75	21	0	46	67	0	15	21	36	179
08:30 AM	0	0	0	0	22	26	0	48	11	1	36	48	0	23	23	46	142
08:45 AM	0	0	0	0	21	23	0	44	16	0	6	22	0	23	11	34	100
Total	0	2	0	2	139	108	0	247	66	2	127	195	0	89	67	156	600
Grand Total	0	4	0	4	244	190	1	435	124	2	205	331	1	147	138	286	1056
Apprch %	0	100	0		56.1	43.7	0.2		37.5	0.6	61.9		0.3	51.4	48.3		
Total %	0	0.4	0	0.4	23.1	18	0.1	41.2	11.7	0.2	19.4	31.3	0.1	13.9	13.1	27.1	

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**1**	0	**1**	31	28	**1**	60	**27**	0	32	59	0	16	21	37	157
08:00 AM	0	1	0	1	**51**	29	0	**80**	18	**1**	39	58	0	**28**	12	40	**179**
08:15 AM	0	1	0	1	45	**30**	0	75	21	0	**46**	**67**	0	15	21	36	179
08:30 AM	0	0	0	0	22	26	0	48	11	1	36	48	0	23	**23**	**46**	142
Total Volume	0	3	0	3	149	113	1	263	77	2	153	232	0	82	77	159	657
% App. Total	0	100	0		56.7	43	0.4		33.2	0.9	65.9		0	51.6	48.4		
PHF	.000	.750	.000	.750	.730	.942	.250	.822	.713	.500	.832	.866	.000	.732	.837	.864	.918

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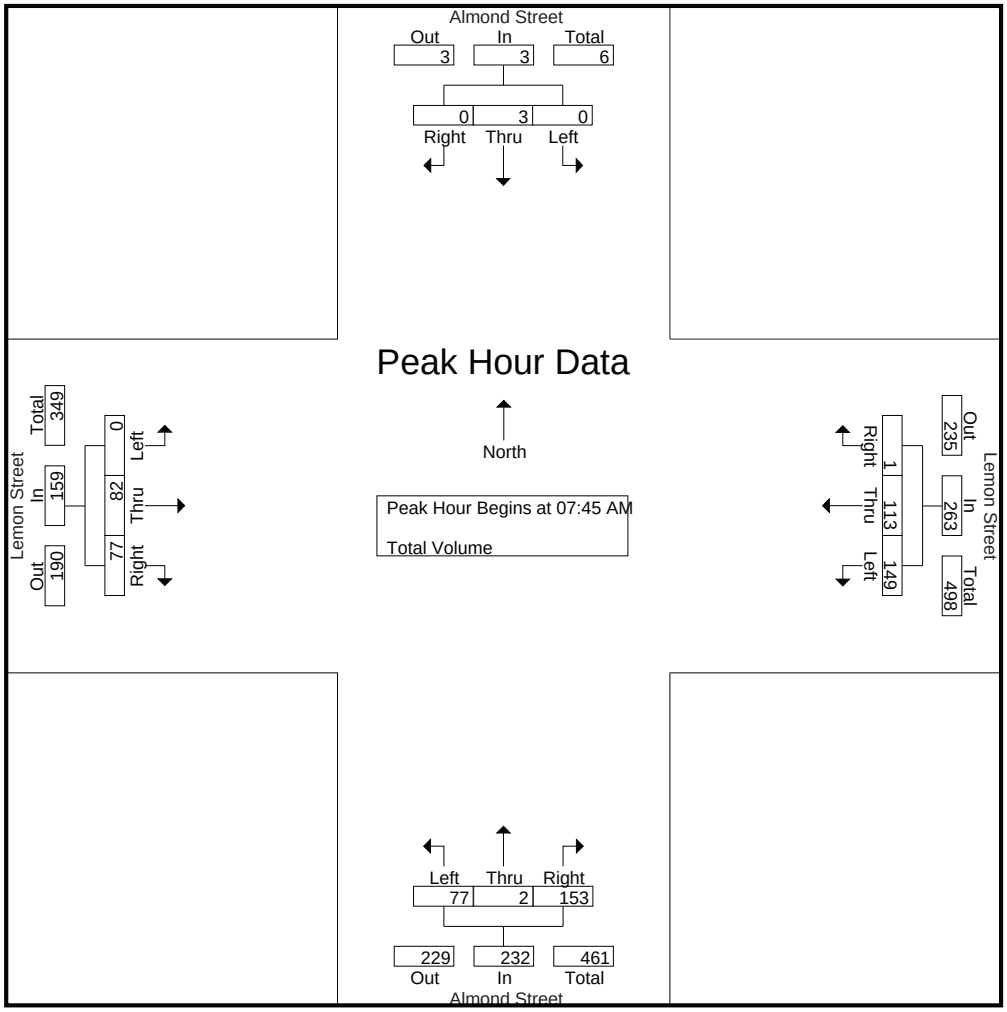
City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 02_WDM_Alm_Lemon AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:45 AM				07:45 AM			
+0 mins.	0	**1**	0	**1**	36	20	0	56	**27**	0	32	59	0	16	21	37
+15 mins.	0	1	0	1	31	28	**1**	60	18	**1**	39	58	0	**28**	12	40
+30 mins.	0	1	0	1	**51**	29	0	**80**	21	0	**46**	**67**	0	15	21	36
+45 mins.	0	1	0	1	45	**30**	0	75	11	1	36	48	0	23	**23**	**46**
Total Volume	0	4	0	4	163	107	1	271	77	2	153	232	0	82	77	159
% App. Total	0	100	0		60.1	39.5	0.4		33.2	0.9	65.9		0	51.6	48.4	
PHF	.000	1.000	.000	1.000	.799	.892	.250	.847	.713	.500	.832	.866	.000	.732	.837	.864

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City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 02_WDM_Alm_Lemon PM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	19	14	0	33	21	0	18	39	0	38	18	56	128
04:15 PM	0	0	0	0	17	28	0	45	19	0	11	30	0	36	9	45	120
04:30 PM	0	0	0	0	21	18	0	39	16	0	17	33	1	31	9	41	113
04:45 PM	0	0	0	0	14	21	0	35	14	0	13	27	0	35	16	51	113
Total	0	0	0	0	71	81	0	152	70	0	59	129	1	140	52	193	474
05:00 PM	0	0	0	0	9	15	0	24	22	0	20	42	0	29	18	47	113
05:15 PM	0	0	0	0	11	19	0	30	24	0	12	36	0	45	14	59	125
05:30 PM	0	0	0	0	10	21	0	31	25	0	18	43	1	24	9	34	108
05:45 PM	0	1	0	1	17	28	0	45	27	0	11	38	0	26	13	39	123
Total	0	1	0	1	47	83	0	130	98	0	61	159	1	124	54	179	469
Grand Total	0	1	0	1	118	164	0	282	168	0	120	288	2	264	106	372	943
Apprch %	0	100	0		41.8	58.2	0		58.3	0	41.7		0.5	71	28.5		
Total %	0	0.1	0	0.1	12.5	17.4	0	29.9	17.8	0	12.7	30.5	0.2	28	11.2	39.4	

	Almond Street Southbound				Lemon Street Westbound				Almond Street Northbound				Lemon Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	19	14	0	33	**21**	0	**18**	**39**	0	**38**	**18**	**56**	**128**
04:15 PM	0	0	0	0	17	**28**	0	**45**	19	0	11	30	0	36	9	45	120
04:30 PM	0	0	0	0	**21**	18	0	39	16	0	17	33	**1**	31	9	41	113
04:45 PM	0	0	0	0	14	21	0	35	14	0	13	27	0	35	16	51	113
Total Volume	0	0	0	0	71	81	0	152	70	0	59	129	1	140	52	193	474
% App. Total	0	0	0		46.7	53.3	0		54.3	0	45.7		0.5	72.5	26.9		
PHF	.000	.000	.000	.000	.845	.723	.000	.844	.833	.000	.819	.827	.250	.921	.722	.862	.926

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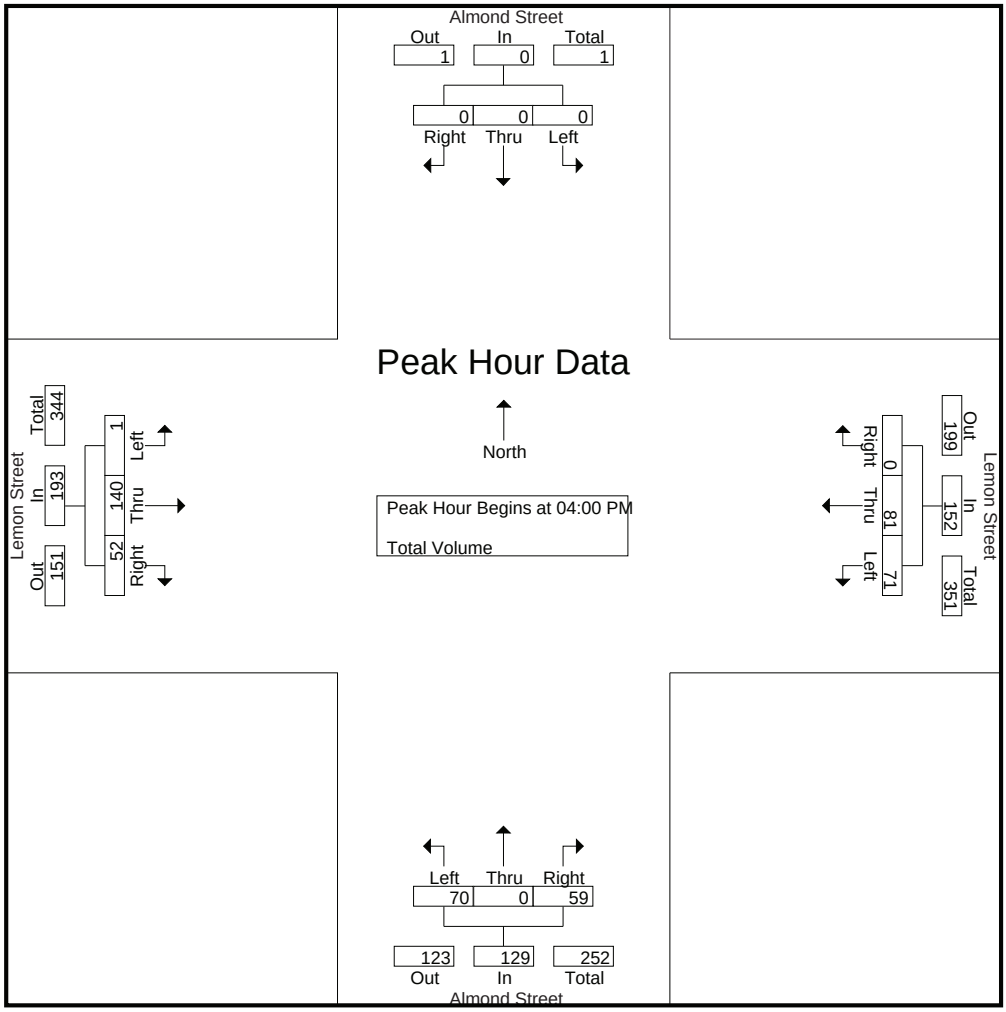
City of Wildomar
N/S: Almond Street
E/W: Lemon Street
Weather: Clear

File Name : 02_WDM_Alm_Lemon PM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:00 PM				05:00 PM				04:30 PM			
+0 mins.	0	0	0	0	19	14	0	33	22	0	**20**	42	**1**	31	9	41
+15 mins.	0	0	0	0	17	**28**	0	**45**	24	0	12	36	0	35	16	51
+30 mins.	0	0	0	0	**21**	18	0	39	25	0	18	**43**	0	29	**18**	47
+45 mins.	0	**1**	0	**1**	14	21	0	35	**27**	0	11	38	0	**45**	14	**59**
Total Volume	0	1	0	1	71	81	0	152	98	0	61	159	1	140	57	198
% App. Total	0	100	0		46.7	53.3	0		61.6	0	38.4		0.5	70.7	28.8	
PHF	.000	.250	.000	.250	.845	.723	.000	.844	.907	.000	.763	.924	.250	.778	.792	.839

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City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 03_WDM_Alm_Waite AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	13	15	3	31	1	2	7	10	1	4	1	6	5	8	0	13	60
07:15 AM	18	21	0	39	0	4	18	22	1	6	1	8	1	9	4	14	83
07:30 AM	31	30	1	62	4	8	21	33	0	9	1	10	3	16	4	23	128
07:45 AM	34	23	0	57	4	10	40	54	4	15	0	19	3	8	3	14	144
Total	96	89	4	189	9	24	86	119	6	34	3	43	12	41	11	64	415
08:00 AM	27	38	0	65	0	7	37	44	5	22	1	28	2	14	4	20	157
08:15 AM	19	43	2	64	0	8	26	34	8	34	4	46	3	8	3	14	158
08:30 AM	26	19	0	45	2	15	28	45	1	18	2	21	1	13	1	15	126
08:45 AM	18	18	1	37	0	9	15	24	1	6	0	7	3	10	3	16	84
Total	90	118	3	211	2	39	106	147	15	80	7	102	9	45	11	65	525
Grand Total	186	207	7	400	11	63	192	266	21	114	10	145	21	86	22	129	940
Apprch %	46.5	51.8	1.8		4.1	23.7	72.2		14.5	78.6	6.9		16.3	66.7	17.1		
Total %	19.8	22	0.7	42.6	1.2	6.7	20.4	28.3	2.2	12.1	1.1	15.4	2.2	9.1	2.3	13.7	

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	31	30	1	62	**4**	8	21	33	0	9	1	10	**3**	**16**	**4**	**23**	128
07:45 AM	**34**	23	0	57	4	**10**	**40**	**54**	4	15	0	19	3	8	3	14	144
08:00 AM	27	38	0	**65**	0	7	37	44	5	22	1	28	2	14	4	20	157
08:15 AM	19	**43**	**2**	64	0	8	26	34	**8**	**34**	**4**	**46**	3	8	3	14	**158**
Total Volume	111	134	3	248	8	33	124	165	17	80	6	103	11	46	14	71	587
% App. Total	44.8	54	1.2		4.8	20	75.2		16.5	77.7	5.8		15.5	64.8	19.7		
PHF	.816	.779	.375	.954	.500	.825	.775	.764	.531	.588	.375	.560	.917	.719	.875	.772	.929

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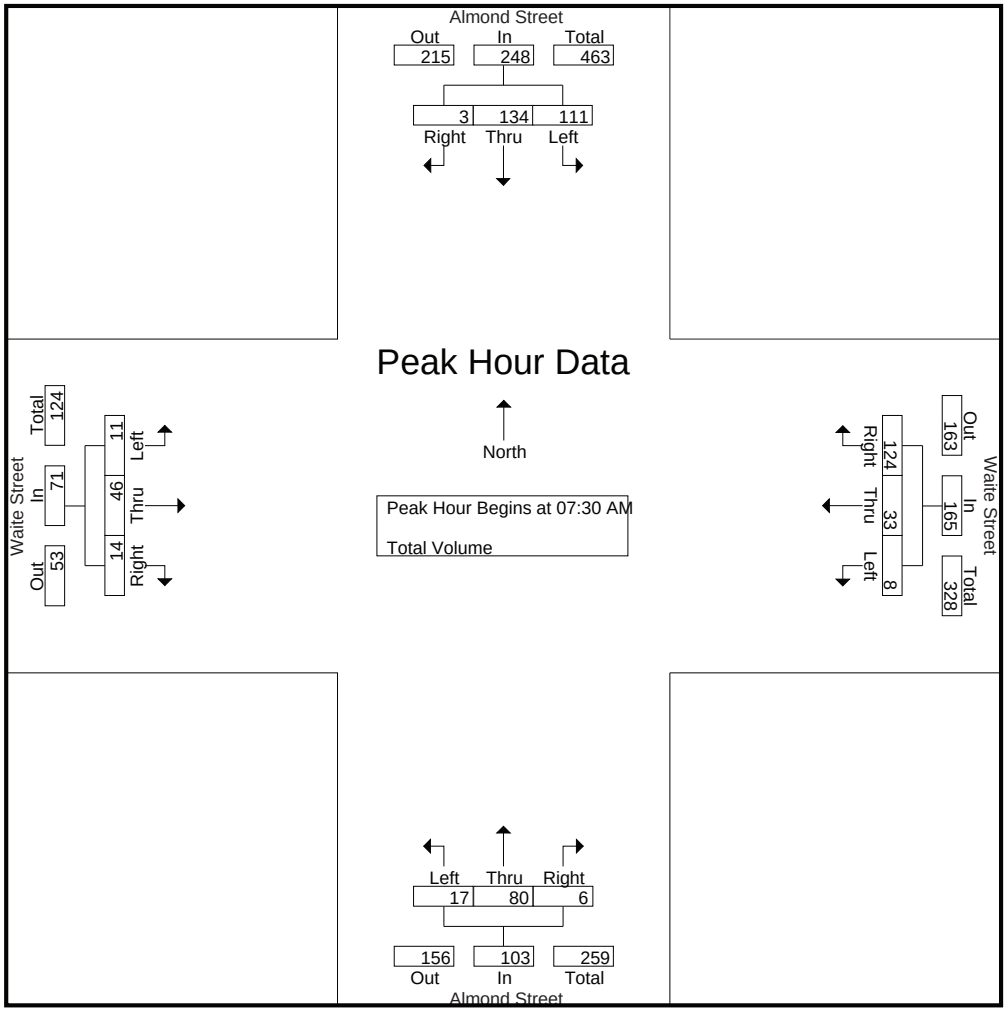
City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 03_WDM_Alm_Waite AM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:45 AM				07:45 AM				07:15 AM			
+0 mins.	31	30	1	62	**4**	10	**40**	**54**	4	15	0	19	1	9	**4**	14
+15 mins.	**34**	23	0	57	0	7	37	44	5	22	1	28	**3**	**16**	4	**23**
+30 mins.	27	38	0	**65**	0	8	26	34	**8**	**34**	**4**	**46**	3	8	3	14
+45 mins.	19	**43**	**2**	64	2	**15**	28	45	1	18	2	21	2	14	4	20
Total Volume	111	134	3	248	6	40	131	177	18	89	7	114	9	47	15	71
% App. Total	44.8	54	1.2		3.4	22.6	74		15.8	78.1	6.1		12.7	66.2	21.1	
PHF	.816	.779	.375	.954	.375	.667	.819	.819	.563	.654	.438	.620	.750	.734	.938	.772

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City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 03_WDM_Alm_Waite PM
Site Code : 20124388
Start Date : 4/23/2024
Page No : 1

Groups Printed- Total Volume

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	18	13	4	35	1	19	29	49	2	12	1	15	1	13	1	15	114
04:15 PM	11	11	2	24	1	18	21	40	4	8	0	12	3	10	4	17	93
04:30 PM	21	11	3	35	0	20	26	46	2	8	2	12	0	17	0	17	110
04:45 PM	16	12	3	31	0	17	24	41	3	4	0	7	1	6	2	9	88
Total	66	47	12	125	2	74	100	176	11	32	3	46	5	46	7	58	405
05:00 PM	17	10	1	28	0	19	34	53	8	9	2	19	1	11	5	17	117
05:15 PM	17	6	1	24	0	17	23	40	2	9	4	15	0	15	2	17	96
05:30 PM	8	8	1	17	0	21	27	48	4	11	1	16	4	9	2	15	96
05:45 PM	15	14	3	32	1	9	30	40	0	6	0	6	3	8	0	11	89
Total	57	38	6	101	1	66	114	181	14	35	7	56	8	43	9	60	398
Grand Total	123	85	18	226	3	140	214	357	25	67	10	102	13	89	16	118	803
Apprch %	54.4	37.6	8		0.8	39.2	59.9		24.5	65.7	9.8		11	75.4	13.6		
Total %	15.3	10.6	2.2	28.1	0.4	17.4	26.7	44.5	3.1	8.3	1.2	12.7	1.6	11.1	2	14.7	

	Almond Street Southbound				Waite Street Westbound				Almond Street Northbound				Waite Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**21**	11	**3**	**35**	0	**20**	26	46	2	8	2	12	0	**17**	0	**17**	110
04:45 PM	16	**12**	3	31	0	17	24	41	3	4	0	7	**1**	6	2	9	88
05:00 PM	17	10	1	28	0	19	**34**	**53**	**8**	**9**	2	**19**	1	11	**5**	17	**117**
05:15 PM	17	6	1	24	0	17	23	40	2	9	**4**	15	0	15	2	17	96
Total Volume	71	39	8	118	0	73	107	180	15	30	8	53	2	49	9	60	411
% App. Total	60.2	33.1	6.8		0	40.6	59.4		28.3	56.6	15.1		3.3	81.7	15		
PHF	.845	.813	.667	.843	.000	.913	.787	.849	.469	.833	.500	.697	.500	.721	.450	.882	.878

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City of Wildomar
N/S: Almond Street
E/W: Waite Street
Weather: Clear

File Name : 03_WDM_Alm_Waite PM
Site Code : 20124388
Start Date : 4/23/2024
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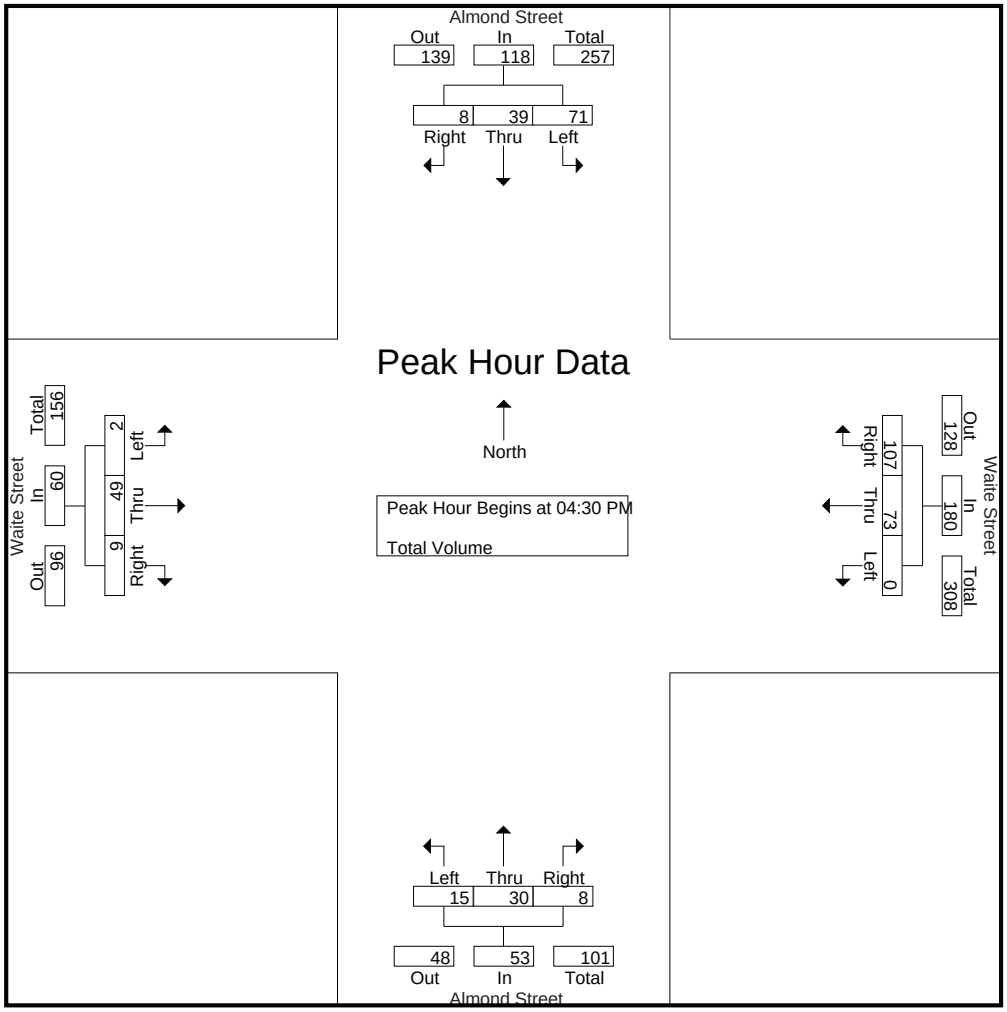

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				04:45 PM				04:15 PM			
+0 mins.	18	**13**	**4**	**35**	0	17	24	41	3	4	0	7	**3**	10	4	**17**
+15 mins.	11	11	2	24	0	19	**34**	**53**	**8**	9	2	**19**	0	**17**	0	17
+30 mins.	**21**	11	3	35	0	17	23	40	2	9	**4**	15	1	6	2	9
+45 mins.	16	12	3	31	0	**21**	27	48	4	**11**	1	16	1	11	**5**	17
Total Volume	66	47	12	125	0	74	108	182	17	33	7	57	5	44	11	60
% App. Total	52.8	37.6	9.6		0	40.7	59.3		29.8	57.9	12.3		8.3	73.3	18.3	
PHF	.786	.904	.750	.893	.000	.881	.794	.858	.531	.750	.438	.750	.417	.647	.550	.882

APPENDIX C

EXISTING (2023) CONDITIONS
INTERSECTION ANALYSIS CALCULATION WORKSHEETS AND
TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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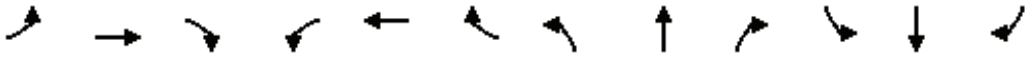


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	372	29	62	297	40	23	32	65	80	34	39
Future Volume (vph)	21	372	29	62	297	40	23	32	65	80	34	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	372	29	62	297	40	23	32	65	80	34	39
Future Vol, veh/h	21	372	29	62	297	40	23	32	65	80	34	39
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	454	35	76	362	49	28	39	79	98	41	48
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	15.4	13.8	13.2	15.1
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	19%	14%	0%	0%	39%	0%	0%	52%
Vol Thru, %	27%	86%	100%	0%	61%	100%	0%	22%
Vol Right, %	54%	0%	0%	100%	0%	0%	100%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	145	248	29	161	198	40	153
LT Vol	23	21	0	0	62	0	0	80
Through Vol	32	124	248	0	99	198	0	34
RT Vol	65	0	0	29	0	0	40	39
Lane Flow Rate	146	177	302	35	196	241	49	187
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.298	0.331	0.56	0.058	0.377	0.45	0.081	0.392
Departure Headway (Hd)	7.332	6.741	6.667	5.95	6.905	6.708	5.99	7.558
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	534	541	602	522	538	598	476
Service Time	5.074	4.478	4.403	3.686	4.643	4.445	3.727	5.297
HCM Lane V/C Ratio	0.298	0.331	0.558	0.058	0.375	0.448	0.082	0.393
HCM Control Delay	13.2	12.8	17.6	9.1	13.8	14.8	9.3	15.1
HCM Lane LOS	B	B	C	A	B	B	A	C
HCM 95th-tile Q	1.2	1.4	3.4	0.2	1.7	2.3	0.3	1.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	455	23	288	382	63	9	56	337	179	45	7
Future Volume (vph)	24	455	23	288	382	63	9	56	337	179	45	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	11.0	35.0	35.0	41.0	65.0		44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	9.2%	29.2%	29.2%	34.2%	54.2%		36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	455	23	288	382	63	9	56	337	179	45	7
Future Volume (veh/h)	24	455	23	288	382	63	9	56	337	179	45	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	500	25	316	420	69	10	62	370	197	49	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	1284	569	339	1612	263	34	183	509	54	0	509
Arrive On Green	0.02	0.36	0.36	0.38	1.00	1.00	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3554	1574	1781	3056	499	0	566	1578	0	0	1578
Grp Volume(v), veh/h	26	500	25	316	243	246	72	0	370	246	0	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1574	1781	1777	1778	566	0	1578	0	0	1578
Q Serve(g_s), s	1.7	12.5	1.2	20.4	0.0	0.0	0.0	0.0	24.9	0.0	0.0	0.4
Cycle Q Clear(g_c), s	1.7	12.5	1.2	20.4	0.0	0.0	38.7	0.0	24.9	38.7	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.28	0.14		1.00	0.80		1.00
Lane Grp Cap(c), veh/h	43	1284	569	339	937	938	217	0	509	54	0	509
V/C Ratio(X)	0.60	0.39	0.04	0.93	0.26	0.26	0.33	0.00	0.73	4.55	0.00	0.02
Avail Cap(c_a), veh/h	96	1284	569	542	937	938	217	0	509	54	0	509
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.99	0.99	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.0	28.5	24.9	36.4	0.0	0.0	31.7	0.0	36.0	60.0	0.0	27.7
Incr Delay (d2), s/veh	5.0	0.9	0.1	12.1	0.7	0.7	0.3	0.0	4.5	1640.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.5	0.5	8.2	0.2	0.2	1.5	0.0	10.0	26.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	29.4	25.0	48.5	0.7	0.7	32.0	0.0	40.5	1700.7	0.0	27.7
LnGrp LOS	E	C	C	D	A	A	C	A	D	F	A	C
Approach Vol, veh/h		551			805			442			254	
Approach Delay, s/veh		30.8			19.5			39.1			1648.0	
Approach LOS		C			B			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.3	48.7		44.0	7.4	68.6		44.0				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	36.5	29.7		38.7	6.5	59.7		38.7				
Max Q Clear Time (g_c+I1), s	22.4	14.5		40.7	3.7	2.0		40.7				
Green Ext Time (p_c), s	0.4	1.9		0.0	0.0	1.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		228.3	
HCM 6th LOS		F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	446	525	329	526	0	0	0	0	273	7	252
Future Volume (vph)	0	446	525	329	526	0	0	0	0	273	7	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		48.0		38.0	86.0					34.0	34.0	
Total Split (%)		40.0%		31.7%	71.7%					28.3%	28.3%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	525	329	526	0	0	0	0	273	7	252
Future Volume (veh/h)	0	446	525	329	526	0	0	0	0	273	7	252
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	465	547	343	548	0				284	7	262
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	848	753	365	2561	0				340	8	294
Arrive On Green	0.00	0.80	0.80	0.41	1.00	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	1870	1577	1781	3647	0				1781	41	1538
Grp Volume(v), veh/h	0	465	547	343	548	0				284	0	269
Grp Sat Flow(s),veh/h/ln	0	1777	1577	1781	1777	0				1781	0	1579
Q Serve(g_s), s	0.0	11.3	20.0	22.2	0.0	0.0				18.4	0.0	19.9
Cycle Q Clear(g_c), s	0.0	11.3	20.0	22.2	0.0	0.0				18.4	0.0	19.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.97
Lane Grp Cap(c), veh/h	0	848	753	365	2561	0				340	0	302
V/C Ratio(X)	0.00	0.55	0.73	0.94	0.21	0.00				0.83	0.00	0.89
Avail Cap(c_a), veh/h	0	848	753	496	2561	0				426	0	378
HCM Platoon Ratio	1.00	1.67	1.67	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.78	0.78	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.5	8.4	34.7	0.0	0.0				46.7	0.0	47.3
Incr Delay (d2), s/veh	0.0	2.3	5.5	16.4	0.1	0.0				9.2	0.0	17.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	4.6	9.2	0.1	0.0				9.0	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.8	13.9	51.1	0.1	0.0				55.9	0.0	64.4
LnGrp LOS	A	A	B	D	A	A				E	A	E
Approach Vol, veh/h		1012			891						553	
Approach Delay, s/veh		12.0			19.8						60.0	
Approach LOS		B			B						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	29.2	62.6		28.2		91.8						
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3						
Max Green Setting (Gmax), s	33.4	42.7		28.7		80.7						
Max Q Clear Time (g_c+I1), s	24.2	22.0		21.9		2.0						
Green Ext Time (p_c), s	0.4	4.6		1.0		2.5						

Intersection Summary												
HCM 6th Ctrl Delay			25.6									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	502	0	0	576	313	279	0	191	0	0	0
Future Volume (vph)	217	502	0	0	576	313	279	0	191	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	30.0	82.0			52.0		38.0	38.0				
Total Split (%)	25.0%	68.3%			43.3%		31.7%	31.7%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

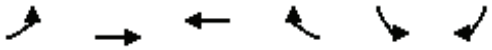
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	502	0	0	576	313	279	0	191	0	0	0
Future Volume (veh/h)	217	502	0	0	576	313	279	0	191	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	221	512	0	0	588	319	285	0	195			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	246	2596	0	0	1242	673	323	0	285			
Arrive On Green	0.28	1.00	0.00	0.00	0.56	0.56	0.18	0.00	0.18			
Sat Flow, veh/h	1781	3647	0	0	2314	1204	1781	0	1572			
Grp Volume(v), veh/h	221	512	0	0	471	436	285	0	195			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1647	1781	0	1572			
Q Serve(g_s), s	14.3	0.0	0.0	0.0	19.0	19.1	18.7	0.0	13.9			
Cycle Q Clear(g_c), s	14.3	0.0	0.0	0.0	19.0	19.1	18.7	0.0	13.9			
Prop In Lane	1.00		0.00	0.00		0.73	1.00		1.00			
Lane Grp Cap(c), veh/h	246	2596	0	0	994	921	323	0	285			
V/C Ratio(X)	0.90	0.20	0.00	0.00	0.47	0.47	0.88	0.00	0.68			
Avail Cap(c_a), veh/h	386	2596	0	0	994	921	485	0	428			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.68	0.68	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.7	0.0	0.0	0.0	15.9	15.9	47.9	0.0	45.9			
Incr Delay (d2), s/veh	8.1	0.1	0.0	0.0	1.6	1.7	8.7	0.0	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.9	0.0	0.0	0.0	7.9	7.3	9.1	0.0	5.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	0.1	0.0	0.0	17.5	17.6	56.6	0.0	47.0			
LnGrp LOS	D	A	A	A	B	B	E	A	D			
Approach Vol, veh/h		733			907			480				
Approach Delay, s/veh		15.4			17.5			52.7				
Approach LOS		B			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		93.0			20.5	72.4		27.0				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		76.7			26.0	46.7		32.7				
Max Q Clear Time (g_c+I1), s		2.0			16.3	21.1		20.7				
Green Ext Time (p_c), s		2.3			0.2	4.0		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			24.8									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	650	824	6	13	65
Future Volume (vph)	43	650	824	6	13	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	650	824	6	13	65
Future Vol, veh/h	43	650	824	6	13	65
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	684	867	6	14	68

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	878	0	-	0	1241	444
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	765	-	-	-	198	561
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	761	-	-	-	185	556
Mov Cap-2 Maneuver	-	-	-	-	272	-
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	631	-

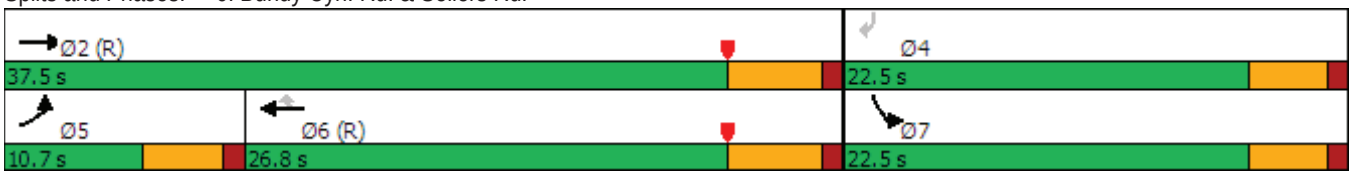
Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	14.2
HCM LOS			B

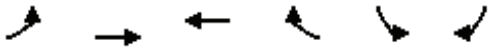
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	761	-	-	-	474
HCM Lane V/C Ratio	0.059	-	-	-	0.173
HCM Control Delay (s)	10	-	-	-	14.2
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	568	758	26	45	92
Future Volume (vph)	53	568	758	26	45	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	10.7	37.5	26.8	26.8	22.5	22.5
Total Split (%)	17.8%	62.5%	44.7%	44.7%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	568	758	26	45	92
Future Volume (veh/h)	53	568	758	26	45	92
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	598	798	27	47	97
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	90	2740	1461	648	534	476
Arrive On Green	0.05	0.54	0.82	0.82	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1575	1781	1585
Grp Volume(v), veh/h	56	598	798	27	47	97
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1575	1781	1585
Q Serve(g_s), s	1.8	3.7	4.3	0.2	1.1	2.7
Cycle Q Clear(g_c), s	1.8	3.7	4.3	0.2	1.1	2.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	90	2740	1461	648	534	476
V/C Ratio(X)	0.62	0.22	0.55	0.04	0.09	0.20
Avail Cap(c_a), veh/h	184	2740	1461	648	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.91	0.91	1.00	1.00
Uniform Delay (d), s/veh	27.9	7.3	3.5	3.2	15.1	15.7
Incr Delay (d2), s/veh	2.6	0.2	1.3	0.1	0.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.1	1.1	0.6	0.5	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.5	7.5	4.9	3.3	15.4	16.6
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		654	825		144	
Approach Delay, s/veh		9.5	4.8		16.2	
Approach LOS		A	A		B	

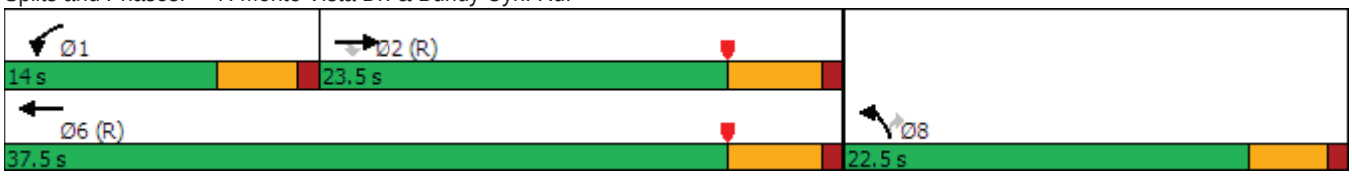
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	7.5	30.0
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	6.2	21.5
Max Q Clear Time (g_c+I1), s		5.7		4.7	3.8	6.3
Green Ext Time (p_c), s		2.8		0.2	0.0	3.3

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	520	93	170	749	35	77
Future Volume (vph)	520	93	170	749	35	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	23.5	23.5	14.0	37.5	22.5	22.5
Total Split (%)	39.2%	39.2%	23.3%	62.5%	37.5%	37.5%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.

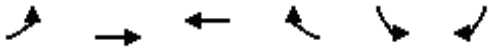




Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	520	93	170	749	35	77
Future Volume (veh/h)	520	93	170	749	35	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	571	102	187	823	38	85
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1694	522	232	1907	1037	476
Arrive On Green	0.66	0.66	0.13	0.54	0.30	0.30
Sat Flow, veh/h	5274	1573	1781	3647	3456	1585
Grp Volume(v), veh/h	571	102	187	823	38	85
Grp Sat Flow(s),veh/h/ln	1702	1573	1781	1777	1728	1585
Q Serve(g_s), s	2.9	1.5	6.1	8.4	0.5	2.4
Cycle Q Clear(g_c), s	2.9	1.5	6.1	8.4	0.5	2.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1694	522	232	1907	1037	476
V/C Ratio(X)	0.34	0.20	0.81	0.43	0.04	0.18
Avail Cap(c_a), veh/h	1694	522	282	1907	1037	476
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.2	7.0	25.4	8.4	14.9	15.5
Incr Delay (d2), s/veh	0.5	0.8	11.0	0.7	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.5	3.0	2.5	0.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.8	7.8	36.4	9.1	14.9	16.4
LnGrp LOS	A	A	D	A	B	B
Approach Vol, veh/h	673			1010	123	
Approach Delay, s/veh	7.8			14.1	15.9	
Approach LOS	A			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.3	25.2				37.5	22.5
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	9.5	18.2				32.2	18.0
Max Q Clear Time (g_c+I1), s	8.1	4.9				10.4	4.4
Green Ext Time (p_c), s	0.0	2.3				3.6	0.1

Intersection Summary		
HCM 6th Ctrl Delay	11.9	
HCM 6th LOS	B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	571	850	8	12	69
Future Volume (vph)	26	571	850	8	12	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

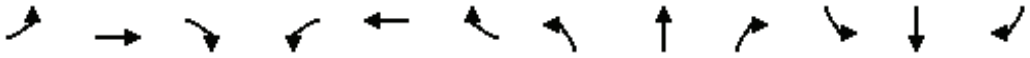
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	571	850	8	12	69
Future Vol, veh/h	26	571	850	8	12	69
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	614	914	9	13	74

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	928	0	-	0	1231	472
Stage 1	-	-	-	-	924	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	733	-	-	-	200	538
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	730	-	-	-	190	533
Mov Cap-2 Maneuver	-	-	-	-	269	-
Stage 1	-	-	-	-	323	-
Stage 2	-	-	-	-	680	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	730	-	-	-	465
HCM Lane V/C Ratio	0.038	-	-	-	0.187
HCM Control Delay (s)	10.1	-	-	-	14.5
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	198	2	74	2	9	35	152	170	4	9	101	253
Future Volume (vph)	198	2	74	2	9	35	152	170	4	9	101	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

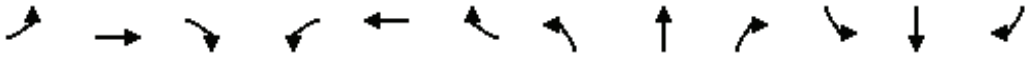
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	198	2	74	2	9	35	152	170	4	9	101	253
Future Vol, veh/h	198	2	74	2	9	35	152	170	4	9	101	253
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	239	2	89	2	11	42	183	205	5	11	122	305
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	18.1	10.7	20.5	19.6
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	72%	4%	2%
Vol Thru, %	52%	1%	20%	28%
Vol Right, %	1%	27%	76%	70%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	326	274	46	363
LT Vol	152	198	2	9
Through Vol	170	2	9	101
RT Vol	4	74	35	253
Lane Flow Rate	393	330	55	437
Geometry Grp	1	1	1	1
Degree of Util (X)	0.665	0.586	0.105	0.678
Departure Headway (Hd)	6.099	6.388	6.81	5.577
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	593	565	524	647
Service Time	4.143	4.432	4.879	3.619
HCM Lane V/C Ratio	0.663	0.584	0.105	0.675
HCM Control Delay	20.5	18.1	10.7	19.6
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	5	3.8	0.3	5.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	77	39	24	88	3	15	3	3	4	4	3
Future Volume (vph)	1	77	39	24	88	3	15	3	3	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

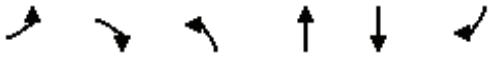
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	77	39	24	88	3	15	3	3	4	4	3
Future Vol, veh/h	1	77	39	24	88	3	15	3	3	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	90	45	28	102	3	17	3	3	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	105	0	0	135	0	0	279	276	113	278	297	104
Stage 1	-	-	-	-	-	-	115	115	-	160	160	-
Stage 2	-	-	-	-	-	-	164	161	-	118	137	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1486	-	-	1449	-	-	673	632	940	674	615	951
Stage 1	-	-	-	-	-	-	890	800	-	842	766	-
Stage 2	-	-	-	-	-	-	838	765	-	887	783	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1449	-	-	656	618	940	657	601	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	656	618	-	657	601	-
Stage 1	-	-	-	-	-	-	889	799	-	841	750	-
Stage 2	-	-	-	-	-	-	812	749	-	879	782	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.6	10.5	10.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	679	1486	-	-	1449	-	-	692
HCM Lane V/C Ratio	0.036	0.001	-	-	0.019	-	-	0.018
HCM Control Delay (s)	10.5	7.4	0	-	7.5	0	-	10.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	62	70	10	29	18
Future Volume (vph)	19	62	70	10	29	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

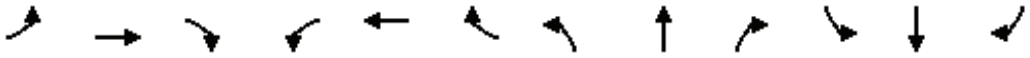
Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	62	70	10	29	18
Future Vol, veh/h	19	62	70	10	29	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	73	82	12	34	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	221	45	55	0	-	0
Stage 1	45	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	767	1025	1550	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	726	1025	1550	-	-	-
Mov Cap-2 Maneuver	726	-	-	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	6.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1550	-	935	-	-
HCM Lane V/C Ratio	0.053	-	0.102	-	-
HCM Control Delay (s)	7.5	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	36	86	15	84	1	108	2	5	1	12	18
Future Volume (vph)	12	36	86	15	84	1	108	2	5	1	12	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

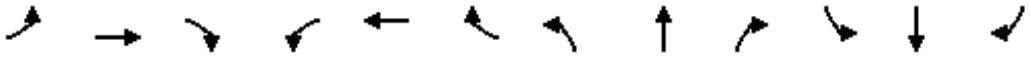
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	36	86	15	84	1	108	2	5	1	12	18
Future Vol, veh/h	12	36	86	15	84	1	108	2	5	1	12	18
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	42	101	18	99	1	127	2	6	1	14	21
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.2	8.9	8.9	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	94%	9%	15%	0%	3%
Vol Thru, %	2%	27%	85%	0%	39%
Vol Right, %	4%	64%	0%	100%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	134	99	1	31
LT Vol	108	12	15	0	1
Through Vol	2	36	84	0	12
RT Vol	5	86	0	1	18
Lane Flow Rate	135	158	116	1	36
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.18	0.185	0.167	0.001	0.045
Departure Headway (Hd)	4.78	4.235	5.153	4.373	4.407
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	751	848	696	819	812
Service Time	2.806	2.26	2.879	2.098	2.437
HCM Lane V/C Ratio	0.18	0.186	0.167	0.001	0.044
HCM Control Delay	8.9	8.2	8.9	7.1	7.6
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.7	0.7	0.6	0	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	82	77	149	113	1	77	2	153	1	3	1
Future Volume (vph)	1	82	77	149	113	1	77	2	153	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

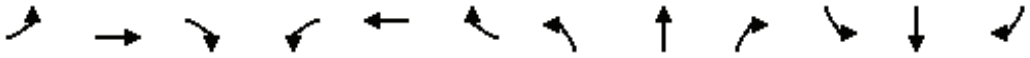
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	82	77	149	113	1	77	2	153	1	3	1
Future Vol, veh/h	1	82	77	149	113	1	77	2	153	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	89	84	162	123	1	84	2	166	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	124	0	0	173	0	0	541	539	89	665	623	124
Stage 1	-	-	-	-	-	-	91	91	-	448	448	-
Stage 2	-	-	-	-	-	-	450	448	-	217	175	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1463	-	-	1404	-	-	452	449	969	374	402	927
Stage 1	-	-	-	-	-	-	916	820	-	590	573	-
Stage 2	-	-	-	-	-	-	589	573	-	785	754	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1463	-	-	1404	-	-	405	393	969	279	352	927
Mov Cap-2 Maneuver	-	-	-	-	-	-	405	393	-	279	352	-
Stage 1	-	-	-	-	-	-	915	819	-	589	502	-
Stage 2	-	-	-	-	-	-	512	502	-	648	753	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.5	13.9	14.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	657	1463	-	-	1404	-	-	379
HCM Lane V/C Ratio	0.384	0.001	-	-	0.115	-	-	0.014
HCM Control Delay (s)	13.9	7.5	0	-	7.9	0	-	14.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.8	0	-	-	0.4	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	46	14	8	33	124	17	80	6	111	134	3
Future Volume (vph)	11	46	14	8	33	124	17	80	6	111	134	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

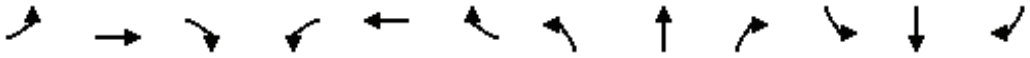
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	46	14	8	33	124	17	80	6	111	134	3
Future Vol, veh/h	11	46	14	8	33	124	17	80	6	111	134	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	49	15	9	35	133	18	86	6	119	144	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	8.8	8.8	10.4
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	15%	5%	45%
Vol Thru, %	78%	65%	20%	54%
Vol Right, %	6%	20%	75%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	71	165	248
LT Vol	17	11	8	111
Through Vol	80	46	33	134
RT Vol	6	14	124	3
Lane Flow Rate	111	76	177	267
Geometry Grp	1	1	1	1
Degree of Util (X)	0.149	0.106	0.222	0.351
Departure Headway (Hd)	4.85	4.975	4.501	4.742
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	735	716	795	755
Service Time	2.909	3.034	2.549	2.792
HCM Lane V/C Ratio	0.151	0.106	0.223	0.354
HCM Control Delay	8.8	8.6	8.8	10.4
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.5	0.4	0.8	1.6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	418	7	6	497	46	10	6	15	47	1	15
Future Volume (vph)	9	418	7	6	497	46	10	6	15	47	1	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	418	7	6	497	46	10	6	15	47	1	15
Future Vol, veh/h	9	418	7	6	497	46	10	6	15	47	1	15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	464	8	7	552	51	11	7	17	52	1	17
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.2	12.9	10.1	11
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	6%	0%	0%	3%	0%	0%	75%
Vol Thru, %	19%	94%	100%	0%	97%	100%	0%	2%
Vol Right, %	48%	0%	0%	100%	0%	0%	100%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	148	279	7	172	331	46	63
LT Vol	10	9	0	0	6	0	0	47
Through Vol	6	139	279	0	166	331	0	1
RT Vol	15	0	0	7	0	0	46	15
Lane Flow Rate	34	165	310	8	191	368	51	70
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.066	0.257	0.481	0.011	0.29	0.559	0.068	0.139
Departure Headway (Hd)	6.862	5.622	5.591	4.886	5.481	5.463	4.758	7.138
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	641	647	735	658	663	755	503
Service Time	4.605	3.336	3.305	2.6	3.193	3.176	2.47	4.878
HCM Lane V/C Ratio	0.065	0.257	0.479	0.011	0.29	0.555	0.068	0.139
HCM Control Delay	10.1	10.3	13.4	7.7	10.4	14.9	7.8	11
HCM Lane LOS	B	B	B	A	B	B	A	B
HCM 95th-tile Q	0.2	1	2.6	0	1.2	3.5	0.2	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	437	24	192	532	143	15	40	186	111	30	19
Future Volume (vph)	22	437	24	192	532	143	15	40	186	111	30	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	14.0	42.0	42.0	39.0	67.0		39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	11.7%	35.0%	35.0%	32.5%	55.8%		32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	437	24	192	532	143	15	40	186	111	30	19
Future Volume (veh/h)	22	437	24	192	532	143	15	40	186	111	30	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	446	24	196	543	146	15	41	190	113	31	19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	1666	739	222	1583	424	38	85	443	54	9	443
Arrive On Green	0.02	0.47	0.47	0.25	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1781	3554	1577	1781	2769	741	0	302	1577	0	30	1577
Grp Volume(v), veh/h	22	446	24	196	348	341	56	0	190	144	0	19
Grp Sat Flow(s),veh/h/ln	1781	1777	1577	1781	1777	1733	302	0	1577	30	0	1577
Q Serve(g_s), s	1.5	9.1	1.0	12.7	0.0	0.0	0.0	0.0	11.8	0.0	0.0	1.1
Cycle Q Clear(g_c), s	1.5	9.1	1.0	12.7	0.0	0.0	33.7	0.0	11.8	33.7	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.43	0.27		1.00	0.78		1.00
Lane Grp Cap(c), veh/h	39	1666	739	222	1016	991	123	0	443	62	0	443
V/C Ratio(X)	0.57	0.27	0.03	0.88	0.34	0.34	0.46	0.00	0.43	2.32	0.00	0.04
Avail Cap(c_a), veh/h	141	1666	739	512	1016	991	123	0	443	62	0	443
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.1	19.4	17.2	44.2	0.0	0.0	35.3	0.0	35.3	55.4	0.0	31.4
Incr Delay (d2), s/veh	4.8	0.4	0.1	4.4	0.9	0.9	1.0	0.0	0.2	640.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.8	0.4	5.1	0.2	0.2	1.2	0.0	4.5	12.9	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	19.7	17.3	48.6	0.9	0.9	36.3	0.0	35.5	696.2	0.0	31.4
LnGrp LOS	E	B	B	D	A	A	D	A	D	F	A	C
Approach Vol, veh/h		492			885			246			163	
Approach Delay, s/veh		21.6			11.5			35.7			618.7	
Approach LOS		C			B			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.4	61.6		39.0	7.1	73.9		39.0				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	34.5	36.7		33.7	9.5	61.7		33.7				
Max Q Clear Time (g_c+I1), s	14.7	11.1		35.7	3.5	2.0		35.7				
Green Ext Time (p_c), s	0.2	1.9		0.0	0.0	2.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			73.0									
HCM 6th LOS			E									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	452	282	187	726	0	0	0	0	410	2	196
Future Volume (vph)	0	452	282	187	726	0	0	0	0	410	2	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		45.0		35.0	80.0					40.0	40.0	
Total Split (%)		37.5%		29.2%	66.7%					33.3%	33.3%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	452	282	187	726	0	0	0	0	410	2	196
Future Volume (veh/h)	0	452	282	187	726	0	0	0	0	410	2	196
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	481	300	199	772	0				436	2	209
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1019	633	224	2309	0				467	4	410
Arrive On Green	0.00	0.65	0.65	0.25	1.00	0.00				0.26	0.26	0.26
Sat Flow, veh/h	0	2194	1304	1781	3647	0				1781	15	1563
Grp Volume(v), veh/h	0	407	374	199	772	0				436	0	211
Grp Sat Flow(s),veh/h/ln	0	1777	1628	1781	1777	0				1781	0	1578
Q Serve(g_s), s	0.0	14.0	14.1	12.9	0.0	0.0				28.7	0.0	13.7
Cycle Q Clear(g_c), s	0.0	14.0	14.1	12.9	0.0	0.0				28.7	0.0	13.7
Prop In Lane	0.00		0.80	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	862	790	224	2309	0				467	0	414
V/C Ratio(X)	0.00	0.47	0.47	0.89	0.33	0.00				0.93	0.00	0.51
Avail Cap(c_a), veh/h	0	862	790	451	2309	0				515	0	456
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.96	0.96	0.76	0.76	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.4	13.4	44.1	0.0	0.0				43.3	0.0	37.7
Incr Delay (d2), s/veh	0.0	1.8	2.0	3.6	0.3	0.0				22.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.1	4.7	5.1	0.1	0.0				15.4	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.2	15.4	47.6	0.3	0.0				65.6	0.0	38.1
LnGrp LOS	A	B	B	D	A	A				E	A	D
Approach Vol, veh/h		781			971						647	
Approach Delay, s/veh		15.3			10.0						56.6	
Approach LOS		B			A						E	

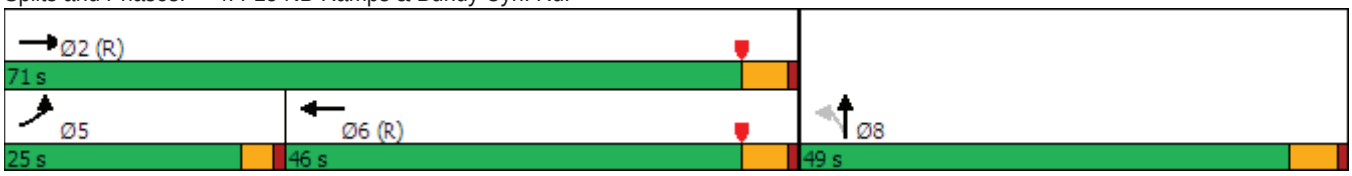
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	19.7	63.5		36.7		83.3
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3
Max Green Setting (Gmax), s	30.4	39.7		34.7		74.7
Max Q Clear Time (g_c+I1), s	14.9	16.1		30.7		2.0
Green Ext Time (p_c), s	0.2	3.3		0.7		3.8

Intersection Summary			
HCM 6th Ctrl Delay		24.3	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	728	0	0	479	224	434	3	360	0	0	0
Future Volume (vph)	134	728	0	0	479	224	434	3	360	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	25.0	71.0			46.0		49.0	49.0				
Total Split (%)	20.8%	59.2%			38.3%		40.8%	40.8%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

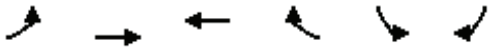
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	728	0	0	479	224	434	3	360	0	0	0
Future Volume (veh/h)	134	728	0	0	479	224	434	3	360	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	138	751	0	0	494	231	447	3	371			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	163	2258	0	0	1200	558	492	3	433			
Arrive On Green	0.18	1.00	0.00	0.00	0.51	0.51	0.28	0.28	0.28			
Sat Flow, veh/h	1781	3647	0	0	2444	1093	1781	13	1566			
Grp Volume(v), veh/h	138	751	0	0	373	352	447	0	374			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1667	1781	0	1578			
Q Serve(g_s), s	9.0	0.0	0.0	0.0	15.6	15.7	29.1	0.0	27.0			
Cycle Q Clear(g_c), s	9.0	0.0	0.0	0.0	15.6	15.7	29.1	0.0	27.0			
Prop In Lane	1.00		0.00	0.00		0.66	1.00		0.99			
Lane Grp Cap(c), veh/h	163	2258	0	0	907	851	492	0	436			
V/C Ratio(X)	0.85	0.33	0.00	0.00	0.41	0.41	0.91	0.00	0.86			
Avail Cap(c_a), veh/h	312	2258	0	0	907	851	649	0	575			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.72	0.72	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	48.2	0.0	0.0	0.0	18.2	18.2	41.9	0.0	41.2			
Incr Delay (d2), s/veh	3.3	0.3	0.0	0.0	1.4	1.5	12.0	0.0	7.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.8	0.1	0.0	0.0	6.6	6.3	14.3	0.0	11.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	0.3	0.0	0.0	19.6	19.7	53.9	0.0	49.1			
LnGrp LOS	D	A	A	A	B	B	D	A	D			
Approach Vol, veh/h		889			725			821				
Approach Delay, s/veh		8.2			19.6			51.7				
Approach LOS		A			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.5			15.0	66.5		38.5				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		65.7			21.0	40.7		43.7				
Max Q Clear Time (g_c+I1), s		2.0			11.0	17.7		31.1				
Green Ext Time (p_c), s		3.7			0.1	2.9		2.1				
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	1023	656	21	5	47
Future Volume (vph)	65	1023	656	21	5	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	1023	656	21	5	47
Future Vol, veh/h	65	1023	656	21	5	47
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	1055	676	22	5	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	703	0	-	0	1242	348
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	561	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	890	-	-	-	197	648
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	503	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	886	-	-	-	180	642
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	500	-

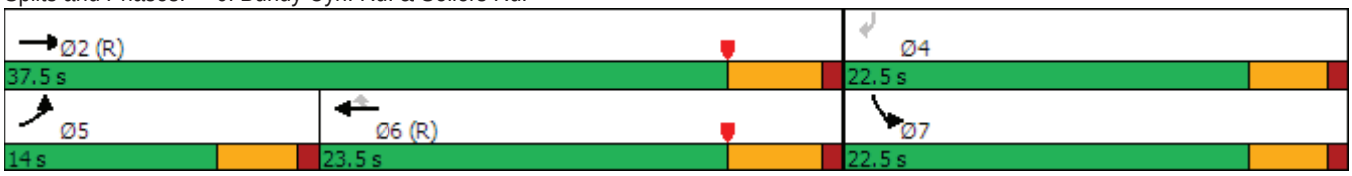
Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11.9
HCM LOS			B

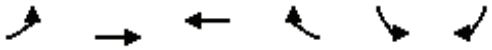
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	886	-	-	-	574
HCM Lane V/C Ratio	0.076	-	-	-	0.093
HCM Control Delay (s)	9.4	-	-	-	11.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	122	959	567	39	34	59
Future Volume (vph)	122	959	567	39	34	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	14.0	37.5	23.5	23.5	22.5	22.5
Total Split (%)	23.3%	62.5%	39.2%	39.2%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	122	959	567	39	34	59
Future Volume (veh/h)	122	959	567	39	34	59
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	1009	597	41	36	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	164	2740	1314	582	534	476
Arrive On Green	0.09	0.54	0.74	0.74	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1574	1781	1585
Grp Volume(v), veh/h	128	1009	597	41	36	62
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1574	1781	1585
Q Serve(g_s), s	4.2	6.8	4.0	0.4	0.9	1.7
Cycle Q Clear(g_c), s	4.2	6.8	4.0	0.4	0.9	1.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	164	2740	1314	582	534	476
V/C Ratio(X)	0.78	0.37	0.45	0.07	0.07	0.13
Avail Cap(c_a), veh/h	282	2740	1314	582	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	26.6	8.0	5.4	5.0	15.0	15.3
Incr Delay (d2), s/veh	3.0	0.4	1.1	0.2	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.0	1.2	0.9	0.4	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.7	8.4	6.5	5.2	15.2	15.9
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		1137	638		98	
Approach Delay, s/veh		10.8	6.4		15.6	
Approach LOS		B	A		B	

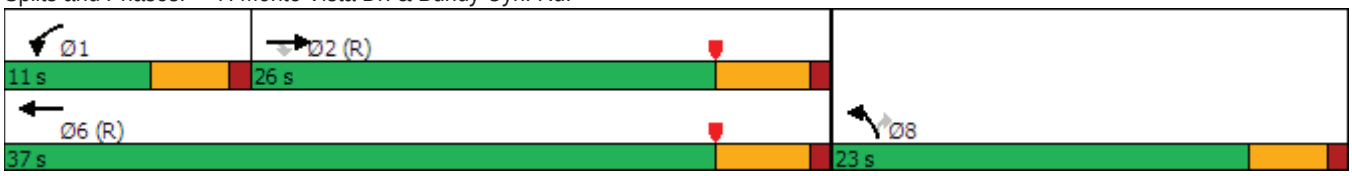
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	10.0	27.5
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	9.5	18.2
Max Q Clear Time (g_c+I1), s		8.8		3.7	6.2	6.0
Green Ext Time (p_c), s		5.0		0.1	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	969	24	50	587	19	106
Future Volume (vph)	969	24	50	587	19	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	11.0	37.0	23.0	23.0
Total Split (%)	43.3%	43.3%	18.3%	61.7%	38.3%	38.3%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.





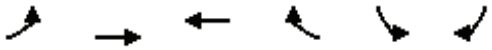
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	969	24	50	587	19	106
Future Volume (veh/h)	969	24	50	587	19	106
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1065	26	55	645	21	116
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2059	635	89	1878	1066	489
Arrive On Green	0.81	0.81	0.06	0.58	0.31	0.31
Sat Flow, veh/h	5274	1575	1781	3647	3456	1585
Grp Volume(v), veh/h	1065	26	55	645	21	116
Grp Sat Flow(s),veh/h/ln	1702	1575	1781	1777	1728	1585
Q Serve(g_s), s	4.2	0.2	1.8	5.7	0.3	3.3
Cycle Q Clear(g_c), s	4.2	0.2	1.8	5.7	0.3	3.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2059	635	89	1878	1066	489
V/C Ratio(X)	0.52	0.04	0.62	0.34	0.02	0.24
Avail Cap(c_a), veh/h	2059	635	193	1878	1066	489
HCM Platoon Ratio	2.00	2.00	1.10	1.10	1.00	1.00
Upstream Filter(I)	0.94	0.94	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.9	3.5	27.8	7.1	14.4	15.5
Incr Delay (d2), s/veh	0.9	0.1	2.6	0.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.8	1.7	0.1	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.7	3.6	30.4	7.6	14.5	16.6
LnGrp LOS	A	A	C	A	B	B
Approach Vol, veh/h	1091			700	137	
Approach Delay, s/veh	4.7			9.4	16.3	
Approach LOS	A			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.5	29.5				37.0	23.0
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	6.5	20.7				31.7	18.5
Max Q Clear Time (g_c+I1), s	3.8	6.2				7.7	5.3
Green Ext Time (p_c), s	0.0	4.5				2.7	0.1

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	1019	613	18	9	24
Future Volume (vph)	56	1019	613	18	9	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

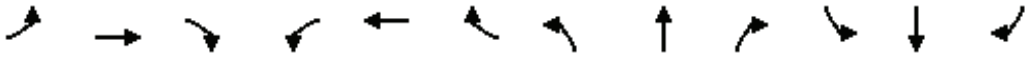
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	1019	613	18	9	24
Future Vol, veh/h	56	1019	613	18	9	24
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	1108	666	20	10	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	691	0	-	0	1251	353
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	570	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	900	-	-	-	195	643
Stage 1	-	-	-	-	451	-
Stage 2	-	-	-	-	497	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	896	-	-	-	180	637
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	495	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	896	-	-	-	479
HCM Lane V/C Ratio	0.068	-	-	-	0.075
HCM Control Delay (s)	9.3	-	-	-	13.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	7	17	1	4	18	11	154	2	30	161	62
Future Volume (vph)	73	7	17	1	4	18	11	154	2	30	161	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

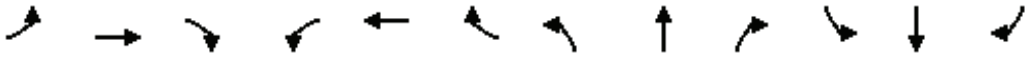
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	73	7	17	1	4	18	11	154	2	30	161	62
Future Vol, veh/h	73	7	17	1	4	18	11	154	2	30	161	62
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	8	18	1	4	19	12	166	2	32	173	67
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	7.8	8.9	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	75%	4%	12%
Vol Thru, %	92%	7%	17%	64%
Vol Right, %	1%	18%	78%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	97	23	253
LT Vol	11	73	1	30
Through Vol	154	7	4	161
RT Vol	2	17	18	62
Lane Flow Rate	180	104	25	272
Geometry Grp	1	1	1	1
Degree of Util (X)	0.227	0.145	0.032	0.328
Departure Headway (Hd)	4.554	5.013	4.624	4.335
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	788	714	771	830
Service Time	2.584	3.053	2.671	2.361
HCM Lane V/C Ratio	0.228	0.146	0.032	0.328
HCM Control Delay	8.9	8.9	7.8	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.5	0.1	1.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	41	33	15	45	1	87	5	25	1	3	1
Future Volume (vph)	1	41	33	15	45	1	87	5	25	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

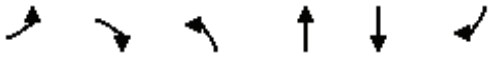
Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	41	33	15	45	1	87	5	25	1	3	1
Future Vol, veh/h	1	41	33	15	45	1	87	5	25	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	47	38	17	51	1	99	6	28	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	85	0	0	156	154	66	171	173	52
Stage 1	-	-	-	-	-	-	68	68	-	86	86	-
Stage 2	-	-	-	-	-	-	88	86	-	85	87	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1554	-	-	1512	-	-	810	738	998	792	720	1016
Stage 1	-	-	-	-	-	-	942	838	-	922	824	-
Stage 2	-	-	-	-	-	-	920	824	-	923	823	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1512	-	-	798	728	998	757	711	1016
Mov Cap-2 Maneuver	-	-	-	-	-	-	798	728	-	757	711	-
Stage 1	-	-	-	-	-	-	941	837	-	921	814	-
Stage 2	-	-	-	-	-	-	904	814	-	890	822	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.8	10.2	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	830	1554	-	-	1512	-	-	766
HCM Lane V/C Ratio	0.16	0.001	-	-	0.011	-	-	0.007
HCM Control Delay (s)	10.2	7.3	0	-	7.4	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	39	45	38	8	8
Future Volume (vph)	6	39	45	38	8	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

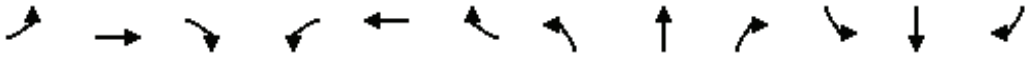
Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	39	45	38	8	8
Future Vol, veh/h	6	39	45	38	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	49	56	48	10	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	175	15	20	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	815	1065	1596	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	786	1065	1596	-	-	-
Mov Cap-2 Maneuver	786	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	869	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1596	-	1017	-	-
HCM Lane V/C Ratio	0.035	-	0.055	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	61	73	12	44	1	70	13	25	1	3	9
Future Volume (vph)	13	61	73	12	44	1	70	13	25	1	3	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

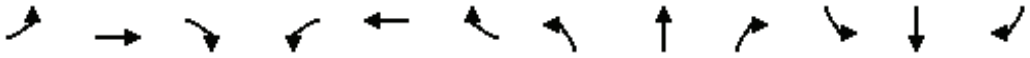
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	61	73	12	44	1	70	13	25	1	3	9
Future Vol, veh/h	13	61	73	12	44	1	70	13	25	1	3	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	66	78	13	47	1	75	14	27	1	3	10
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.1	8.2	8.2	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	65%	9%	21%	0%	8%
Vol Thru, %	12%	41%	79%	0%	23%
Vol Right, %	23%	50%	0%	100%	69%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	108	147	56	1	13
LT Vol	70	13	12	0	1
Through Vol	13	61	44	0	3
RT Vol	25	73	0	1	9
Lane Flow Rate	116	158	60	1	14
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.143	0.181	0.085	0.001	0.016
Departure Headway (Hd)	4.436	4.132	5.061	4.25	4.162
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	812	871	711	845	862
Service Time	2.447	2.142	2.772	1.961	2.177
HCM Lane V/C Ratio	0.143	0.181	0.084	0.001	0.016
HCM Control Delay	8.2	8.1	8.2	7	7.2
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.5	0.7	0.3	0	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	140	52	71	81	1	70	1	59	1	1	1
Future Volume (vph)	1	140	52	71	81	1	70	1	59	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

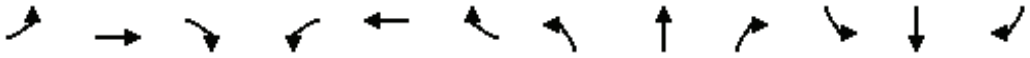
Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	140	52	71	81	1	70	1	59	1	1	1
Future Vol, veh/h	1	140	52	71	81	1	70	1	59	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	151	56	76	87	1	75	1	63	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	88	0	0	207	0	0	394	393	151	453	449	88
Stage 1	-	-	-	-	-	-	153	153	-	240	240	-
Stage 2	-	-	-	-	-	-	241	240	-	213	209	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1508	-	-	1364	-	-	566	543	895	517	505	970
Stage 1	-	-	-	-	-	-	849	771	-	763	707	-
Stage 2	-	-	-	-	-	-	762	707	-	789	729	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1508	-	-	1364	-	-	539	510	895	458	475	970
Mov Cap-2 Maneuver	-	-	-	-	-	-	539	510	-	458	475	-
Stage 1	-	-	-	-	-	-	848	770	-	762	665	-
Stage 2	-	-	-	-	-	-	715	665	-	731	728	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.6	12	11.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	657	1508	-	-	1364	-	-	564
HCM Lane V/C Ratio	0.213	0.001	-	-	0.056	-	-	0.006
HCM Control Delay (s)	12	7.4	0	-	7.8	0	-	11.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.2	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	49	9	1	73	107	15	30	8	71	39	8
Future Volume (vph)	2	49	9	1	73	107	15	30	8	71	39	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	49	9	1	73	107	15	30	8	71	39	8
Future Vol, veh/h	2	49	9	1	73	107	15	30	8	71	39	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	56	10	1	83	122	17	34	9	81	44	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.4	8.1	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	3%	1%	60%
Vol Thru, %	57%	82%	40%	33%
Vol Right, %	15%	15%	59%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	60	181	118
LT Vol	15	2	1	71
Through Vol	30	49	73	39
RT Vol	8	9	107	8
Lane Flow Rate	60	68	206	134
Geometry Grp	1	1	1	1
Degree of Util (X)	0.078	0.086	0.236	0.174
Departure Headway (Hd)	4.659	4.536	4.126	4.681
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	769	790	872	767
Service Time	2.69	2.56	2.145	2.709
HCM Lane V/C Ratio	0.078	0.086	0.236	0.175
HCM Control Delay	8.1	8	8.4	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.9	0.6

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023)CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **821**

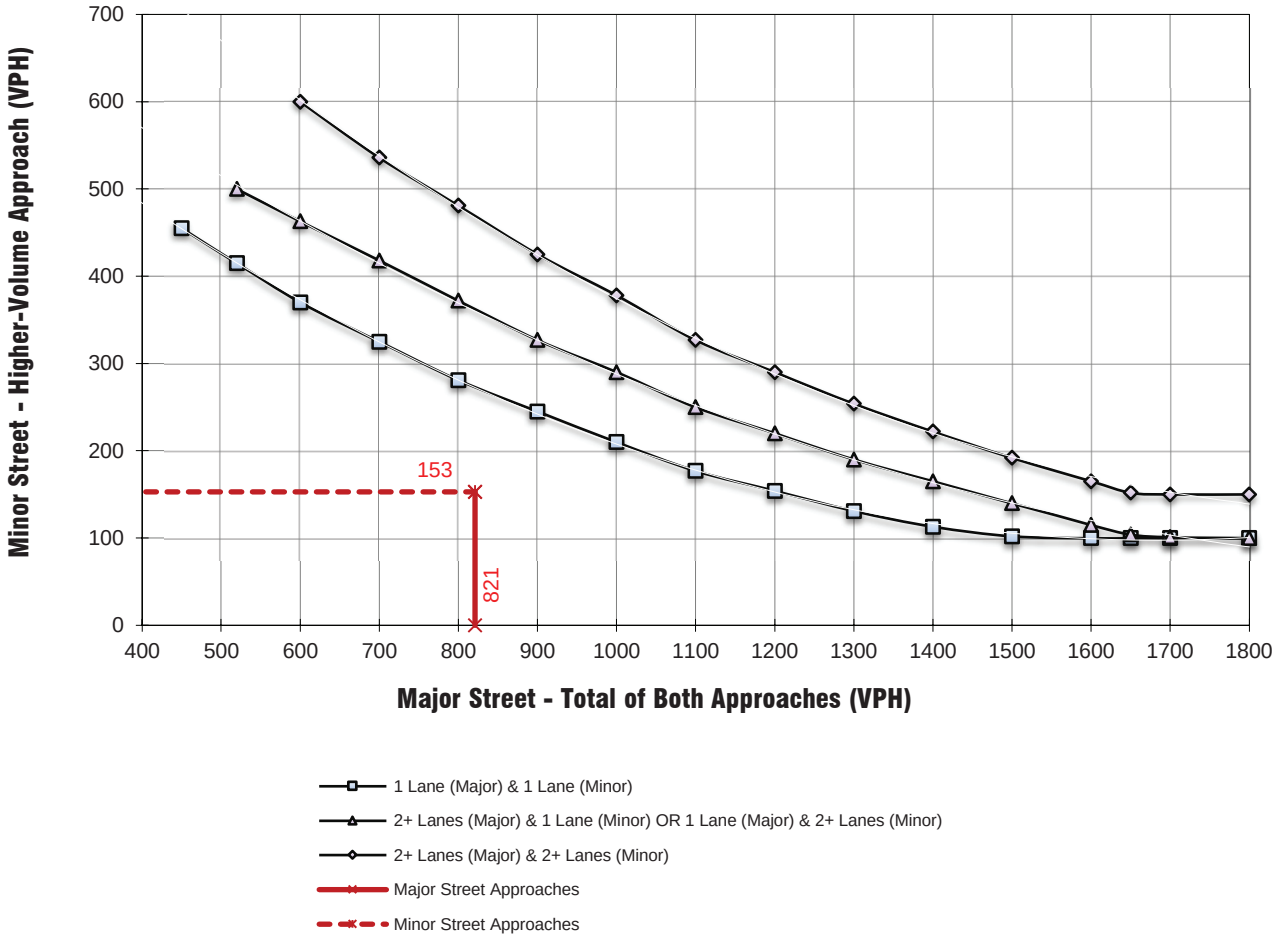
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **153**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023)CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **983**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **63**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED

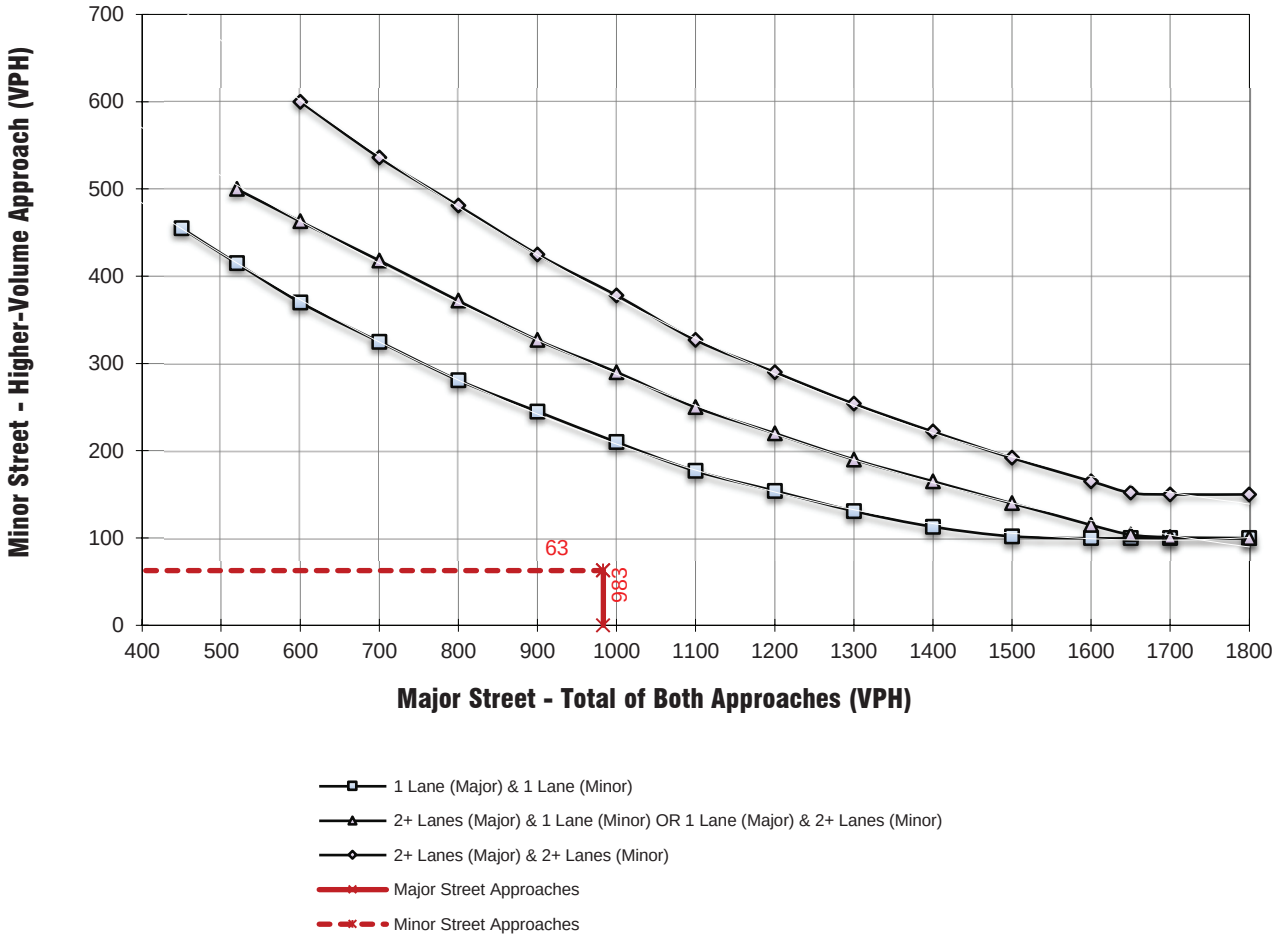


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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1523**

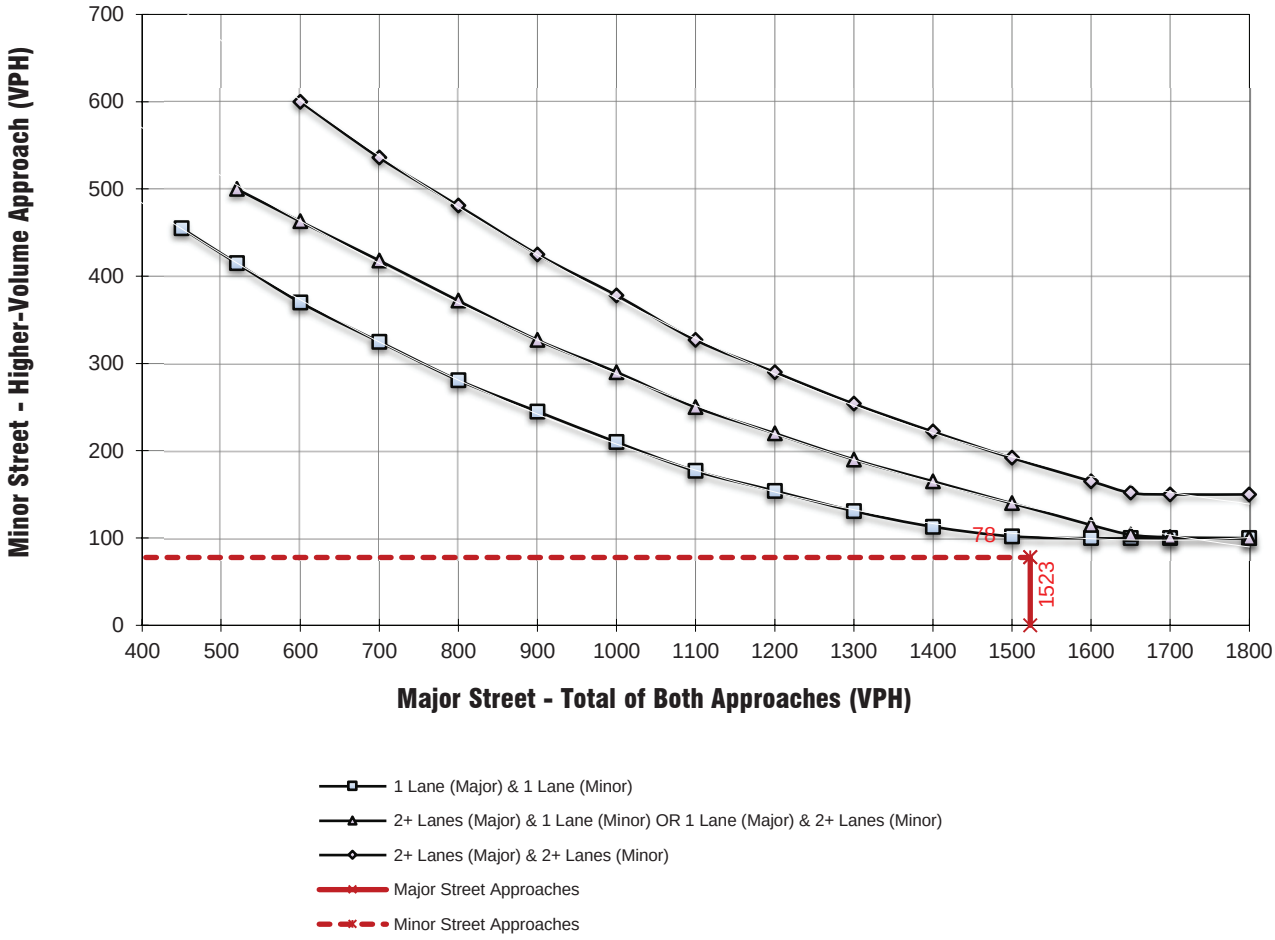
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **78**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1765**

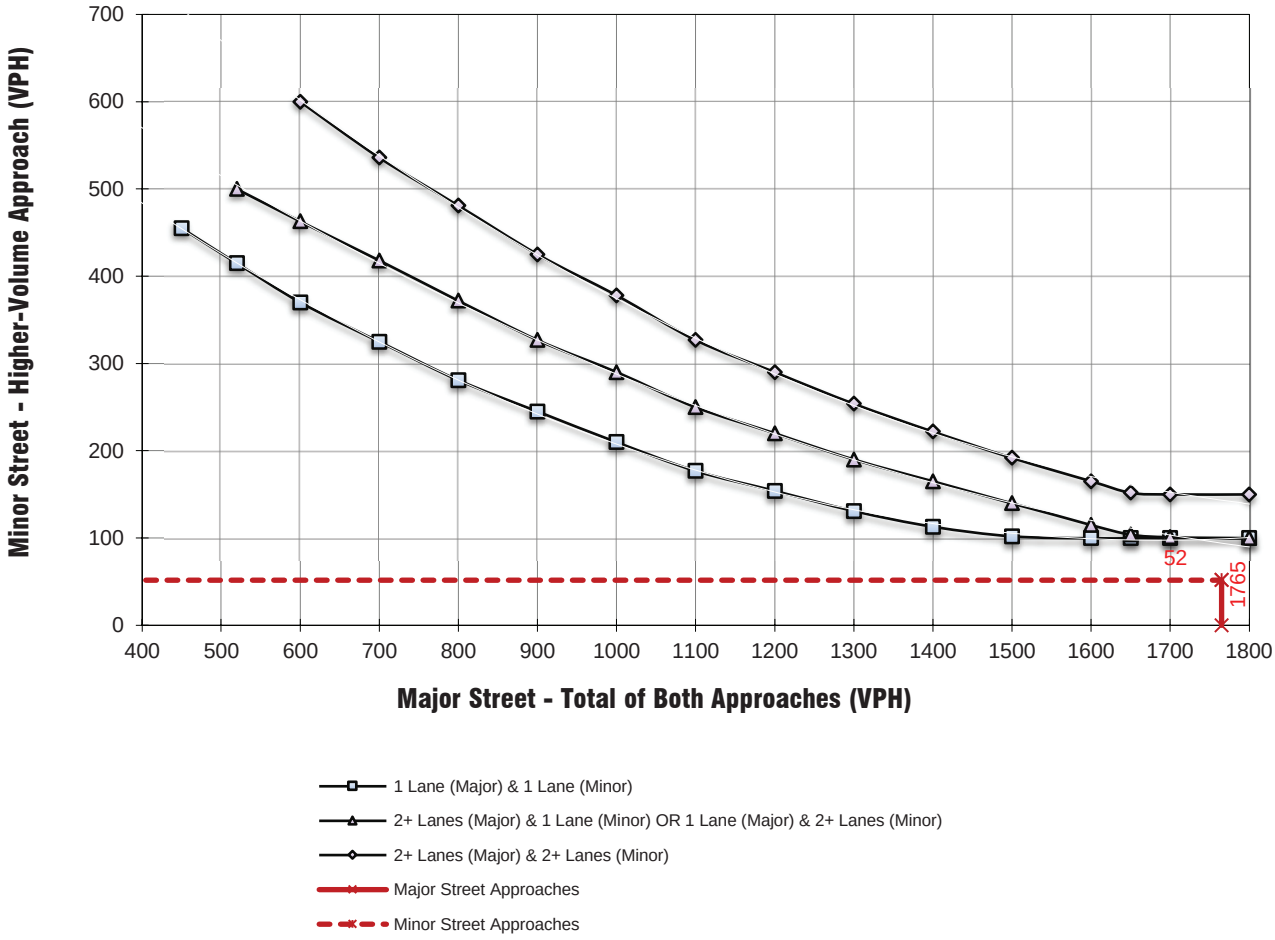
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **52**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1455**

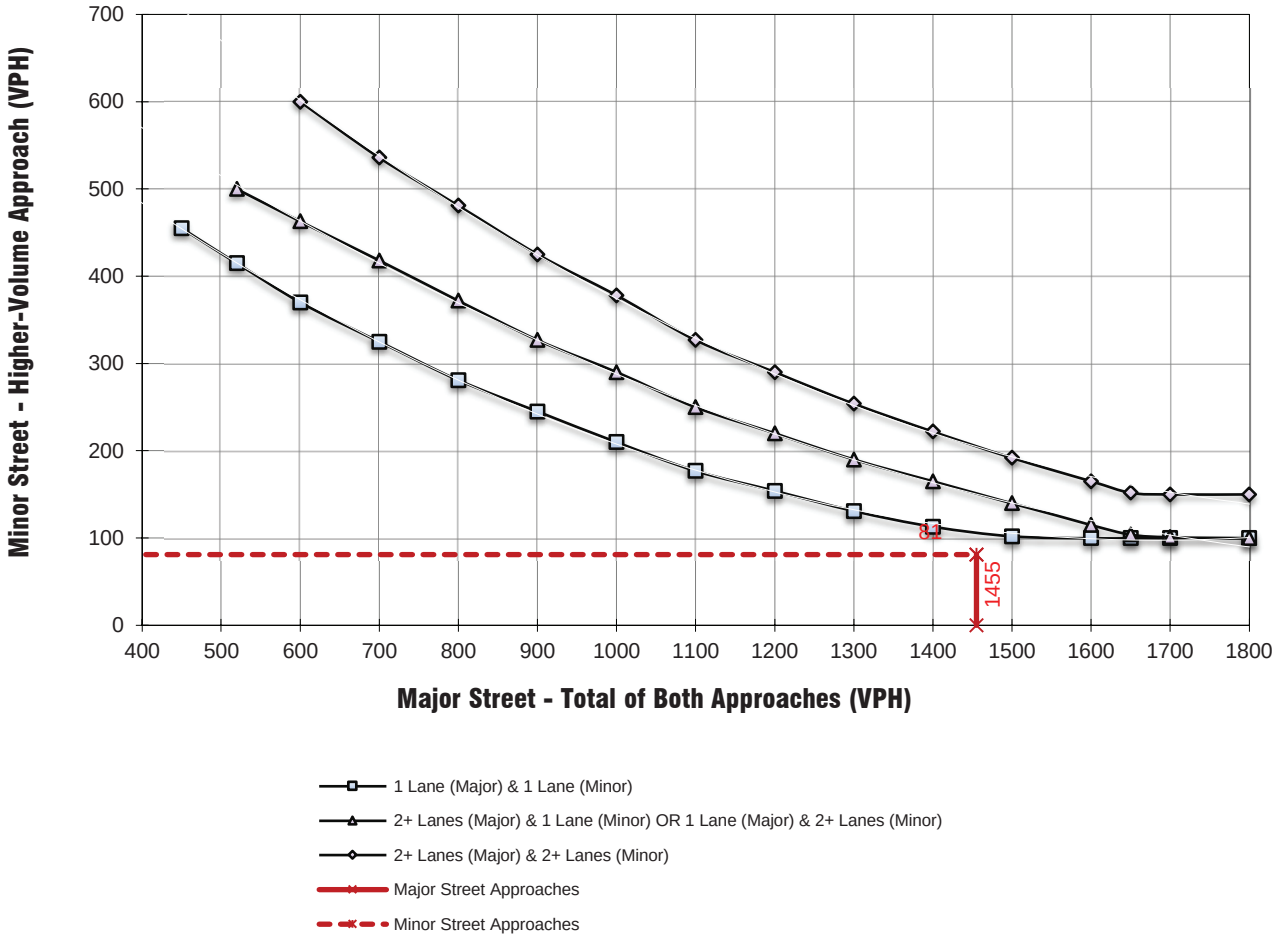
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **81**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1706**

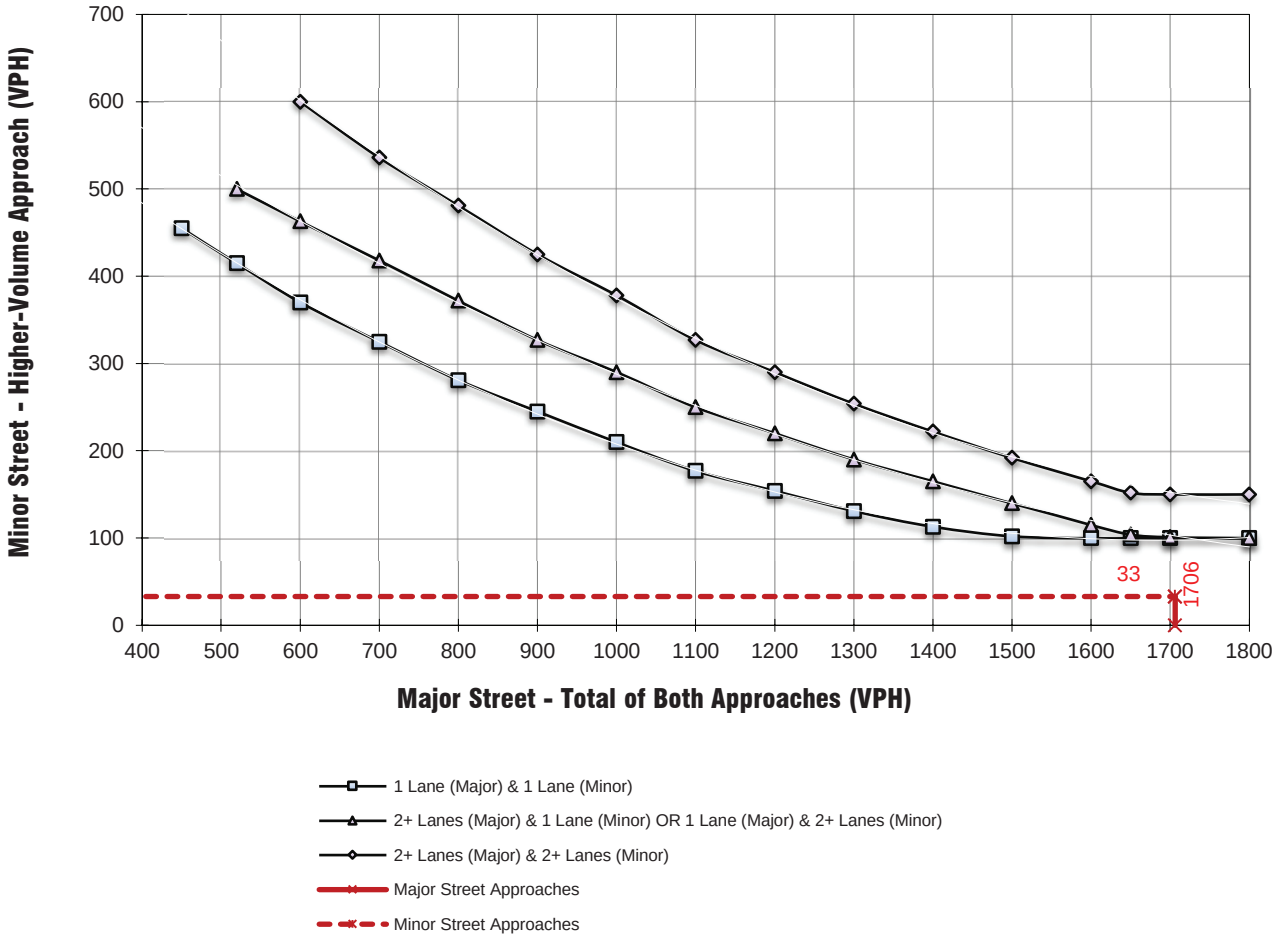
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **33**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Orange St.**

Total of Both Approaches (VPH) = **689**

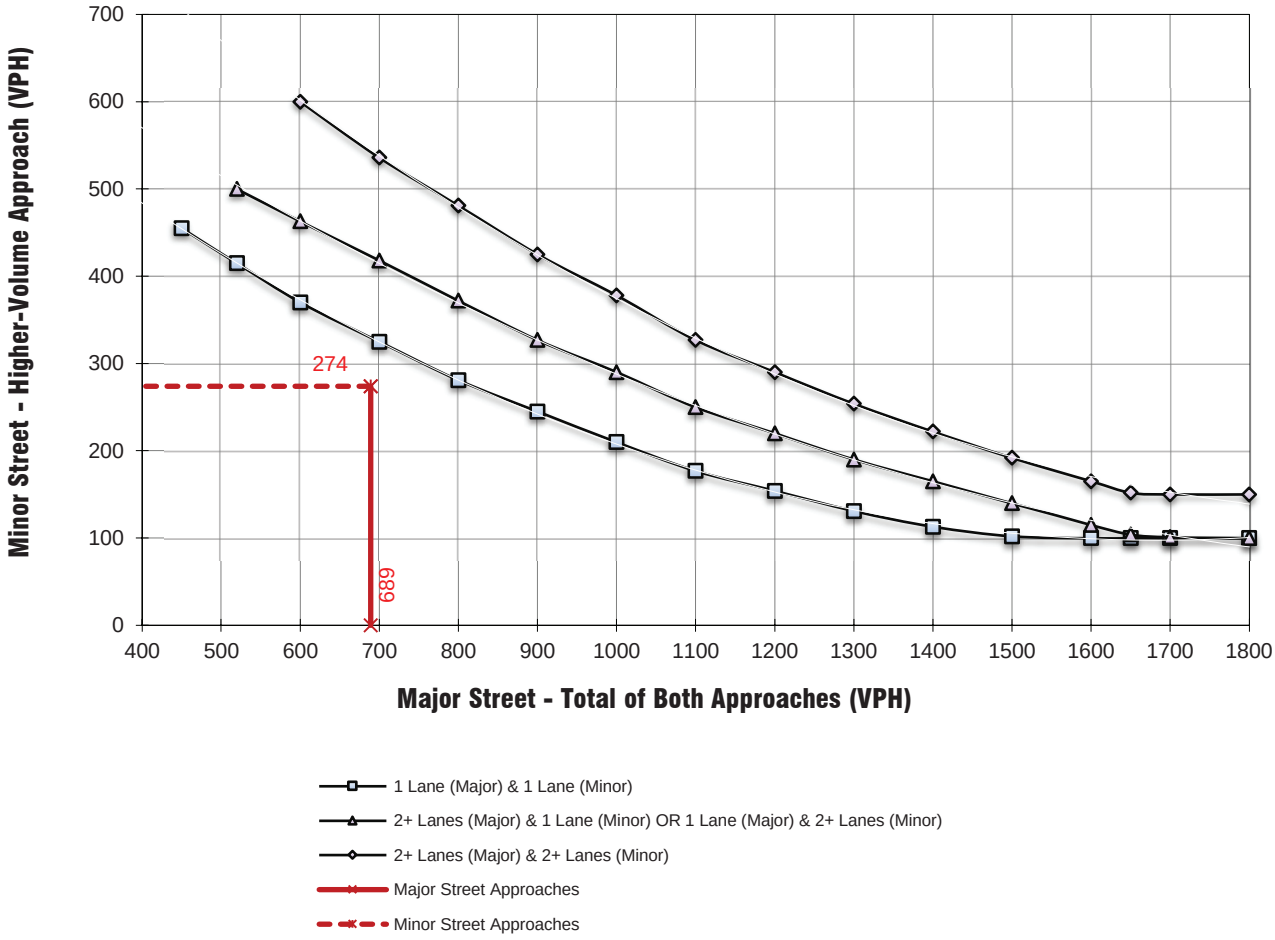
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Canyon Dr.**

High Volume Approach (VPH) = **274**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Orange St.**

Total of Both Approaches (VPH) = **420**

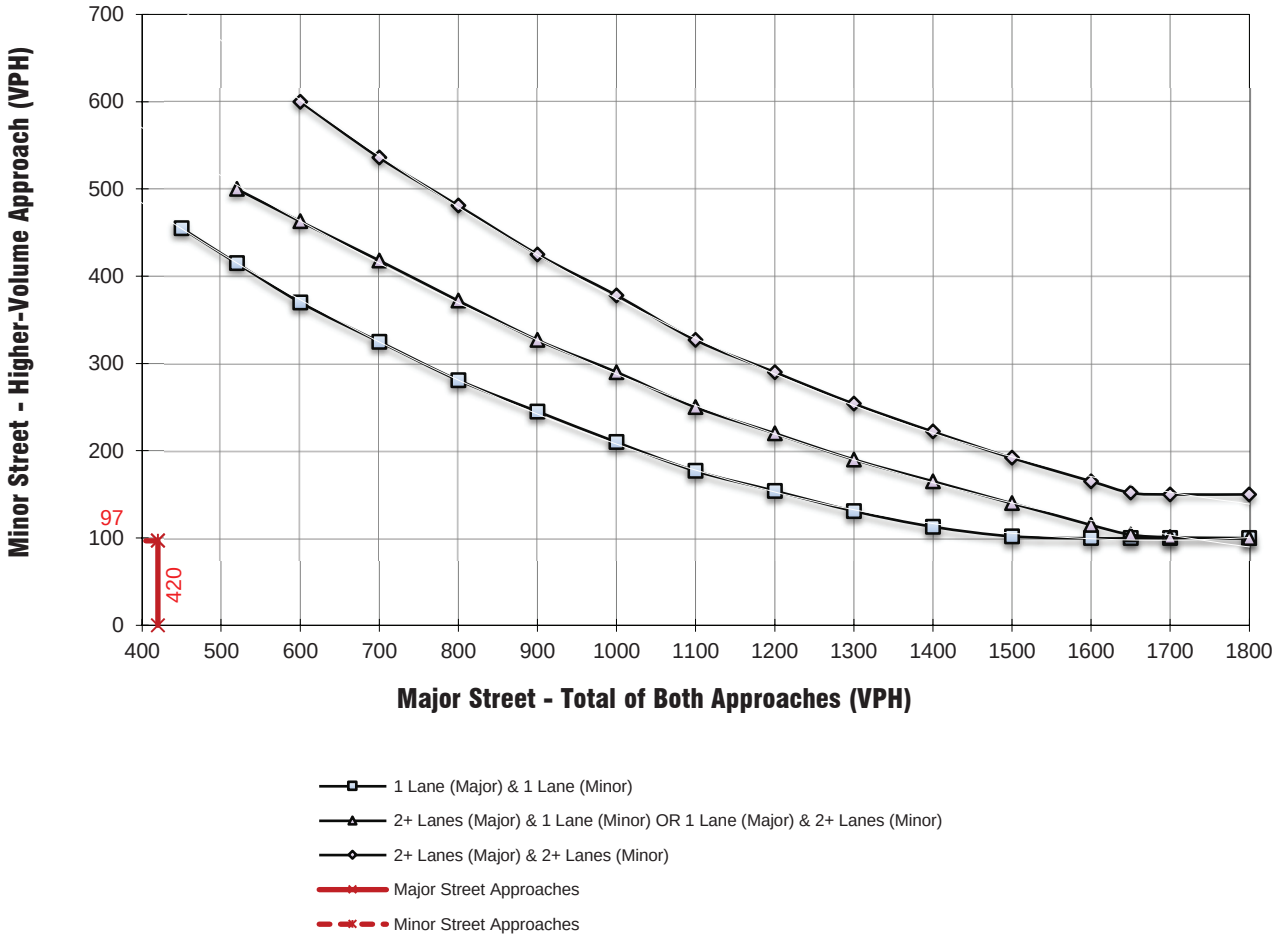
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Canyon Dr.**

High Volume Approach (VPH) = **97**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Cherry St.**

Total of Both Approaches (VPH) = **127**

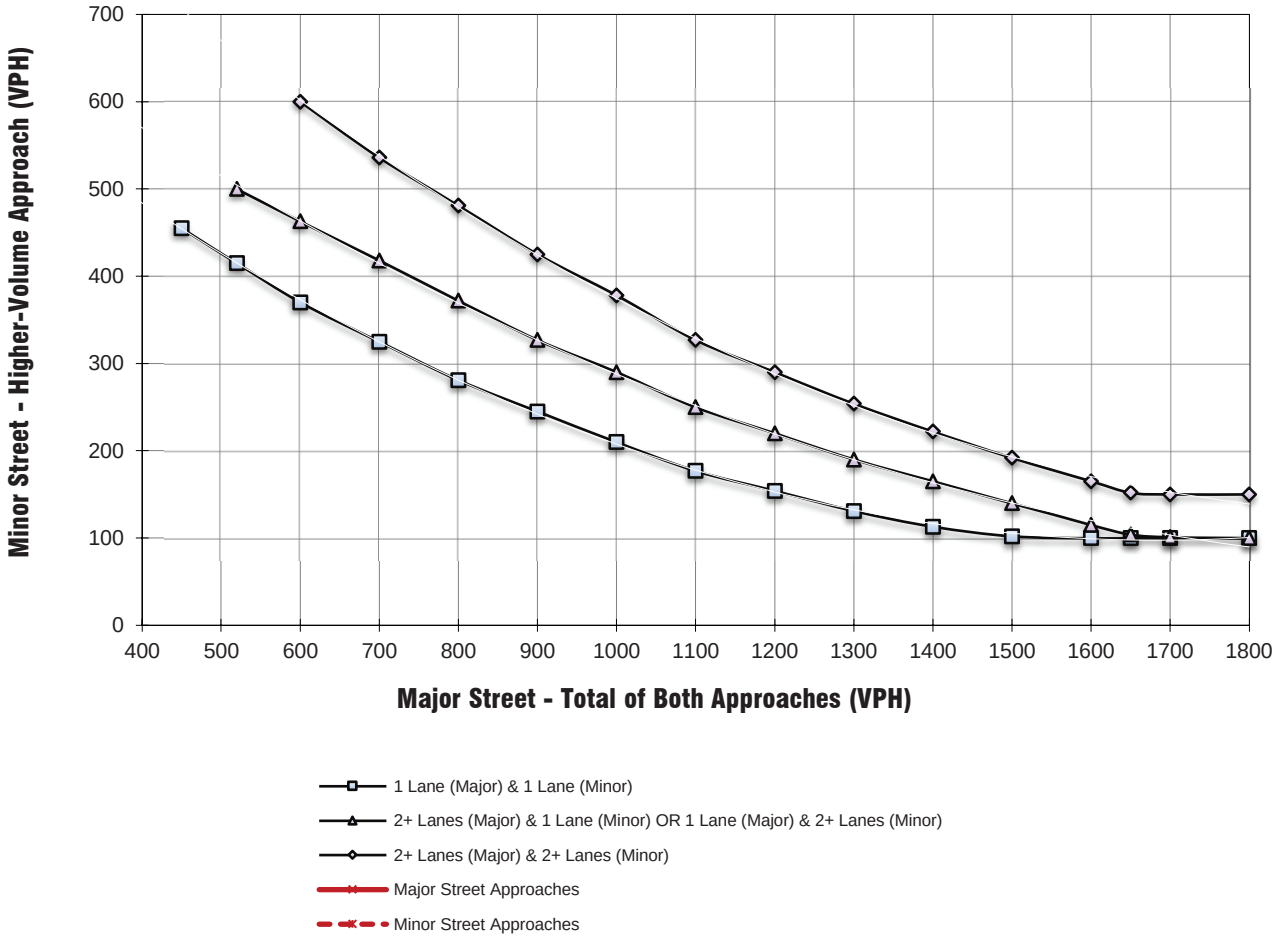
Number of Approach Lanes Major Street = **1**

Minor Street Name = **S. Dwy.**

High Volume Approach (VPH) = **0**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Cherry St.**

Total of Both Approaches (VPH) = **138**

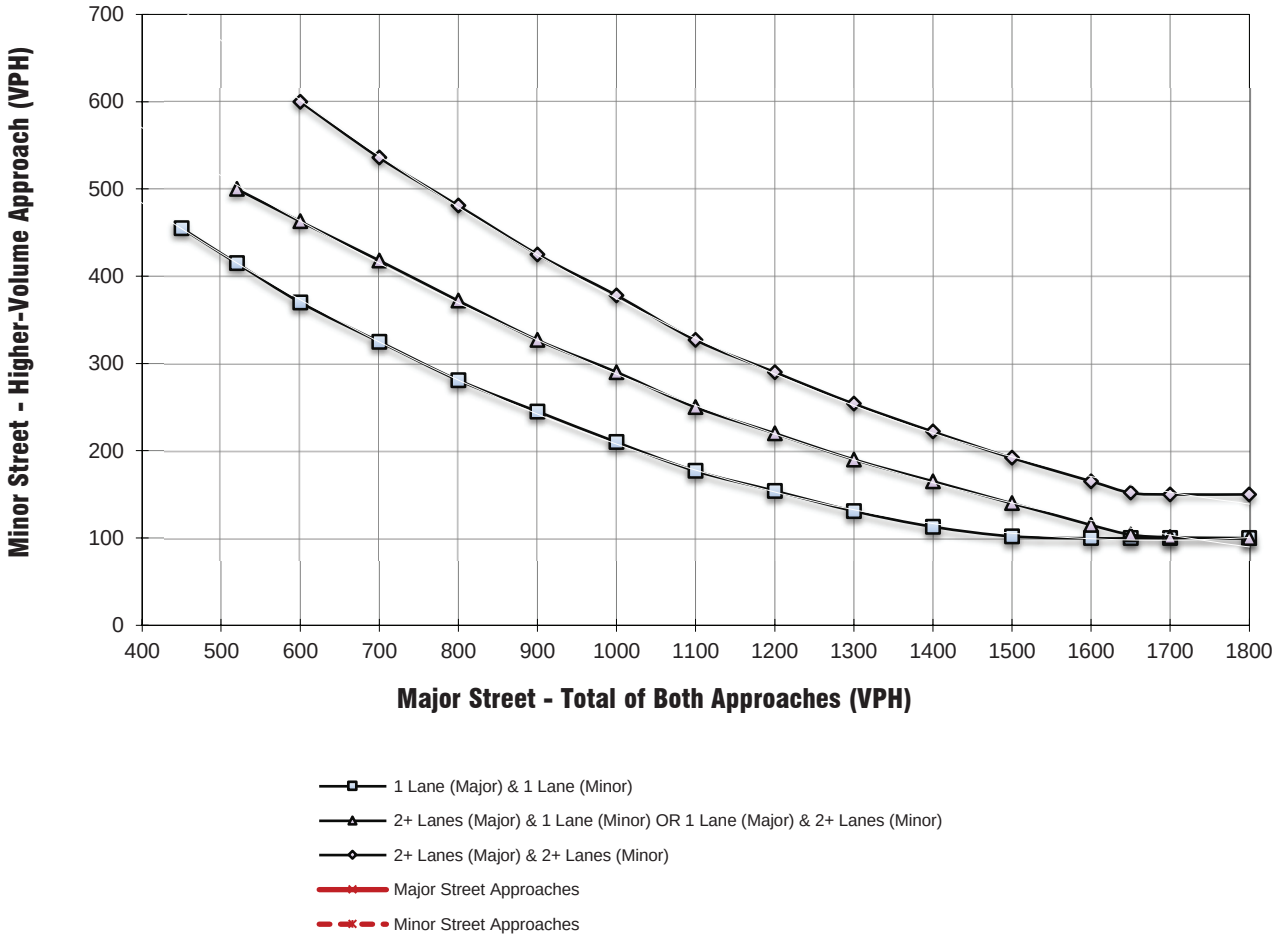
Number of Approach Lanes Major Street = **1**

Minor Street Name = **S. Dwy.**

High Volume Approach (VPH) = **0**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **232**

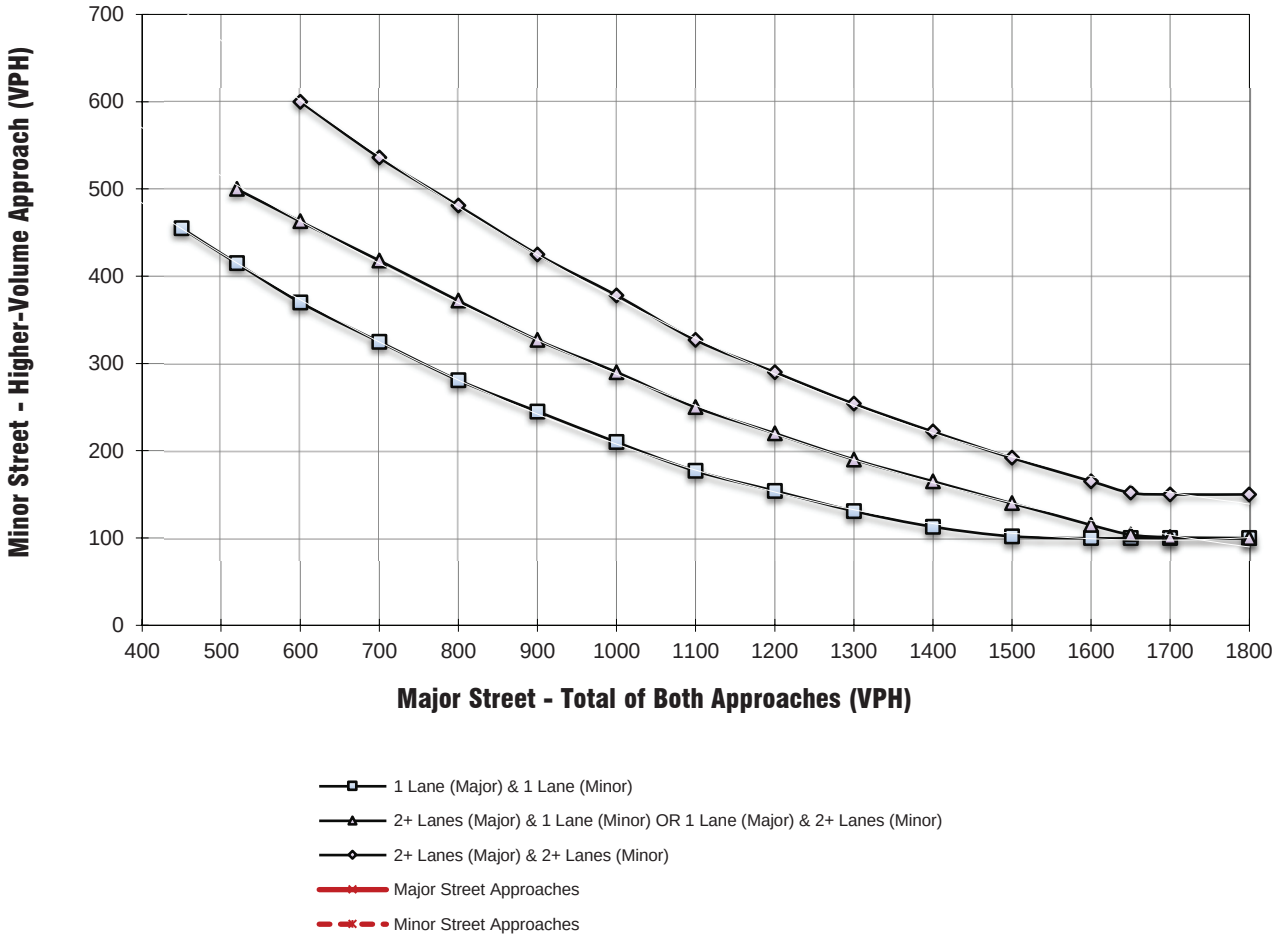
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **21**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **136**

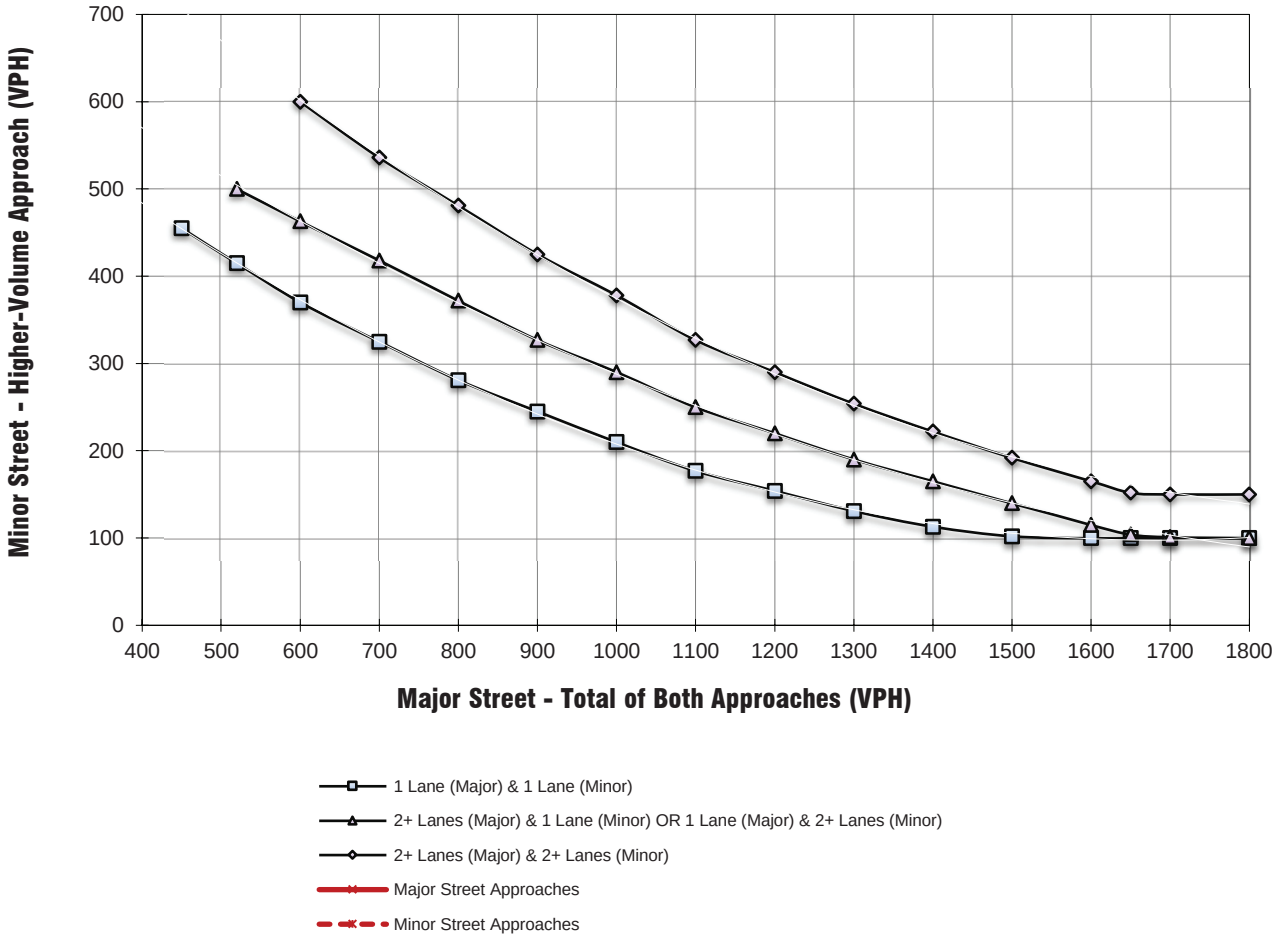
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **117**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **127**

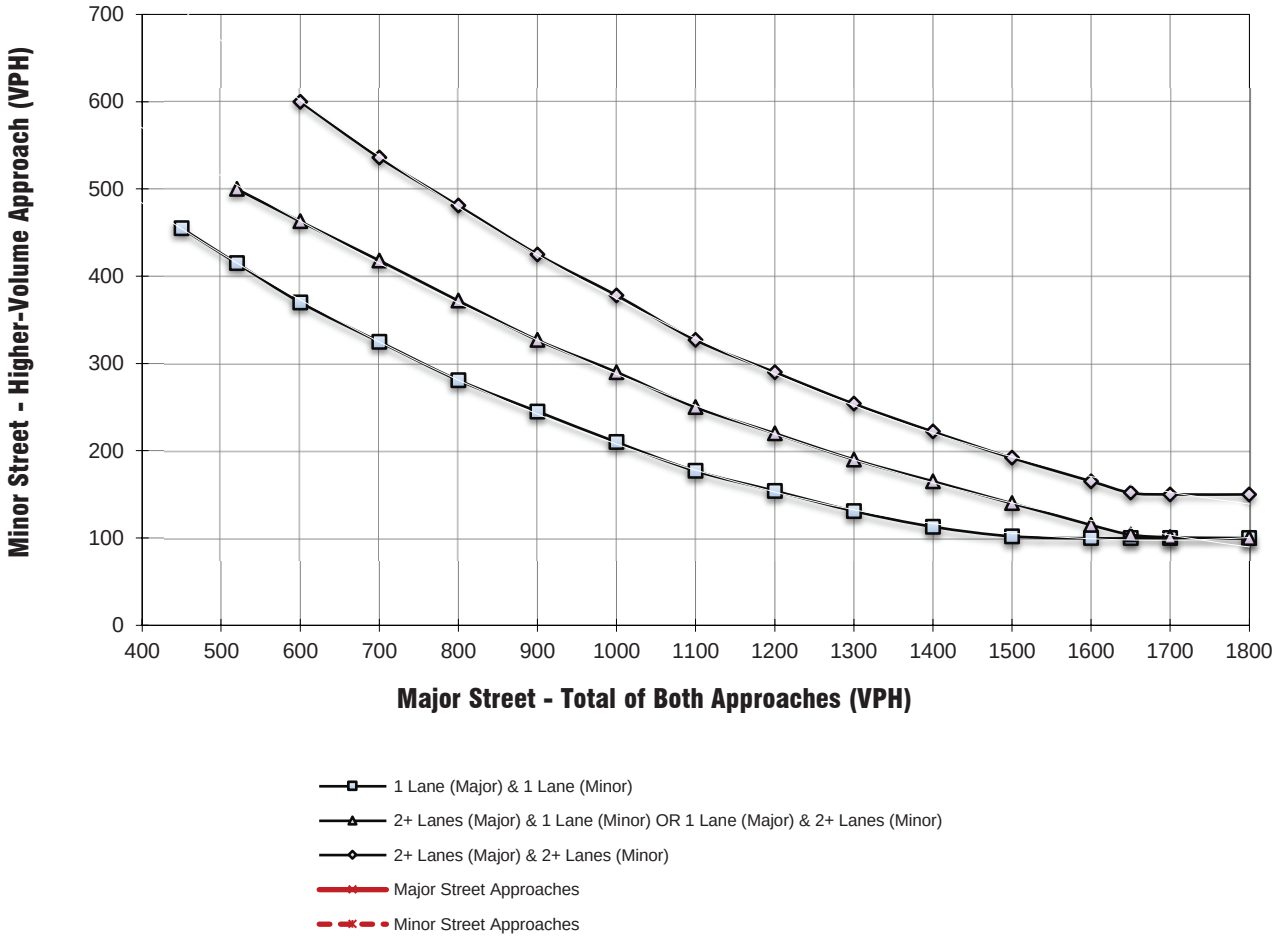
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **81**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **99**

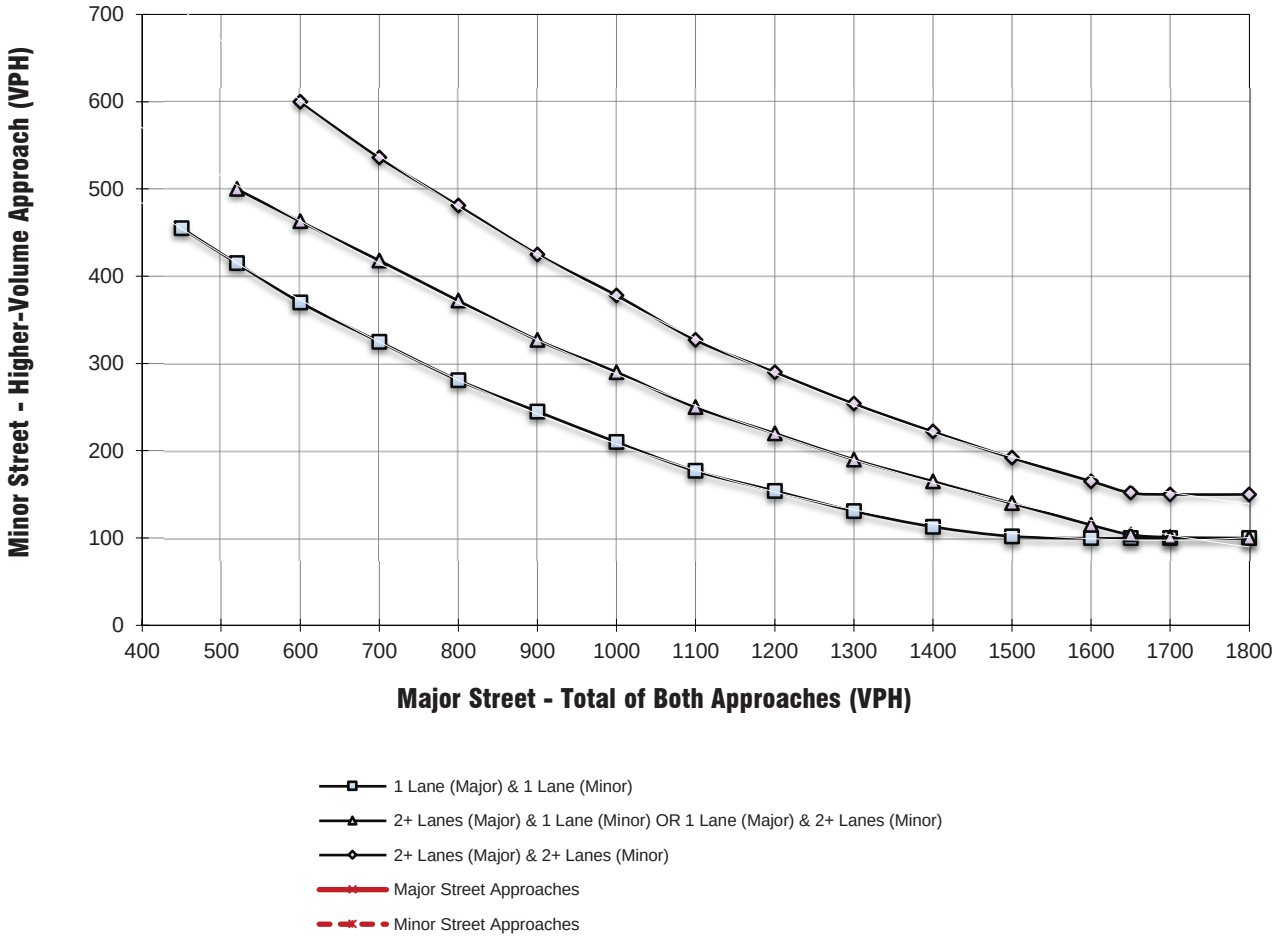
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **45**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **234**

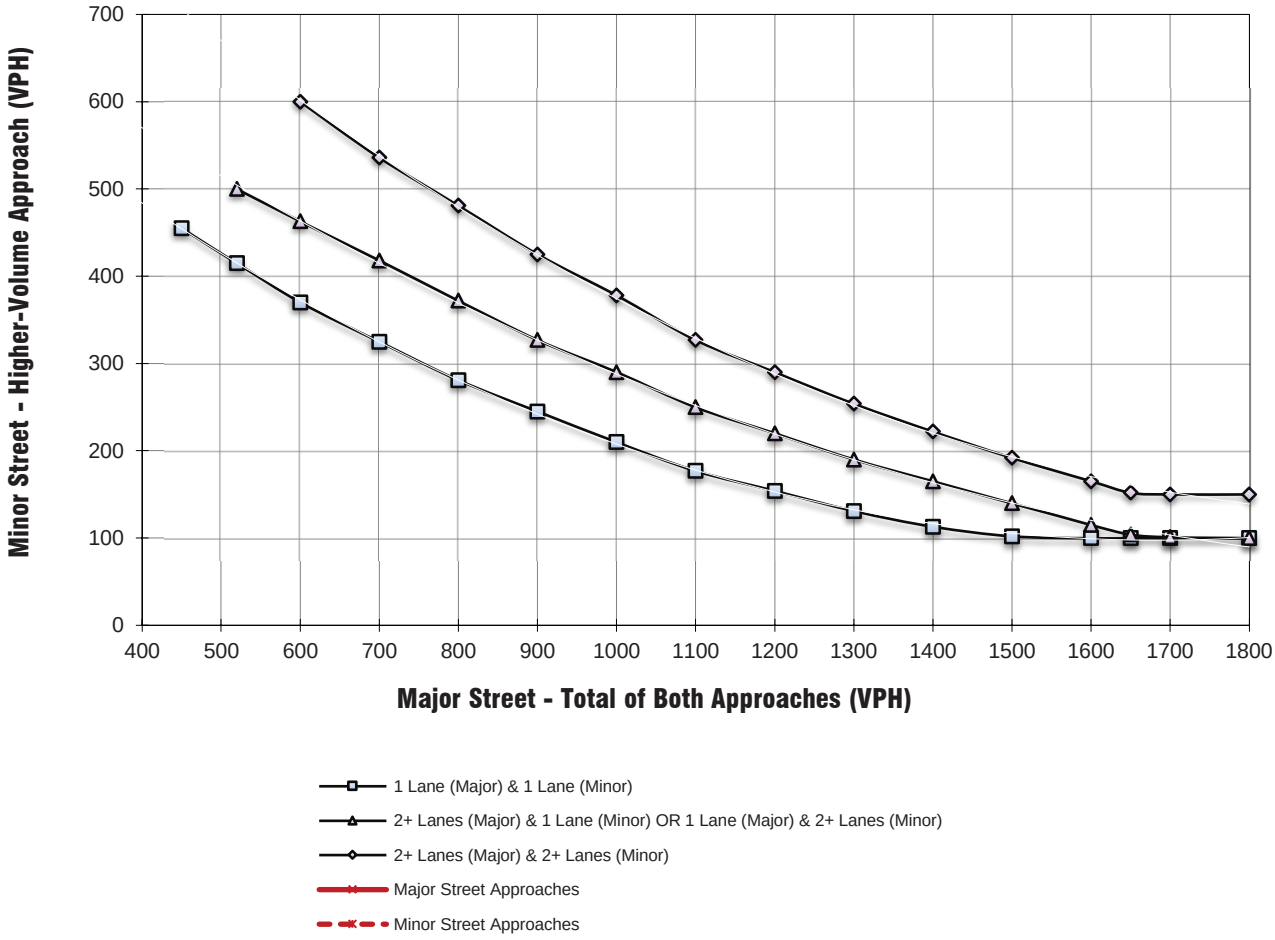
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **115**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **204**

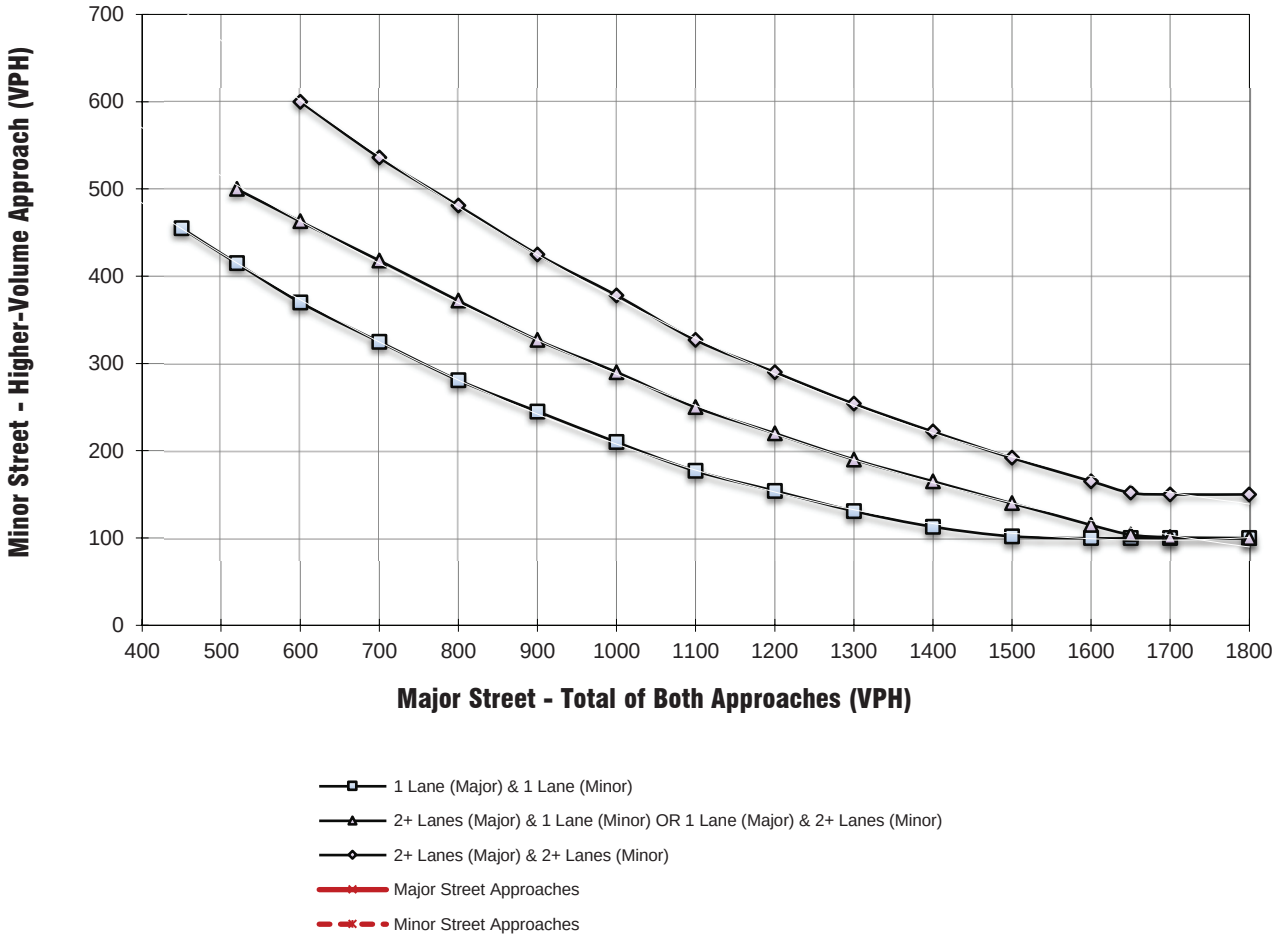
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **108**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **423**

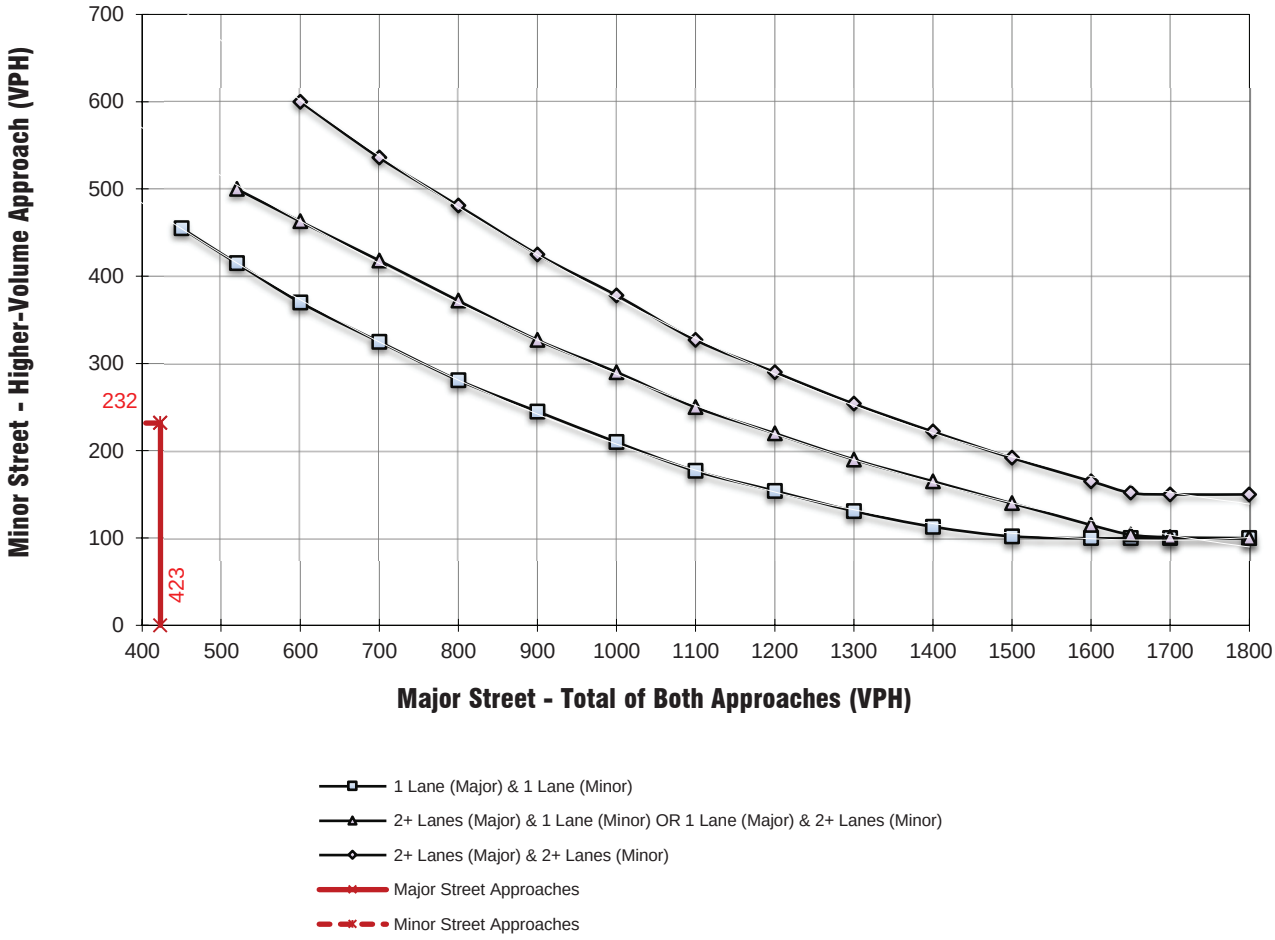
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **232**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **346**

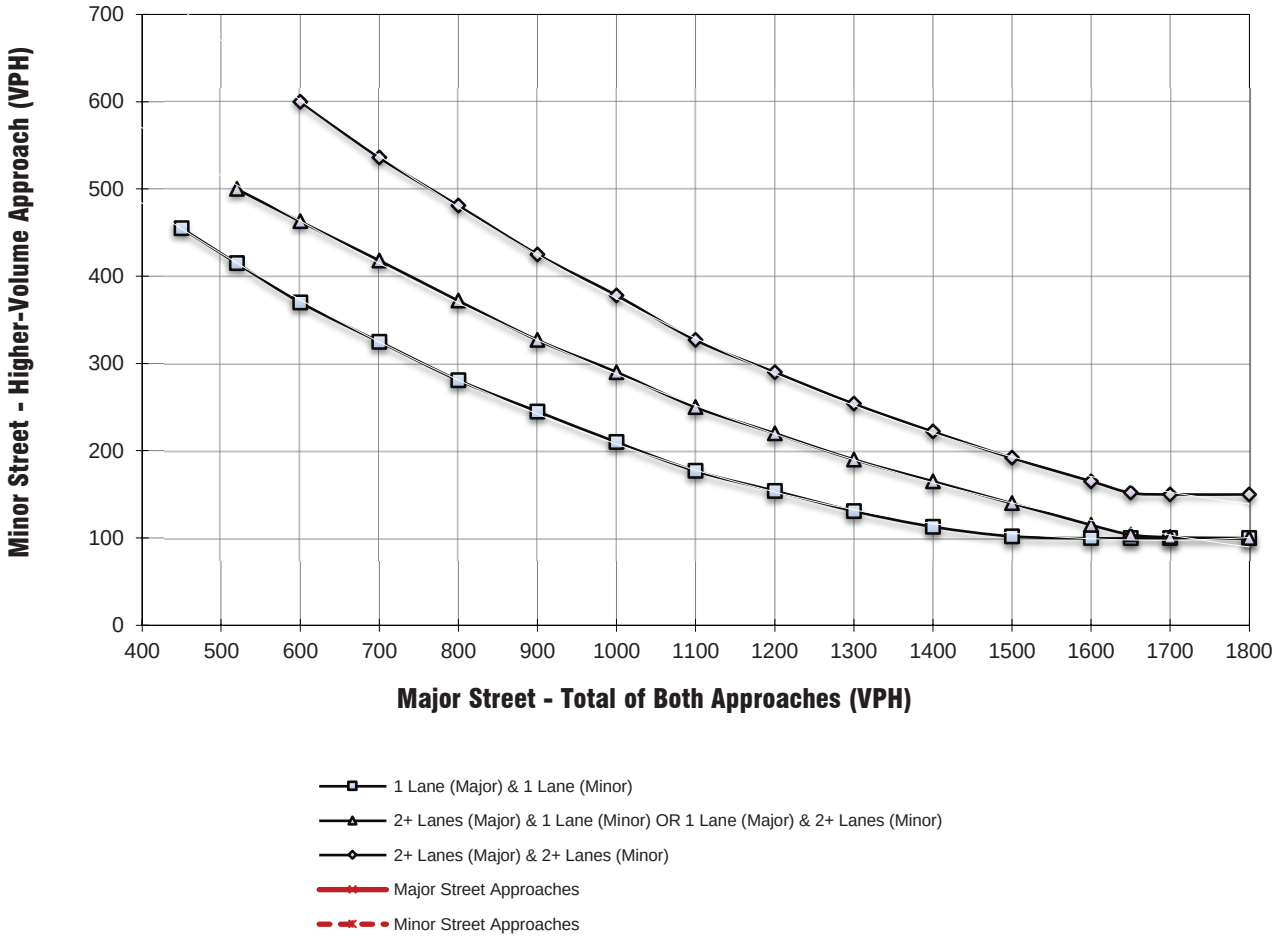
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **130**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (AM Peak Hour)

Major Street Name = **Almond St.**

Total of Both Approaches (VPH) = **351**

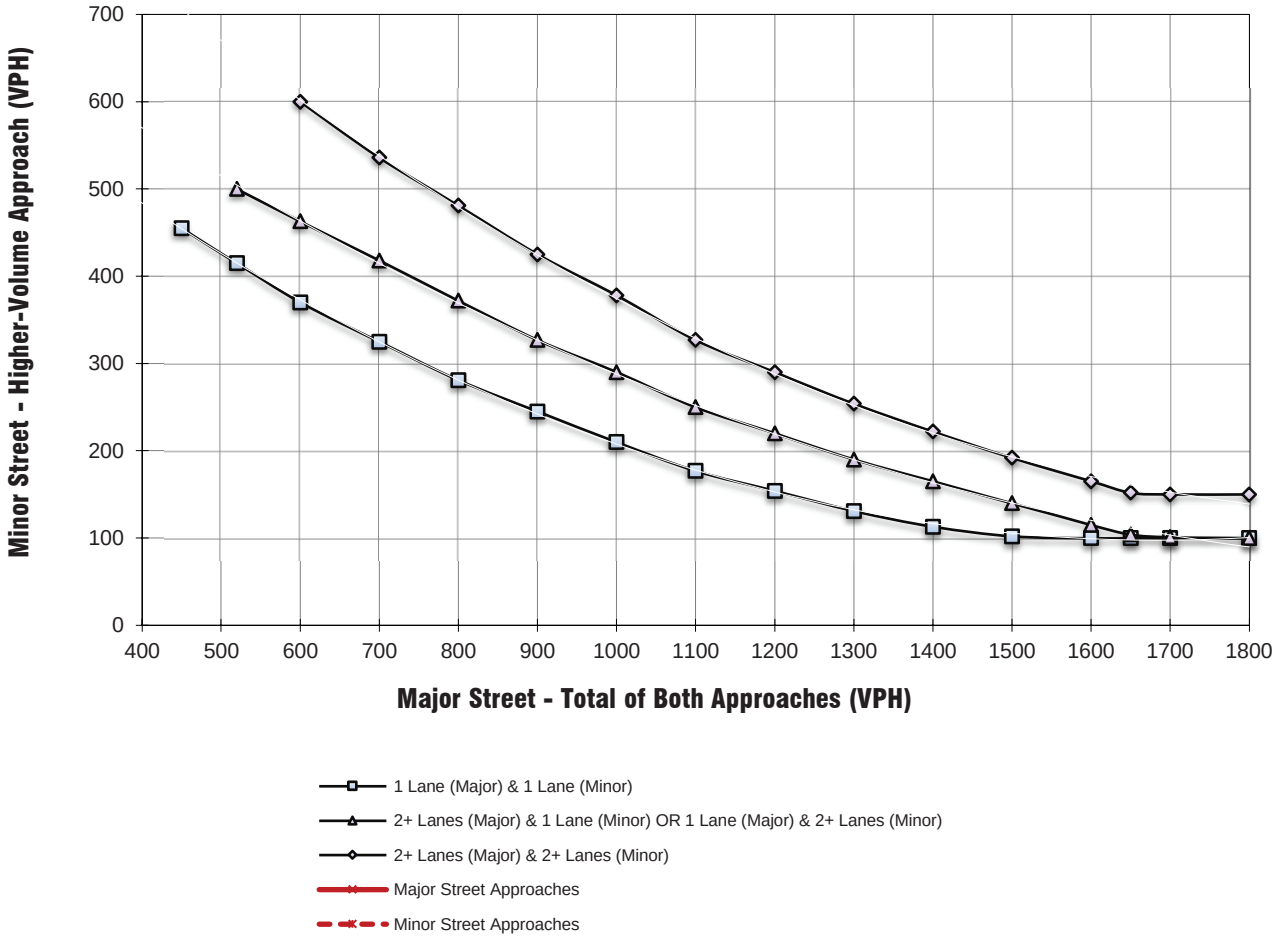
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **165**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EXISTING (2023) CONDITIONS (PM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **241**

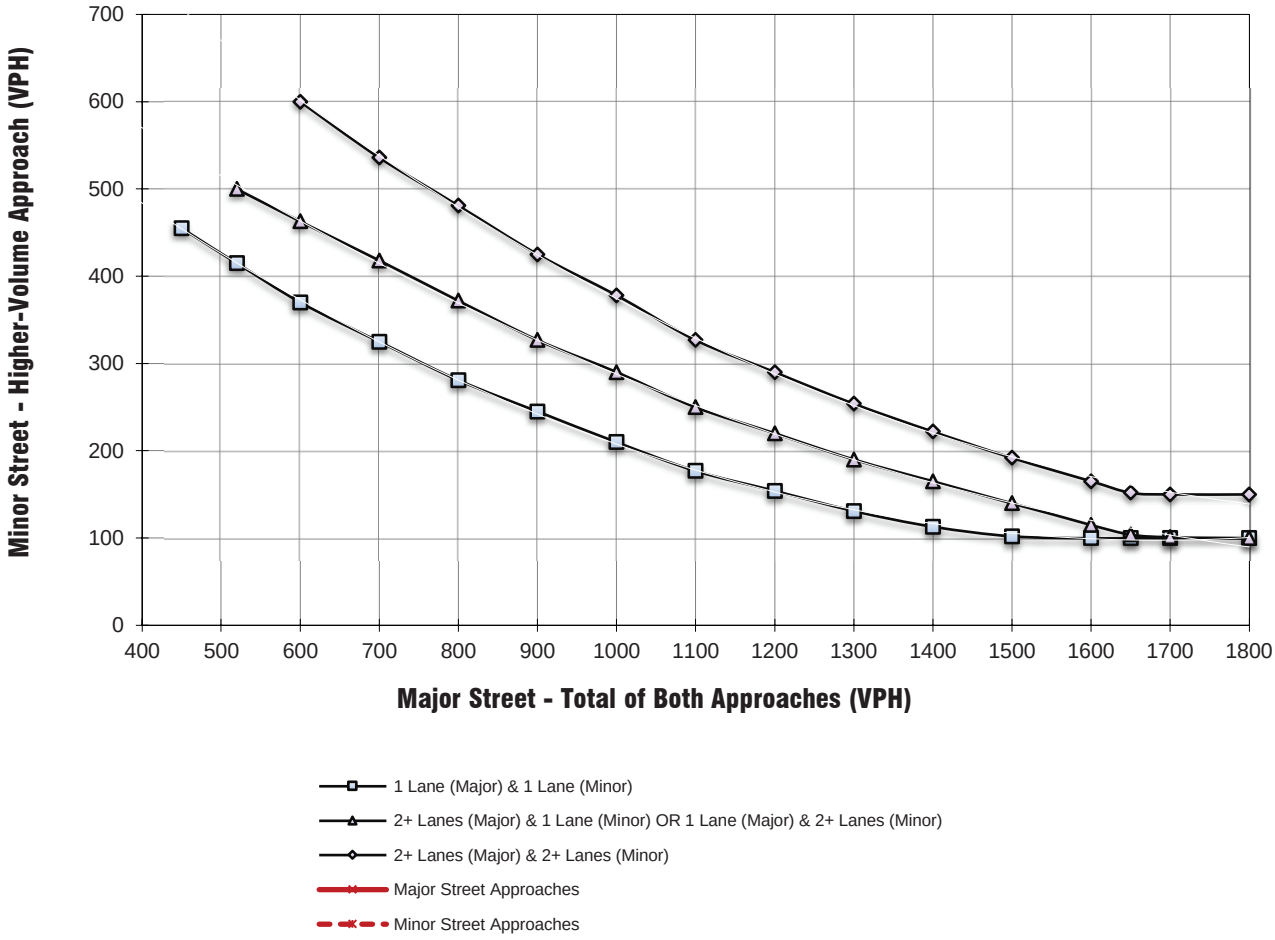
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **118**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

APPENDIX D

EXISTING (2023) CONDITIONS
RAMP JUNCTION ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3960	532
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4392	590
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.62	0.30

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.416
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1433
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.623	Outer Lanes Freeway Speed (SO), mi/h	69.6
Flow in Lanes 1 and 2 (v12), pc/h	2959	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	24.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.6

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HCS7 Freeway Merge Report

Project Information			
Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3428	861
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3802	955
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.67	0.48

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.384
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1563
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	56.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	61.2
Flow in Lanes 1 and 2 (v12), pc/h	2239	Ramp Junction Speed (S), mi/h	57.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	3194	Average Density (D), pc/mi/ln	27.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.5

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2873	470
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3187	521
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.45	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.410
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	917
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.656	Outer Lanes Freeway Speed (SO), mi/h	71.3
Flow in Lanes 1 and 2 (v12), pc/h	2270	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.3

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	1/4/2024
Agency		Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2403	530
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2665	588
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.46	0.29

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.311
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1580	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	2168	Average Density (D), pc/mi/ln	18.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.7

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i)	3332	608
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.980	0.980
Flow Rate (v_i),pc/h	3696	674
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.34

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Number of Outer Lanes on Freeway (N_O)	1
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (D_S)	0.424
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1097
Distance to Downstream Ramp (L_{DOWN}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FD})	0.637	Outer Lanes Freeway Speed (S_O), mi/h	70.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2599	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.5

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HCS7 Freeway Merge Report

Project Information			
Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2724	471
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3021	522
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.26

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.328
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1242
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1779	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2301	Average Density (D), pc/mi/ln	20.0
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.7

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3688	797
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4091	884
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.58	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.443
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1228
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.617	Outer Lanes Freeway Speed (SO), mi/h	70.4
Flow in Lanes 1 and 2 (v12), pc/h	2863	Ramp Junction Speed (S), mi/h	58.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.4

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	12/18/19
Agency	Trames Solutions, Inc.	Analysis Year	Existing (2023)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2891	361
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3207	400
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.51	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.316
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1305
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1902	Ramp Junction Speed (S), mi/h	59.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2302	Average Density (D), pc/mi/ln	20.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.8

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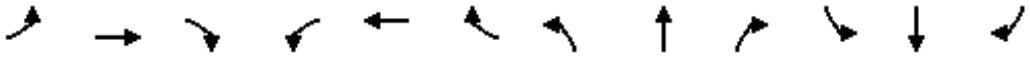


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	390	29	62	314	40	23	32	65	80	34	39
Future Volume (vph)	21	390	29	62	314	40	23	32	65	80	34	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	390	29	62	314	40	23	32	65	80	34	39
Future Vol, veh/h	21	390	29	62	314	40	23	32	65	80	34	39
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	476	35	76	383	49	28	39	79	98	41	48
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

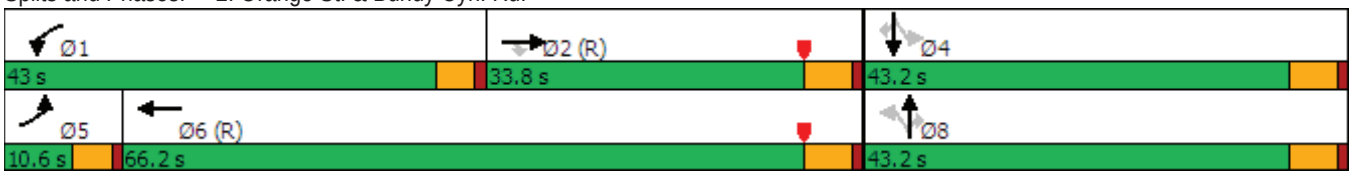
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	16.2	14.4	13.4	15.4
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	19%	14%	0%	0%	37%	0%	0%	52%
Vol Thru, %	27%	86%	100%	0%	63%	100%	0%	22%
Vol Right, %	54%	0%	0%	100%	0%	0%	100%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	151	260	29	167	209	40	153
LT Vol	23	21	0	0	62	0	0	80
Through Vol	32	130	260	0	105	209	0	34
RT Vol	65	0	0	29	0	0	40	39
Lane Flow Rate	146	184	317	35	203	255	49	187
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.303	0.348	0.592	0.059	0.393	0.48	0.082	0.397
Departure Headway (Hd)	7.448	6.797	6.726	6.008	6.961	6.77	6.052	7.669
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	483	528	536	596	516	534	592	470
Service Time	5.191	4.537	4.465	3.747	4.701	4.51	3.792	5.411
HCM Lane V/C Ratio	0.302	0.348	0.591	0.059	0.393	0.478	0.083	0.398
HCM Control Delay	13.4	13.1	18.8	9.1	14.2	15.6	9.3	15.4
HCM Lane LOS	B	B	C	A	B	C	A	C
HCM 95th-tile Q	1.3	1.5	3.8	0.2	1.9	2.6	0.3	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	473	23	338	399	80	9	56	391	197	45	7
Future Volume (vph)	24	473	23	338	399	80	9	56	391	197	45	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	10.6	33.8	33.8	43.0	66.2		43.2	43.2	43.2	43.2	43.2	43.2
Total Split (%)	8.8%	28.2%	28.2%	35.8%	55.2%		36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	473	23	338	399	80	9	56	391	197	45	7
Future Volume (veh/h)	24	473	23	338	399	80	9	56	391	197	45	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	520	25	371	438	88	10	62	430	216	49	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	1196	530	395	1576	314	34	182	498	54	0	498
Arrive On Green	0.02	0.34	0.34	0.37	0.89	0.89	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3554	1573	1781	2950	588	0	576	1578	0	0	1578
Grp Volume(v), veh/h	26	520	25	371	263	263	72	0	430	265	0	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1573	1781	1777	1761	576	0	1578	0	0	1578
Q Serve(g_s), s	1.7	13.6	1.3	24.1	2.5	2.6	0.0	0.0	30.8	0.0	0.0	0.4
Cycle Q Clear(g_c), s	1.7	13.6	1.3	24.1	2.5	2.6	37.9	0.0	30.8	37.9	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.33	0.14		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	43	1196	530	395	949	941	216	0	498	54	0	498
V/C Ratio(X)	0.60	0.43	0.05	0.94	0.28	0.28	0.33	0.00	0.86	4.87	0.00	0.02
Avail Cap(c_a), veh/h	91	1196	530	571	949	941	216	0	498	54	0	498
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.0	30.9	26.8	37.0	3.2	3.2	32.1	0.0	38.6	60.0	0.0	28.2
Incr Delay (d2), s/veh	5.0	1.2	0.2	15.5	0.7	0.7	0.3	0.0	13.9	1780.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.0	0.5	10.7	1.0	1.0	1.5	0.0	13.6	28.6	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	32.1	27.0	52.6	3.9	3.9	32.4	0.0	52.5	1840.6	0.0	28.2
LnGrp LOS	E	C	C	D	A	A	C	A	D	F	A	C
Approach Vol, veh/h		571			897			502			273	
Approach Delay, s/veh		33.3			24.0			49.6			1787.5	
Approach LOS		C			C			D			F	

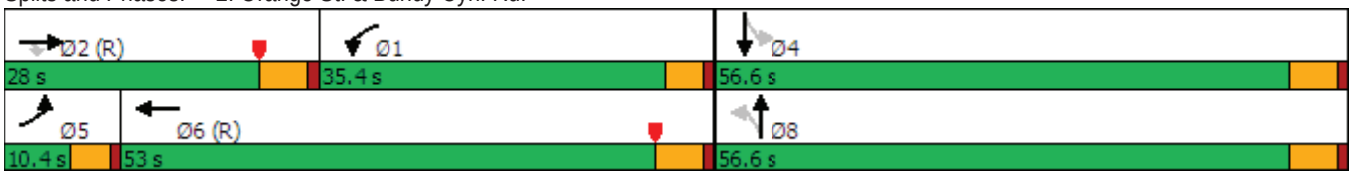
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	31.1	45.7		43.2	7.4	69.4		43.2				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	38.5	28.5		37.9	6.1	60.9		37.9				
Max Q Clear Time (g_c+I1), s	26.1	15.6		39.9	3.7	4.6		39.9				
Green Ext Time (p_c), s	0.5	1.9		0.0	0.0	2.1		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		246.7
HCM 6th LOS		F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	473	23	338	399	80	9	56	391	197	45	7
Future Volume (vph)	24	473	23	338	399	80	9	56	391	197	45	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	100		100	100		100
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3		23.3	23.3	
Total Split (s)	10.4	28.0	28.0	35.4	53.0		56.6	56.6		56.6	56.6	
Total Split (%)	8.7%	23.3%	23.3%	29.5%	44.2%		47.2%	47.2%		47.2%	47.2%	
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		5.3	5.3		5.3	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min		Min	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	473	23	338	399	80	9	56	391	197	45	7
Future Volume (veh/h)	24	473	23	338	399	80	9	56	391	197	45	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	520	25	371	438	88	10	62	430	216	49	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	43	672	296	447	1246	248	609	87	602	219	670	109
Arrive On Green	0.02	0.19	0.19	0.25	0.42	0.42	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	1781	3554	1564	1781	2949	588	1343	203	1408	905	1567	256
Grp Volume(v), veh/h	26	520	25	371	263	263	10	0	492	216	0	57
Grp Sat Flow(s),veh/h/ln	1781	1777	1564	1781	1777	1760	1343	0	1611	905	0	1823
Q Serve(g_s), s	1.7	16.7	1.6	23.6	12.0	12.2	0.5	0.0	30.2	21.1	0.0	2.2
Cycle Q Clear(g_c), s	1.7	16.7	1.6	23.6	12.0	12.2	2.7	0.0	30.2	51.3	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.87	1.00		0.14
Lane Grp Cap(c), veh/h	43	672	296	447	751	744	609	0	689	219	0	779
V/C Ratio(X)	0.60	0.77	0.08	0.83	0.35	0.35	0.02	0.00	0.71	0.99	0.00	0.07
Avail Cap(c_a), veh/h	88	672	296	459	751	744	609	0	689	219	0	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.0	46.2	40.1	42.5	23.5	23.5	21.1	0.0	28.3	52.2	0.0	20.3
Incr Delay (d2), s/veh	5.0	8.4	0.6	10.9	1.2	1.3	0.0	0.0	3.0	56.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	8.1	0.7	11.6	5.2	5.3	0.2	0.0	11.9	10.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	54.7	40.6	53.4	24.7	24.8	21.1	0.0	31.3	108.8	0.0	20.3
LnGrp LOS	E	D	D	D	C	C	C	A	C	F	A	C
Approach Vol, veh/h		571			897			502			273	
Approach Delay, s/veh		54.4			36.6			31.1			90.3	
Approach LOS		D			D			C			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	35.4	28.0		56.6	7.4	56.0		56.6				
Change Period (Y+Rc), s	5.3	* 5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	30.9	* 23		51.3	5.9	47.7		51.3				
Max Q Clear Time (g_c+I1), s	25.6	18.7		53.3	3.7	14.2		32.2				
Green Ext Time (p_c), s	0.3	0.9		0.0	0.0	2.0		2.2				

Intersection Summary			
HCM 6th Ctrl Delay		46.5	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	535	525	396	609	0	0	0	0	362	7	252
Future Volume (vph)	0	535	525	396	609	0	0	0	0	362	7	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		46.0		38.0	84.0					36.0	36.0	
Total Split (%)		38.3%		31.7%	70.0%					30.0%	30.0%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	535	525	396	609	0	0	0	0	362	7	252
Future Volume (veh/h)	0	535	525	396	609	0	0	0	0	362	7	252
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	557	547	412	634	0				377	7	262
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	714	633	431	2423	0				410	9	354
Arrive On Green	0.00	0.80	0.80	0.48	1.00	0.00				0.23	0.23	0.23
Sat Flow, veh/h	0	1870	1575	1781	3647	0				1781	41	1540
Grp Volume(v), veh/h	0	557	547	412	634	0				377	0	269
Grp Sat Flow(s),veh/h/ln	0	1777	1575	1781	1777	0				1781	0	1581
Q Serve(g_s), s	0.0	19.8	26.8	26.7	0.0	0.0				24.8	0.0	18.9
Cycle Q Clear(g_c), s	0.0	19.8	26.8	26.7	0.0	0.0				24.8	0.0	18.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.97
Lane Grp Cap(c), veh/h	0	714	633	431	2423	0				410	0	364
V/C Ratio(X)	0.00	0.78	0.86	0.96	0.26	0.00				0.92	0.00	0.74
Avail Cap(c_a), veh/h	0	714	633	496	2423	0				456	0	405
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.87	0.87	0.68	0.68	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.0	9.7	30.4	0.0	0.0				45.1	0.0	42.9
Incr Delay (d2), s/veh	0.0	7.3	13.0	20.9	0.2	0.0				21.6	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.9	5.7	10.9	0.1	0.0				13.4	0.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.3	22.7	51.3	0.2	0.0				66.8	0.0	48.0
LnGrp LOS	A	B	C	D	A	A				E	A	D
Approach Vol, veh/h		1104			1046						646	
Approach Delay, s/veh		19.5			20.3						59.0	
Approach LOS		B			C						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	33.6	53.5		32.9		87.1						
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3						
Max Green Setting (Gmax), s	33.4	40.7		30.7		78.7						
Max Q Clear Time (g_c+I1), s	28.7	28.8		26.8		2.0						
Green Ext Time (p_c), s	0.3	4.1		0.8		3.0						

Intersection Summary												
HCM 6th Ctrl Delay			28.9									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	681	0	0	726	396	279	0	262	0	0	0
Future Volume (vph)	217	681	0	0	726	396	279	0	262	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	28.0	84.0			56.0		36.0	36.0				
Total Split (%)	23.3%	70.0%			46.7%		30.0%	30.0%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

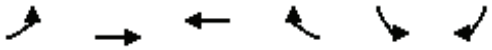
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	681	0	0	726	396	279	0	262	0	0	0
Future Volume (veh/h)	217	681	0	0	726	396	279	0	262	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	221	695	0	0	741	404	285	0	267			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	245	2559	0	0	1218	662	341	0	301			
Arrive On Green	0.28	1.00	0.00	0.00	0.55	0.55	0.19	0.00	0.19			
Sat Flow, veh/h	1781	3647	0	0	2312	1206	1781	0	1573			
Grp Volume(v), veh/h	221	695	0	0	593	552	285	0	267			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1647	1781	0	1573			
Q Serve(g_s), s	14.3	0.0	0.0	0.0	27.1	27.3	18.5	0.0	19.8			
Cycle Q Clear(g_c), s	14.3	0.0	0.0	0.0	27.1	27.3	18.5	0.0	19.8			
Prop In Lane	1.00		0.00	0.00		0.73	1.00		1.00			
Lane Grp Cap(c), veh/h	245	2559	0	0	976	904	341	0	301			
V/C Ratio(X)	0.90	0.27	0.00	0.00	0.61	0.61	0.84	0.00	0.89			
Avail Cap(c_a), veh/h	356	2559	0	0	976	904	456	0	402			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.44	0.44	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.7	0.0	0.0	0.0	18.3	18.4	46.7	0.0	47.2			
Incr Delay (d2), s/veh	7.6	0.1	0.0	0.0	2.8	3.1	7.5	0.0	13.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.8	0.0	0.0	0.0	11.4	10.7	8.9	0.0	8.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	0.1	0.0	0.0	21.1	21.4	54.2	0.0	61.2			
LnGrp LOS	D	A	A	A	C	C	D	A	E			
Approach Vol, veh/h		916			1145			552				
Approach Delay, s/veh		12.2			21.3			57.6				
Approach LOS		B			C			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.7			20.5	71.2		28.3				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		78.7			24.0	50.7		30.7				
Max Q Clear Time (g_c+I1), s		2.0			16.3	29.3		21.8				
Green Ext Time (p_c), s		3.4			0.2	5.2		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			25.8									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	317	626	799	102	104	323
Future Volume (vph)	317	626	799	102	104	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	48.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	317	626	799	102	104	323
Future Vol, veh/h	317	626	799	102	104	323
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	334	659	841	107	109	340

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	953	0	-	0	1783	431
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	937	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	717	-	-	-	~ 94	573
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	316	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	714	-	-	-	~ 50	568
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	314	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	245.2
HCM LOS			F

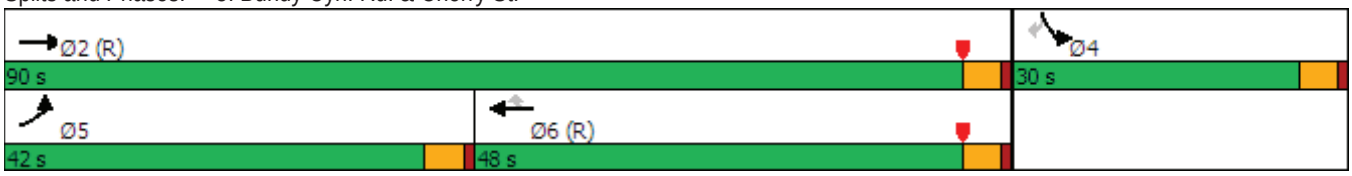
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	313
HCM Lane V/C Ratio	0.467	-	-	-	1.436
HCM Control Delay (s)	14.4	-	-	-	245.2
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	2.5	-	-	-	24.1

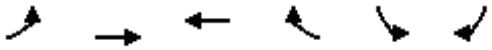
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	317	626	799	102	104	323
Future Volume (vph)	317	626	799	102	104	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				30	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	42.0	90.0	48.0	48.0	30.0	30.0
Total Split (%)	35.0%	75.0%	40.0%	40.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Bundy Cyn. Rd. & Cherry St.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	317	626	799	102	104	323
Future Volume (veh/h)	317	626	799	102	104	323
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	334	659	841	107	109	340
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	360	3638	1680	745	379	337
Arrive On Green	0.40	1.00	0.47	0.47	0.21	0.21
Sat Flow, veh/h	1781	5274	3647	1577	1781	1585
Grp Volume(v), veh/h	334	659	841	107	109	340
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1577	1781	1585
Q Serve(g_s), s	21.4	0.0	19.6	4.6	6.2	25.5
Cycle Q Clear(g_c), s	21.4	0.0	19.6	4.6	6.2	25.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	360	3638	1680	745	379	337
V/C Ratio(X)	0.93	0.18	0.50	0.14	0.29	1.01
Avail Cap(c_a), veh/h	557	3638	1680	745	379	337
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	0.0	21.9	17.9	39.6	47.3
Incr Delay (d2), s/veh	15.5	0.1	1.1	0.4	0.4	51.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	8.2	1.7	2.8	24.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.4	0.1	22.9	18.3	40.0	98.7
LnGrp LOS	D	A	C	B	D	F
Approach Vol, veh/h		993	948		449	
Approach Delay, s/veh		17.0	22.4		84.5	
Approach LOS		B	C		F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		90.0		30.0	28.8	61.2
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		85.5		25.5	37.5	43.5
Max Q Clear Time (g_c+I1), s		2.0		27.5	23.4	21.6
Green Ext Time (p_c), s		5.2		0.0	0.9	6.3

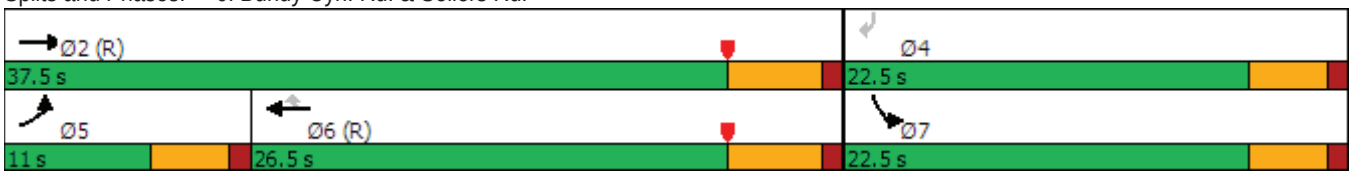
Intersection Summary						
HCM 6th Ctrl Delay			31.8			
HCM 6th LOS			C			

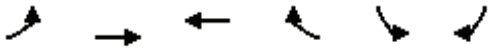
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	618	812	26	45	110
Future Volume (vph)	70	618	812	26	45	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	11.0	37.5	26.5	26.5	22.5	22.5
Total Split (%)	18.3%	62.5%	44.2%	44.2%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	618	812	26	45	110
Future Volume (veh/h)	70	618	812	26	45	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	651	855	27	47	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	105	2740	1431	634	534	476
Arrive On Green	0.06	0.54	0.81	0.81	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1575	1781	1585
Grp Volume(v), veh/h	74	651	855	27	47	116
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1575	1781	1585
Q Serve(g_s), s	2.4	4.1	5.4	0.2	1.1	3.3
Cycle Q Clear(g_c), s	2.4	4.1	5.4	0.2	1.1	3.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	105	2740	1431	634	534	476
V/C Ratio(X)	0.70	0.24	0.60	0.04	0.09	0.24
Avail Cap(c_a), veh/h	193	2740	1431	634	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.91	0.91	1.00	1.00
Uniform Delay (d), s/veh	27.7	7.4	4.0	3.5	15.1	15.9
Incr Delay (d2), s/veh	3.2	0.2	1.7	0.1	0.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.2	1.4	0.6	0.5	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.9	7.6	5.7	3.6	15.4	17.1
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		725	882		163	
Approach Delay, s/veh		10.0	5.6		16.6	
Approach LOS		A	A		B	

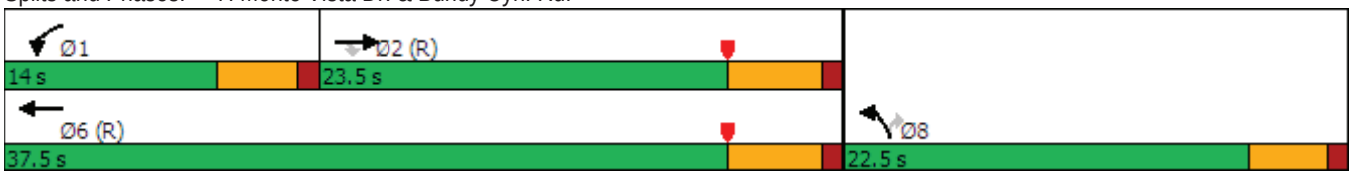
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	8.0	29.5
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	6.5	21.2
Max Q Clear Time (g_c+I1), s		6.1		5.3	4.4	7.4
Green Ext Time (p_c), s		3.0		0.2	0.0	3.5

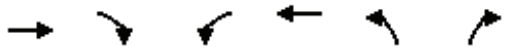
Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	553	110	170	785	53	77
Future Volume (vph)	553	110	170	785	53	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	23.5	23.5	14.0	37.5	22.5	22.5
Total Split (%)	39.2%	39.2%	23.3%	62.5%	37.5%	37.5%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.

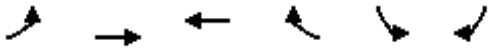




Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	553	110	170	785	53	77
Future Volume (veh/h)	553	110	170	785	53	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	608	121	187	863	58	85
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1694	522	232	1907	1037	476
Arrive On Green	0.66	0.66	0.13	0.54	0.30	0.30
Sat Flow, veh/h	5274	1573	1781	3647	3456	1585
Grp Volume(v), veh/h	608	121	187	863	58	85
Grp Sat Flow(s),veh/h/ln	1702	1573	1781	1777	1728	1585
Q Serve(g_s), s	3.2	1.8	6.1	8.9	0.7	2.4
Cycle Q Clear(g_c), s	3.2	1.8	6.1	8.9	0.7	2.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1694	522	232	1907	1037	476
V/C Ratio(X)	0.36	0.23	0.81	0.45	0.06	0.18
Avail Cap(c_a), veh/h	1694	522	282	1907	1037	476
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.3	7.1	25.4	8.5	15.0	15.5
Incr Delay (d2), s/veh	0.6	1.0	11.0	0.8	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.7	3.0	2.7	0.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.9	8.1	36.4	9.3	15.1	16.4
LnGrp LOS	A	A	D	A	B	B
Approach Vol, veh/h	729			1050	143	
Approach Delay, s/veh	7.9			14.1	15.8	
Approach LOS	A			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.3	25.2				37.5	22.5
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	9.5	18.2				32.2	18.0
Max Q Clear Time (g_c+I1), s	8.1	5.2				10.9	4.4
Green Ext Time (p_c), s	0.0	2.5				3.8	0.2

Intersection Summary		
HCM 6th Ctrl Delay	11.9	
HCM 6th LOS	B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	588	868	8	12	87
Future Volume (vph)	43	588	868	8	12	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

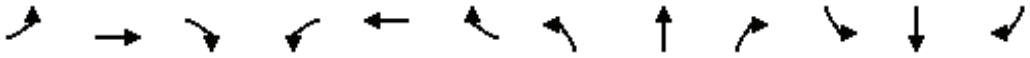
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	588	868	8	12	87
Future Vol, veh/h	43	588	868	8	12	87
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	632	933	9	13	94

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	947	0	-	0	1293	481
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	350	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	721	-	-	-	184	531
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	718	-	-	-	171	526
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	645	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	718	-	-	-	465
HCM Lane V/C Ratio	0.064	-	-	-	0.229
HCM Control Delay (s)	10.4	-	-	-	15
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	2	74	2	9	53	152	188	4	26	118	270
Future Volume (vph)	216	2	74	2	9	53	152	188	4	26	118	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

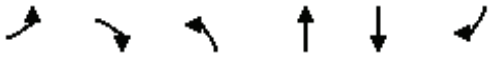
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	27.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	216	2	74	2	9	53	152	188	4	26	118	270
Future Vol, veh/h	216	2	74	2	9	53	152	188	4	26	118	270
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	260	2	89	2	11	64	183	227	5	31	142	325
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	23	12	27.4	32.1
HCM LOS	C	B	D	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	74%	3%	6%
Vol Thru, %	55%	1%	14%	29%
Vol Right, %	1%	25%	83%	65%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	344	292	64	414
LT Vol	152	216	2	26
Through Vol	188	2	9	118
RT Vol	4	74	53	270
Lane Flow Rate	414	352	77	499
Geometry Grp	1	1	1	1
Degree of Util (X)	0.756	0.671	0.161	0.831
Departure Headway (Hd)	6.566	6.863	7.531	6.001
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	524	479	599
Service Time	4.654	4.95	5.531	4.085
HCM Lane V/C Ratio	0.757	0.672	0.161	0.833
HCM Control Delay	27.4	23	12	32.1
HCM Lane LOS	D	C	B	D
HCM 95th-tile Q	6.6	5	0.6	8.7



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	177	187	65	93	21
Future Volume (vph)	18	177	187	65	93	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

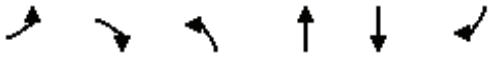
Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	177	187	65	93	21
Future Vol, veh/h	18	177	187	65	93	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	192	203	71	101	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	600	123	129	0	-	0
Stage 1	118	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	464	928	1457	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	392	919	1450	-	-	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	5.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1450	-	818	-	-
HCM Lane V/C Ratio	0.14	-	0.259	-	-
HCM Control Delay (s)	7.9	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	175	187	233	252	18
Future Volume (vph)	19	175	187	233	252	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

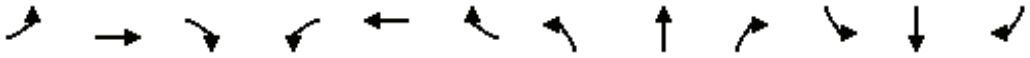
Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	175	187	233	252	18
Future Vol, veh/h	19	175	187	233	252	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	190	203	253	274	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	953	294	299	0	-	0
Stage 1	289	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	287	745	1262	-	-	-
Stage 1	760	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	238	738	1256	-	-	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	3.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1256	-	612	-	-
HCM Lane V/C Ratio	0.162	-	0.345	-	-
HCM Control Delay (s)	8.4	-	13.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	1.5	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	77	75	24	88	3	48	3	3	4	4	3
Future Volume (vph)	1	77	75	24	88	3	48	3	3	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

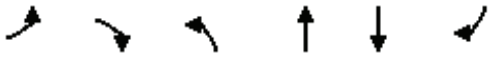
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	77	75	24	88	3	48	3	3	4	4	3
Future Vol, veh/h	1	77	75	24	88	3	48	3	3	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	90	87	28	102	3	56	3	3	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	105	0	0	177	0	0	300	297	134	299	339	104
Stage 1	-	-	-	-	-	-	136	136	-	160	160	-
Stage 2	-	-	-	-	-	-	164	161	-	139	179	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1486	-	-	1399	-	-	652	615	915	653	582	951
Stage 1	-	-	-	-	-	-	867	784	-	842	766	-
Stage 2	-	-	-	-	-	-	838	765	-	864	751	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1399	-	-	635	601	915	637	569	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	635	601	-	637	569	-
Stage 1	-	-	-	-	-	-	866	783	-	841	750	-
Stage 2	-	-	-	-	-	-	812	749	-	856	750	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	11.2	10.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	644	1486	-	-	1399	-	-	668
HCM Lane V/C Ratio	0.098	0.001	-	-	0.02	-	-	0.019
HCM Control Delay (s)	11.2	7.4	0	-	7.6	0	-	10.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	62	70	27	47	18
Future Volume (vph)	19	62	70	27	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

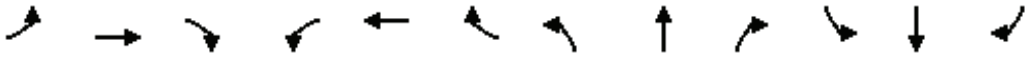
Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	62	70	27	47	18
Future Vol, veh/h	19	62	70	27	47	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	73	82	32	55	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	262	66	76	0	-	0
Stage 1	66	-	-	-	-	-
Stage 2	196	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	727	998	1523	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	837	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	687	998	1523	-	-	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	5.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1523	-	902	-	-
HCM Lane V/C Ratio	0.054	-	0.106	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	36	104	33	84	1	125	2	22	1	12	18
Future Volume (vph)	12	36	104	33	84	1	125	2	22	1	12	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

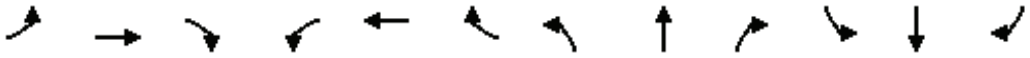
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	36	104	33	84	1	125	2	22	1	12	18
Future Vol, veh/h	12	36	104	33	84	1	125	2	22	1	12	18
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	42	122	39	99	1	147	2	26	1	14	21
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.6	9.5	9.3	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	84%	8%	28%	0%	3%
Vol Thru, %	1%	24%	72%	0%	39%
Vol Right, %	15%	68%	0%	100%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	149	152	117	1	31
LT Vol	125	12	33	0	1
Through Vol	2	36	84	0	12
RT Vol	22	104	0	1	18
Lane Flow Rate	175	179	138	1	36
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.234	0.216	0.204	0.001	0.046
Departure Headway (Hd)	4.813	4.343	5.345	4.498	4.578
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	745	824	670	794	779
Service Time	2.849	2.378	3.082	2.235	2.625
HCM Lane V/C Ratio	0.235	0.217	0.206	0.001	0.046
HCM Control Delay	9.3	8.6	9.5	7.2	7.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.9	0.8	0.8	0	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	100	77	149	130	1	77	2	153	1	3	1
Future Volume (vph)	1	100	77	149	130	1	77	2	153	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

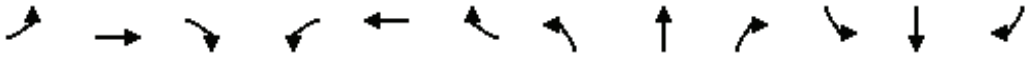
Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	100	77	149	130	1	77	2	153	1	3	1
Future Vol, veh/h	1	100	77	149	130	1	77	2	153	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	109	84	162	141	1	84	2	166	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	142	0	0	193	0	0	579	577	109	703	661	142
Stage 1	-	-	-	-	-	-	111	111	-	466	466	-
Stage 2	-	-	-	-	-	-	468	466	-	237	195	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1441	-	-	1380	-	-	426	427	945	352	383	906
Stage 1	-	-	-	-	-	-	894	804	-	577	562	-
Stage 2	-	-	-	-	-	-	575	562	-	766	739	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1441	-	-	1380	-	-	381	372	945	260	334	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	381	372	-	260	334	-
Stage 1	-	-	-	-	-	-	893	803	-	576	491	-
Stage 2	-	-	-	-	-	-	498	491	-	629	738	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.2	14.5	15.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	628	1441	-	-	1380	-	-	359
HCM Lane V/C Ratio	0.402	0.001	-	-	0.117	-	-	0.015
HCM Control Delay (s)	14.5	7.5	0	-	8	0	-	15.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.9	0	-	-	0.4	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	64	14	8	50	124	17	80	6	111	134	3
Future Volume (vph)	11	64	14	8	50	124	17	80	6	111	134	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

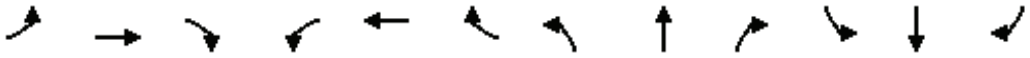
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	64	14	8	50	124	17	80	6	111	134	3
Future Vol, veh/h	11	64	14	8	50	124	17	80	6	111	134	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	69	15	9	54	133	18	86	6	119	144	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	9.2	8.9	10.6
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	12%	4%	45%
Vol Thru, %	78%	72%	27%	54%
Vol Right, %	6%	16%	68%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	89	182	248
LT Vol	17	11	8	111
Through Vol	80	64	50	134
RT Vol	6	14	124	3
Lane Flow Rate	111	96	196	267
Geometry Grp	1	1	1	1
Degree of Util (X)	0.152	0.134	0.249	0.358
Departure Headway (Hd)	4.955	5.031	4.581	4.838
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	718	707	779	739
Service Time	3.029	3.102	2.641	2.902
HCM Lane V/C Ratio	0.155	0.136	0.252	0.361
HCM Control Delay	8.9	8.9	9.2	10.6
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.5	0.5	1	1.6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	434	7	6	512	46	10	6	15	47	1	15
Future Volume (vph)	9	434	7	6	512	46	10	6	15	47	1	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	434	7	6	512	46	10	6	15	47	1	15
Future Vol, veh/h	9	434	7	6	512	46	10	6	15	47	1	15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	482	8	7	569	51	11	7	17	52	1	17
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.6	13.3	10.2	11.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	6%	0%	0%	3%	0%	0%	75%
Vol Thru, %	19%	94%	100%	0%	97%	100%	0%	2%
Vol Right, %	48%	0%	0%	100%	0%	0%	100%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	154	289	7	177	341	46	63
LT Vol	10	9	0	0	6	0	0	47
Through Vol	6	145	289	0	171	341	0	1
RT Vol	15	0	0	7	0	0	46	15
Lane Flow Rate	34	171	321	8	196	379	51	70
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.066	0.267	0.501	0.011	0.301	0.58	0.068	0.14
Departure Headway (Hd)	6.929	5.636	5.606	4.901	5.518	5.501	4.796	7.204
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	639	643	731	656	660	751	498
Service Time	4.675	3.362	3.333	2.627	3.218	3.201	2.496	4.945
HCM Lane V/C Ratio	0.066	0.268	0.499	0.011	0.299	0.574	0.068	0.141
HCM Control Delay	10.2	10.4	13.9	7.7	10.6	15.5	7.8	11.1
HCM Lane LOS	B	B	B	A	B	C	A	B
HCM 95th-tile Q	0.2	1.1	2.8	0	1.3	3.7	0.2	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	453	24	237	547	158	15	40	233	127	30	19
Future Volume (vph)	22	453	24	237	547	158	15	40	233	127	30	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	13.0	40.0	40.0	41.0	68.0		39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	10.8%	33.3%	33.3%	34.2%	56.7%		32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	453	24	237	547	158	15	40	233	127	30	19
Future Volume (veh/h)	22	453	24	237	547	158	15	40	233	127	30	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	462	24	242	558	161	15	41	238	130	31	19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	1576	699	267	1555	447	38	85	443	54	7	443
Arrive On Green	0.02	0.44	0.44	0.30	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1781	3554	1576	1781	2720	782	0	302	1577	0	26	1577
Grp Volume(v), veh/h	22	462	24	242	364	355	56	0	238	161	0	19
Grp Sat Flow(s),veh/h/ln	1781	1777	1576	1781	1777	1726	302	0	1577	26	0	1577
Q Serve(g_s), s	1.5	10.0	1.0	15.7	0.0	0.0	0.0	0.0	15.3	0.0	0.0	1.1
Cycle Q Clear(g_c), s	1.5	10.0	1.0	15.7	0.0	0.0	33.7	0.0	15.3	33.7	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.45	0.27		1.00	0.81		1.00
Lane Grp Cap(c), veh/h	39	1576	699	267	1016	986	123	0	443	62	0	443
V/C Ratio(X)	0.57	0.29	0.03	0.91	0.36	0.36	0.46	0.00	0.54	2.61	0.00	0.04
Avail Cap(c_a), veh/h	126	1576	699	542	1016	986	123	0	443	62	0	443
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.1	21.4	18.9	41.2	0.0	0.0	35.3	0.0	36.5	56.0	0.0	31.4
Incr Delay (d2), s/veh	4.8	0.5	0.1	4.3	0.9	0.9	1.0	0.0	0.7	769.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.2	0.4	6.0	0.3	0.3	1.2	0.0	5.9	15.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	21.8	19.0	45.6	0.9	0.9	36.3	0.0	37.3	825.6	0.0	31.4
LnGrp LOS	E	C	B	D	A	A	D	A	D	F	A	C
Approach Vol, veh/h		508			961			294			180	
Approach Delay, s/veh		23.5			12.2			37.1			741.8	
Approach LOS		C			B			D			F	

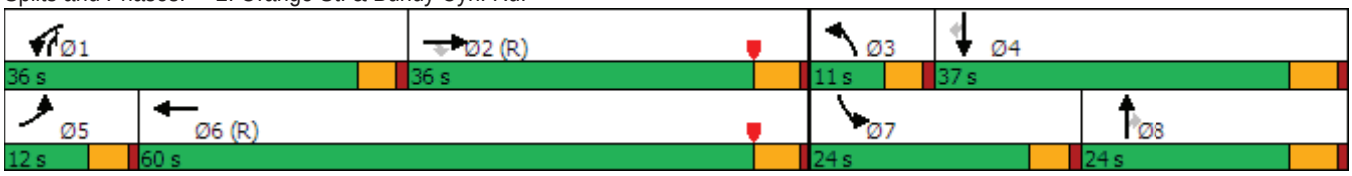
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.5	58.5		39.0	7.1	73.9		39.0				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	36.5	34.7		33.7	8.5	62.7		33.7				
Max Q Clear Time (g_c+I1), s	17.7	12.0		35.7	3.5	2.0		35.7				
Green Ext Time (p_c), s	0.3	2.0		0.0	0.0	3.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		86.5	
HCM 6th LOS		F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	453	24	237	547	158	15	40	233	127	30	19
Future Volume (vph)	22	453	24	237	547	158	15	40	233	127	30	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	100		100	100		100
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		9.5	23.3	9.5	9.5	23.3	23.3
Total Split (s)	12.0	36.0	36.0	36.0	60.0		11.0	24.0	36.0	24.0	37.0	37.0
Total Split (%)	10.0%	30.0%	30.0%	30.0%	50.0%		9.2%	20.0%	30.0%	20.0%	30.8%	30.8%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		3.5	4.3	3.5	3.5	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		4.5	5.3	4.5	4.5	5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Min	None	None	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	453	24	237	547	158	15	40	233	127	30	19
Future Volume (veh/h)	22	453	24	237	547	158	15	40	233	127	30	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	462	24	242	558	161	15	41	238	130	31	19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	1612	715	267	1582	455	29	271	464	158	406	342
Arrive On Green	0.02	0.45	0.45	0.30	1.00	1.00	0.02	0.14	0.14	0.09	0.22	0.22
Sat Flow, veh/h	1781	3554	1576	1781	2720	782	1781	1870	1569	1781	1870	1574
Grp Volume(v), veh/h	22	462	24	242	364	355	15	41	238	130	31	19
Grp Sat Flow(s),veh/h/ln	1781	1777	1576	1781	1777	1726	1781	1870	1569	1781	1870	1574
Q Serve(g_s), s	1.5	9.8	1.0	15.7	0.0	0.0	1.0	2.3	15.1	8.6	1.6	1.1
Cycle Q Clear(g_c), s	1.5	9.8	1.0	15.7	0.0	0.0	1.0	2.3	15.1	8.6	1.6	1.1
Prop In Lane	1.00		1.00	1.00		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	39	1612	715	267	1033	1003	29	271	464	158	406	342
V/C Ratio(X)	0.57	0.29	0.03	0.91	0.35	0.35	0.51	0.15	0.51	0.82	0.08	0.06
Avail Cap(c_a), veh/h	111	1612	715	468	1033	1003	96	291	482	289	494	416
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	20.6	18.2	41.2	0.0	0.0	58.5	44.9	35.2	53.7	37.4	37.2
Incr Delay (d2), s/veh	4.8	0.4	0.1	5.9	0.9	0.9	13.3	0.1	0.3	10.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.1	0.4	6.1	0.2	0.2	0.6	1.1	5.8	4.3	0.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	21.0	18.3	47.2	0.9	0.9	71.8	45.0	35.5	63.8	37.4	37.2
LnGrp LOS	E	C	B	D	A	A	E	D	D	E	D	D
Approach Vol, veh/h		508			961			294			180	
Approach Delay, s/veh		22.7			12.5			38.7			56.5	
Approach LOS		C			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.5	59.7	6.5	31.4	7.1	75.1	15.2	22.7
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	4.5	5.3	4.5	5.3
Max Green Setting (Gmax), s	31.5	30.7	6.5	31.7	7.5	54.7	19.5	18.7
Max Q Clear Time (g_c+I1), s	17.7	11.8	3.0	3.6	3.5	2.0	10.6	17.1
Green Ext Time (p_c), s	0.3	1.9	0.0	0.1	0.0	3.0	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	530	282	247	801	0	0	0	0	488	2	196
Future Volume (vph)	0	530	282	247	801	0	0	0	0	488	2	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		45.0		35.0	80.0					40.0	40.0	
Total Split (%)		37.5%		29.2%	66.7%					33.3%	33.3%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	530	282	247	801	0	0	0	0	488	2	196
Future Volume (veh/h)	0	530	282	247	801	0	0	0	0	488	2	196
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	564	300	263	852	0				519	2	209
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	946	503	287	2212	0				515	4	452
Arrive On Green	0.00	0.42	0.42	0.32	1.00	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	2330	1188	1781	3647	0				1781	15	1564
Grp Volume(v), veh/h	0	448	416	263	852	0				519	0	211
Grp Sat Flow(s),veh/h/ln	0	1777	1648	1781	1777	0				1781	0	1579
Q Serve(g_s), s	0.0	23.3	23.4	17.0	0.0	0.0				34.7	0.0	13.2
Cycle Q Clear(g_c), s	0.0	23.3	23.4	17.0	0.0	0.0				34.7	0.0	13.2
Prop In Lane	0.00		0.72	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	752	697	287	2212	0				515	0	457
V/C Ratio(X)	0.00	0.60	0.60	0.92	0.39	0.00				1.01	0.00	0.46
Avail Cap(c_a), veh/h	0	752	697	451	2212	0				515	0	457
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.95	0.95	0.68	0.68	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.7	26.7	39.9	0.0	0.0				42.6	0.0	35.0
Incr Delay (d2), s/veh	0.0	3.3	3.6	8.8	0.3	0.0				41.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.3	9.7	6.8	0.1	0.0				21.0	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.0	30.3	48.7	0.3	0.0				84.2	0.0	35.3
LnGrp LOS	A	C	C	D	A	A				F	A	D
Approach Vol, veh/h		864			1115						730	
Approach Delay, s/veh		30.1			11.8						70.1	
Approach LOS		C			B						E	

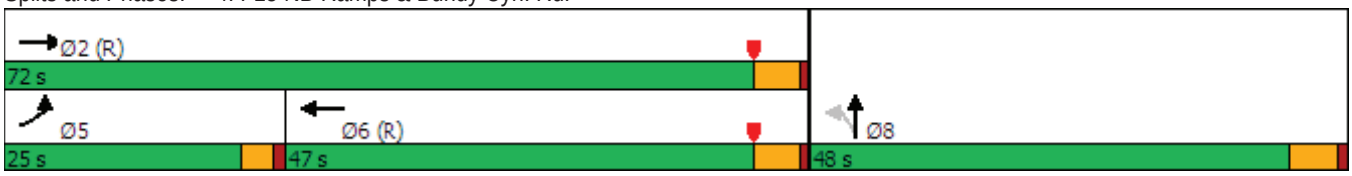
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	23.9	56.1		40.0		80.0						
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3						
Max Green Setting (Gmax), s	30.4	39.7		34.7		74.7						
Max Q Clear Time (g_c+I1), s	19.0	25.4		36.7		2.0						
Green Ext Time (p_c), s	0.3	3.2		0.0		4.3						

Intersection Summary												
HCM 6th Ctrl Delay			33.3									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	884	0	0	614	299	434	3	422	0	0	0
Future Volume (vph)	134	884	0	0	614	299	434	3	422	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	25.0	72.0			47.0		48.0	48.0				
Total Split (%)	20.8%	60.0%			39.2%		40.0%	40.0%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

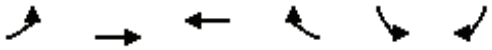
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	884	0	0	614	299	434	3	422	0	0	0
Future Volume (veh/h)	134	884	0	0	614	299	434	3	422	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	138	911	0	0	633	308	447	3	435			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	163	2168	0	0	1122	546	537	3	473			
Arrive On Green	0.18	1.00	0.00	0.00	0.49	0.49	0.30	0.30	0.30			
Sat Flow, veh/h	1781	3647	0	0	2406	1125	1781	11	1568			
Grp Volume(v), veh/h	138	911	0	0	486	455	447	0	438			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1661	1781	0	1579			
Q Serve(g_s), s	9.0	0.0	0.0	0.0	23.3	23.3	28.1	0.0	32.2			
Cycle Q Clear(g_c), s	9.0	0.0	0.0	0.0	23.3	23.3	28.1	0.0	32.2			
Prop In Lane	1.00		0.00	0.00		0.68	1.00		0.99			
Lane Grp Cap(c), veh/h	163	2168	0	0	862	806	537	0	476			
V/C Ratio(X)	0.85	0.42	0.00	0.00	0.56	0.56	0.83	0.00	0.92			
Avail Cap(c_a), veh/h	312	2168	0	0	862	806	634	0	562			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.55	0.55	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	48.2	0.0	0.0	0.0	21.9	21.9	39.1	0.0	40.5			
Incr Delay (d2), s/veh	2.6	0.3	0.0	0.0	2.7	2.8	7.0	0.0	17.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.7	0.1	0.0	0.0	10.0	9.4	13.2	0.0	14.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	0.3	0.0	0.0	24.6	24.7	46.0	0.0	57.9			
LnGrp LOS	D	A	A	A	C	C	D	A	E			
Approach Vol, veh/h		1049			941			885				
Approach Delay, s/veh		7.0			24.6			51.9				
Approach LOS		A			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		78.5			15.0	63.5		41.5				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		66.7			21.0	41.7		42.7				
Max Q Clear Time (g_c+I1), s		2.0			11.0	25.3		34.2				
Green Ext Time (p_c), s		4.7			0.1	3.7		2.0				
Intersection Summary												
HCM 6th Ctrl Delay			26.6									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	315	991	625	114	97	289
Future Volume (vph)	315	991	625	114	97	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	19.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	315	991	625	114	97	289
Future Vol, veh/h	315	991	625	114	97	289
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	325	1022	644	118	100	298

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	767	0	-	0	1713	332
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	1064	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	842	-	-	-	104	664
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	270	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	838	-	-	-	~ 63	658
Mov Cap-2 Maneuver	-	-	-	-	155	-
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	269	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	110.9
HCM LOS			F

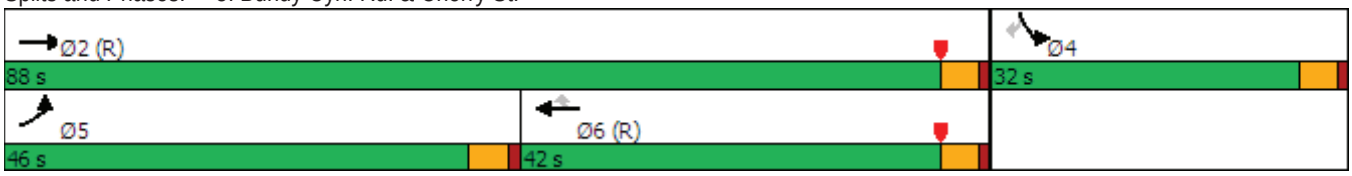
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	838	-	-	-	362
HCM Lane V/C Ratio	0.388	-	-	-	1.099
HCM Control Delay (s)	12	-	-	-	110.9
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	1.8	-	-	-	14.7

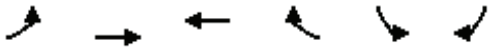
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	315	991	625	114	97	289
Future Volume (vph)	315	991	625	114	97	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				30	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	46.0	88.0	42.0	42.0	32.0	32.0
Total Split (%)	38.3%	73.3%	35.0%	35.0%	26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Bundy Cyn. Rd. & Cherry St.

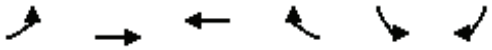




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	315	991	625	114	97	289
Future Volume (veh/h)	315	991	625	114	97	289
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	325	1022	644	118	100	298
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	3677	1723	765	365	325
Arrive On Green	0.40	1.00	0.48	0.48	0.20	0.20
Sat Flow, veh/h	1781	5274	3647	1577	1781	1585
Grp Volume(v), veh/h	325	1022	644	118	100	298
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1577	1781	1585
Q Serve(g_s), s	20.8	0.0	13.7	5.0	5.7	22.1
Cycle Q Clear(g_c), s	20.8	0.0	13.7	5.0	5.7	22.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	352	3677	1723	765	365	325
V/C Ratio(X)	0.92	0.28	0.37	0.15	0.27	0.92
Avail Cap(c_a), veh/h	616	3677	1723	765	408	363
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	19.4	17.2	40.2	46.7
Incr Delay (d2), s/veh	10.9	0.2	0.6	0.4	0.4	26.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.1	5.7	1.9	2.5	20.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.3	0.2	20.1	17.6	40.6	72.8
LnGrp LOS	D	A	C	B	D	E
Approach Vol, veh/h		1347	762		398	
Approach Delay, s/veh		11.3	19.7		64.7	
Approach LOS		B	B		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		90.9		29.1	28.2	62.7
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		83.5		27.5	41.5	37.5
Max Q Clear Time (g_c+I1), s		2.0		24.1	22.8	15.7
Green Ext Time (p_c), s		9.2		0.5	0.9	4.7

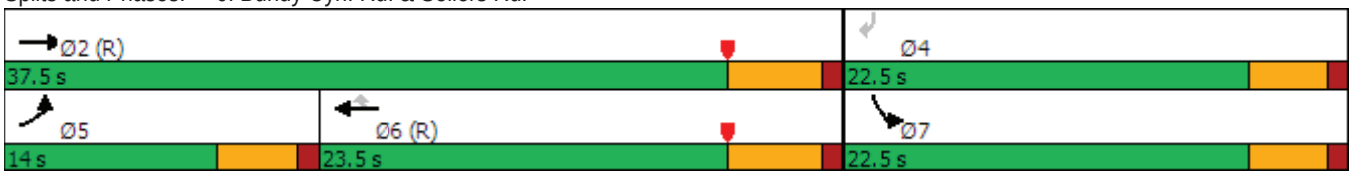
Intersection Summary		
HCM 6th Ctrl Delay		22.3
HCM 6th LOS		C

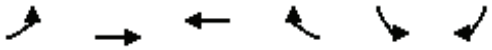


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	137	1004	614	39	34	75
Future Volume (vph)	137	1004	614	39	34	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	14.0	37.5	23.5	23.5	22.5	22.5
Total Split (%)	23.3%	62.5%	39.2%	39.2%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	137	1004	614	39	34	75
Future Volume (veh/h)	137	1004	614	39	34	75
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	1057	646	41	36	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	183	2740	1275	565	534	476
Arrive On Green	0.10	0.54	0.72	0.72	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1574	1781	1585
Grp Volume(v), veh/h	144	1057	646	41	36	79
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1574	1781	1585
Q Serve(g_s), s	4.7	7.3	4.8	0.5	0.9	2.2
Cycle Q Clear(g_c), s	4.7	7.3	4.8	0.5	0.9	2.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	183	2740	1275	565	534	476
V/C Ratio(X)	0.79	0.39	0.51	0.07	0.07	0.17
Avail Cap(c_a), veh/h	282	2740	1275	565	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	26.3	8.1	6.1	5.5	15.0	15.5
Incr Delay (d2), s/veh	3.5	0.4	1.4	0.2	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.1	1.4	0.9	0.4	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.8	8.5	7.5	5.7	15.2	16.2
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		1201	687		115	
Approach Delay, s/veh		11.1	7.4		15.9	
Approach LOS		B	A		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	10.7	26.8
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	9.5	18.2
Max Q Clear Time (g_c+I1), s		9.3		4.2	6.7	6.8
Green Ext Time (p_c), s		5.2		0.1	0.0	2.3

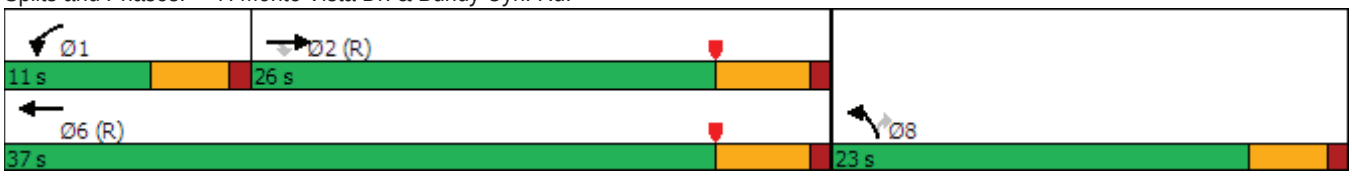
Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	999	39	50	618	35	106
Future Volume (vph)	999	39	50	618	35	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	26.0	26.0	11.0	37.0	23.0	23.0
Total Split (%)	43.3%	43.3%	18.3%	61.7%	38.3%	38.3%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.





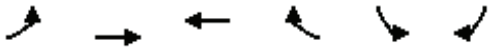
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	999	39	50	618	35	106
Future Volume (veh/h)	999	39	50	618	35	106
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1098	43	55	679	38	116
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2059	635	89	1878	1066	489
Arrive On Green	0.81	0.81	0.06	0.58	0.31	0.31
Sat Flow, veh/h	5274	1575	1781	3647	3456	1585
Grp Volume(v), veh/h	1098	43	55	679	38	116
Grp Sat Flow(s),veh/h/ln	1702	1575	1781	1777	1728	1585
Q Serve(g_s), s	4.4	0.3	1.8	6.1	0.5	3.3
Cycle Q Clear(g_c), s	4.4	0.3	1.8	6.1	0.5	3.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2059	635	89	1878	1066	489
V/C Ratio(X)	0.53	0.07	0.62	0.36	0.04	0.24
Avail Cap(c_a), veh/h	2059	635	193	1878	1066	489
HCM Platoon Ratio	2.00	2.00	1.10	1.10	1.00	1.00
Upstream Filter(I)	0.93	0.93	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.9	3.5	27.8	7.2	14.5	15.5
Incr Delay (d2), s/veh	0.9	0.2	2.6	0.5	0.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.8	1.8	0.2	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.8	3.7	30.4	7.7	14.6	16.6
LnGrp LOS	A	A	C	A	B	B
Approach Vol, veh/h	1141			734	154	
Approach Delay, s/veh	4.8			9.4	16.1	
Approach LOS	A			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.5	29.5				37.0	23.0
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	6.5	20.7				31.7	18.5
Max Q Clear Time (g_c+I1), s	3.8	6.4				8.1	5.3
Green Ext Time (p_c), s	0.0	4.7				2.9	0.2

Intersection Summary	
HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	71	1034	629	18	9	40
Future Volume (vph)	71	1034	629	18	9	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

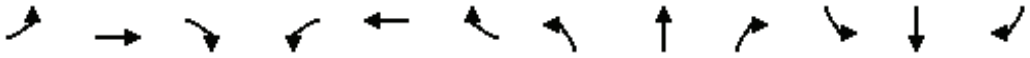
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	71	1034	629	18	9	40
Future Vol, veh/h	71	1034	629	18	9	40
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	1124	684	20	10	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	709	0	-	0	1308	362
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	609	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	886	-	-	-	181	635
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	474	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	882	-	-	-	164	629
Mov Cap-2 Maneuver	-	-	-	-	272	-
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	472	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	882	-	-	-	507
HCM Lane V/C Ratio	0.087	-	-	-	0.105
HCM Control Delay (s)	9.5	-	-	-	12.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	7	17	1	4	34	11	170	2	45	176	77
Future Volume (vph)	89	7	17	1	4	34	11	170	2	45	176	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

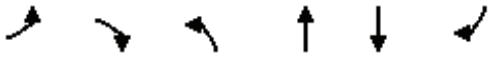
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	89	7	17	1	4	34	11	170	2	45	176	77
Future Vol, veh/h	89	7	17	1	4	34	11	170	2	45	176	77
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	96	8	18	1	4	37	12	183	2	48	189	83
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.4	8.1	9.4	10.4
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	79%	3%	15%
Vol Thru, %	93%	6%	10%	59%
Vol Right, %	1%	15%	87%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	183	113	39	298
LT Vol	11	89	1	45
Through Vol	170	7	4	176
RT Vol	2	17	34	77
Lane Flow Rate	197	122	42	320
Geometry Grp	1	1	1	1
Degree of Util (X)	0.258	0.176	0.056	0.397
Departure Headway (Hd)	4.713	5.22	4.765	4.457
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	760	683	745	804
Service Time	2.762	3.284	2.837	2.5
HCM Lane V/C Ratio	0.259	0.179	0.056	0.398
HCM Control Delay	9.4	9.4	8.1	10.4
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1	0.6	0.2	1.9



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	167	173	99	65	19
Future Volume (vph)	17	167	173	99	65	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

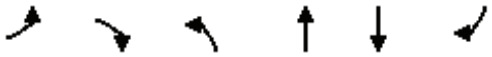
Intersection	
Int Delay, s/veh	6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	167	173	99	65	19
Future Vol, veh/h	17	167	173	99	65	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	182	188	108	71	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	576	92	97	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	479	965	1496	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	411	956	1489	-	-	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	613	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	4.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1489	-	852	-	-
HCM Lane V/C Ratio	0.126	-	0.235	-	-
HCM Control Delay (s)	7.8	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.9	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	169	173	256	216	16
Future Volume (vph)	16	169	173	256	216	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

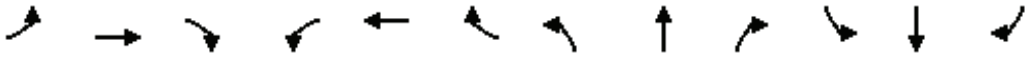
Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	169	173	256	216	16
Future Vol, veh/h	16	169	173	256	216	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	184	188	278	235	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	908	254	257	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	306	785	1308	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	259	778	1302	-	-	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	3.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1302	-	663	-	-
HCM Lane V/C Ratio	0.144	-	0.303	-	-
HCM Control Delay (s)	8.2	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	41	64	15	45	1	117	5	25	1	3	1
Future Volume (vph)	1	41	64	15	45	1	117	5	25	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

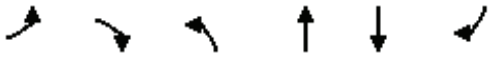
Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	41	64	15	45	1	117	5	25	1	3	1
Future Vol, veh/h	1	41	64	15	45	1	117	5	25	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	47	73	17	51	1	133	6	28	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	120	0	0	174	172	84	189	208	52
Stage 1	-	-	-	-	-	-	86	86	-	86	86	-
Stage 2	-	-	-	-	-	-	88	86	-	103	122	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1554	-	-	1468	-	-	789	721	975	771	689	1016
Stage 1	-	-	-	-	-	-	922	824	-	922	824	-
Stage 2	-	-	-	-	-	-	920	824	-	903	795	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1468	-	-	777	712	975	736	680	1016
Mov Cap-2 Maneuver	-	-	-	-	-	-	777	712	-	736	680	-
Stage 1	-	-	-	-	-	-	921	823	-	921	814	-
Stage 2	-	-	-	-	-	-	904	814	-	870	794	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.8	10.7	9.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	802	1554	-	-	1468	-	-	740
HCM Lane V/C Ratio	0.208	0.001	-	-	0.012	-	-	0.008
HCM Control Delay (s)	10.7	7.3	0	-	7.5	0	-	9.9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	39	45	53	24	8
Future Volume (vph)	6	39	45	53	24	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

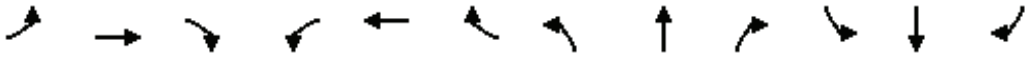
Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	39	45	53	24	8
Future Vol, veh/h	6	39	45	53	24	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	49	56	66	30	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	213	35	40	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	775	1038	1570	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	746	1038	1570	-	-	-
Mov Cap-2 Maneuver	746	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	853	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	3.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	987	-	-
HCM Lane V/C Ratio	0.036	-	0.057	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	61	89	28	44	1	85	13	40	1	3	9
Future Volume (vph)	13	61	89	28	44	1	85	13	40	1	3	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

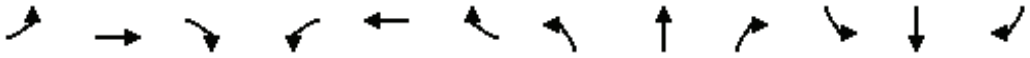
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	61	89	28	44	1	85	13	40	1	3	9
Future Vol, veh/h	13	61	89	28	44	1	85	13	40	1	3	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	66	96	30	47	1	91	14	43	1	3	10
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.3	8.6	8.5	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	62%	8%	39%	0%	8%
Vol Thru, %	9%	37%	61%	0%	23%
Vol Right, %	29%	55%	0%	100%	69%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	138	163	72	1	13
LT Vol	85	13	28	0	1
Through Vol	13	61	44	0	3
RT Vol	40	89	0	1	9
Lane Flow Rate	148	175	77	1	14
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.185	0.205	0.113	0.001	0.017
Departure Headway (Hd)	4.483	4.203	5.245	4.346	4.292
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	801	855	685	824	834
Service Time	2.502	2.222	2.966	2.067	2.319
HCM Lane V/C Ratio	0.185	0.205	0.112	0.001	0.017
HCM Control Delay	8.5	8.3	8.6	7.1	7.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.7	0.8	0.4	0	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	156	52	71	96	1	70	1	59	1	1	1
Future Volume (vph)	1	156	52	71	96	1	70	1	59	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

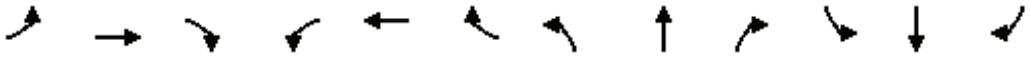
Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	156	52	71	96	1	70	1	59	1	1	1
Future Vol, veh/h	1	156	52	71	96	1	70	1	59	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	168	56	76	103	1	75	1	63	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	104	0	0	224	0	0	427	426	168	486	482	104
Stage 1	-	-	-	-	-	-	170	170	-	256	256	-
Stage 2	-	-	-	-	-	-	257	256	-	230	226	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1488	-	-	1345	-	-	538	520	876	492	484	951
Stage 1	-	-	-	-	-	-	832	758	-	749	696	-
Stage 2	-	-	-	-	-	-	748	696	-	773	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1488	-	-	1345	-	-	512	488	876	434	454	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	488	-	434	454	-
Stage 1	-	-	-	-	-	-	831	757	-	748	654	-
Stage 2	-	-	-	-	-	-	701	654	-	715	716	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.3	12.3	11.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	631	1488	-	-	1345	-	-	540
HCM Lane V/C Ratio	0.222	0.001	-	-	0.057	-	-	0.006
HCM Control Delay (s)	12.3	7.4	0	-	7.8	0	-	11.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.2	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	65	9	1	88	107	15	30	8	71	39	8
Future Volume (vph)	2	65	9	1	88	107	15	30	8	71	39	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	65	9	1	88	107	15	30	8	71	39	8
Future Vol, veh/h	2	65	9	1	88	107	15	30	8	71	39	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	74	10	1	100	122	17	34	9	81	44	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8.7	8.2	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	3%	1%	60%
Vol Thru, %	57%	86%	45%	33%
Vol Right, %	15%	12%	55%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	53	76	196	118
LT Vol	15	2	1	71
Through Vol	30	65	88	39
RT Vol	8	9	107	8
Lane Flow Rate	60	86	223	134
Geometry Grp	1	1	1	1
Degree of Util (X)	0.079	0.11	0.259	0.177
Departure Headway (Hd)	4.747	4.579	4.181	4.765
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	753	782	860	752
Service Time	2.784	2.608	2.203	2.799
HCM Lane V/C Ratio	0.08	0.11	0.259	0.178
HCM Control Delay	8.2	8.2	8.7	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	1	0.6

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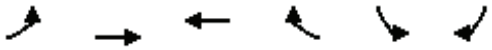


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	317	626	799	102	0	323
Future Volume (vph)	317	626	799	102	0	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

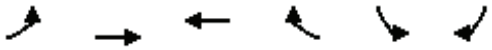
Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	317	626	799	102	0	323
Future Vol, veh/h	317	626	799	102	0	323
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	334	659	841	107	0	340

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	953	0	-	0	-	431
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	717	-	-	-	0	573
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	714	-	-	-	-	568
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	20.3
HCM LOS			C

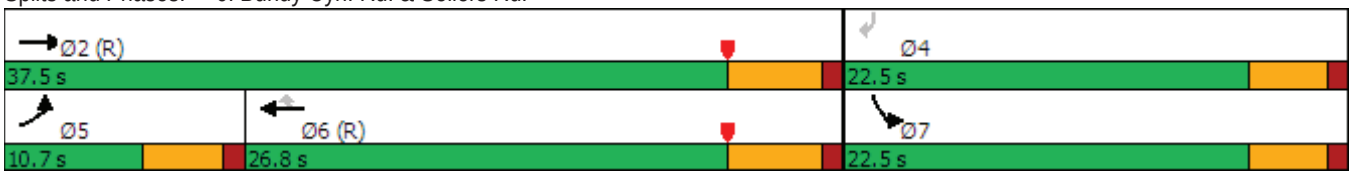
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	568
HCM Lane V/C Ratio	0.467	-	-	-	0.599
HCM Control Delay (s)	14.4	-	-	-	20.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	2.5	-	-	-	3.9

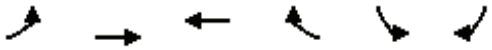


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	531	812	26	132	110
Future Volume (vph)	53	531	812	26	132	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	10.7	37.5	26.8	26.8	22.5	22.5
Total Split (%)	17.8%	62.5%	44.7%	44.7%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.

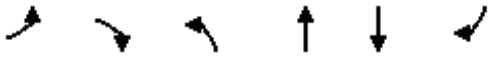




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	531	812	26	132	110
Future Volume (veh/h)	53	531	812	26	132	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	559	855	27	139	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	90	2740	1461	648	534	476
Arrive On Green	0.05	0.54	0.82	0.82	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1575	1781	1585
Grp Volume(v), veh/h	56	559	855	27	139	116
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1575	1781	1585
Q Serve(g_s), s	1.8	3.4	4.9	0.2	3.6	3.3
Cycle Q Clear(g_c), s	1.8	3.4	4.9	0.2	3.6	3.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	90	2740	1461	648	534	476
V/C Ratio(X)	0.62	0.20	0.59	0.04	0.26	0.24
Avail Cap(c_a), veh/h	184	2740	1461	648	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.91	0.91	1.00	1.00
Uniform Delay (d), s/veh	27.9	7.2	3.6	3.2	15.9	15.9
Incr Delay (d2), s/veh	2.6	0.2	1.6	0.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.0	1.3	0.6	1.5	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.5	7.4	5.1	3.3	17.1	17.1
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		615	882		255	
Approach Delay, s/veh		9.5	5.1		17.1	
Approach LOS		A	A		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	7.5	30.0
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	6.2	21.5
Max Q Clear Time (g_c+I1), s		5.4		5.6	3.8	6.9
Green Ext Time (p_c), s		2.6		0.3	0.0	3.5

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	132	187	110	80	21
Future Volume (vph)	63	132	187	110	80	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

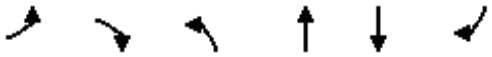
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	132	187	110	80	21
Future Vol, veh/h	63	132	187	110	80	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	143	203	120	87	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	635	109	115	0	-	0
Stage 1	104	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	443	945	1474	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	374	936	1467	-	-	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	587	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	4.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1467	-	630	-	-
HCM Lane V/C Ratio	0.139	-	0.336	-	-
HCM Control Delay (s)	7.8	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.5	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	130	187	233	194	18
Future Volume (vph)	64	130	187	233	194	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

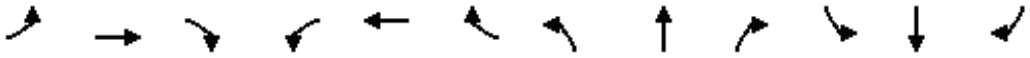
Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	64	130	187	233	194	18
Future Vol, veh/h	64	130	187	233	194	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	141	203	253	211	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	890	231	236	0	-	0
Stage 1	226	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	313	808	1331	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	263	800	1325	-	-	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	3.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1325	-	478	-	-
HCM Lane V/C Ratio	0.153	-	0.441	-	-
HCM Control Delay (s)	8.2	-	18.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	77	75	24	88	3	48	3	70	4	4	3
Future Volume (vph)	1	77	75	24	88	3	48	3	70	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

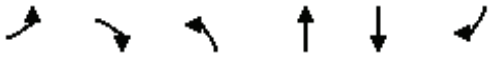
Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	77	75	24	88	3	48	3	70	4	4	3
Future Vol, veh/h	1	77	75	24	88	3	48	3	70	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	90	87	28	102	3	56	3	81	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	105	0	0	177	0	0	300	297	134	338	339	104
Stage 1	-	-	-	-	-	-	136	136	-	160	160	-
Stage 2	-	-	-	-	-	-	164	161	-	178	179	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1486	-	-	1399	-	-	652	615	915	616	582	951
Stage 1	-	-	-	-	-	-	867	784	-	842	766	-
Stage 2	-	-	-	-	-	-	838	765	-	824	751	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1399	-	-	635	601	915	549	569	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	635	601	-	549	569	-
Stage 1	-	-	-	-	-	-	866	783	-	841	750	-
Stage 2	-	-	-	-	-	-	812	749	-	747	750	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	10.7	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	770	1486	-	-	1399	-	-	630
HCM Lane V/C Ratio	0.183	0.001	-	-	0.02	-	-	0.02
HCM Control Delay (s)	10.7	7.4	0	-	7.6	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	112	70	10	47	18
Future Volume (vph)	36	112	70	10	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

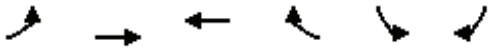
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	112	70	10	47	18
Future Vol, veh/h	36	112	70	10	47	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	132	82	12	55	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	242	66	76	0	-	0
Stage 1	66	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	746	998	1523	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	706	998	1523	-	-	-
Mov Cap-2 Maneuver	706	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1523	-	907	-	-
HCM Lane V/C Ratio	0.054	-	0.192	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	315	991	625	114	0	289
Future Volume (vph)	315	991	625	114	0	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

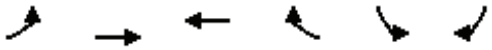
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	315	991	625	114	0	289
Future Vol, veh/h	315	991	625	114	0	289
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	325	1022	644	118	0	298

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	767	0	-	0	-	332
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	842	-	-	-	0	664
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	838	-	-	-	-	658
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	14.9
HCM LOS			B

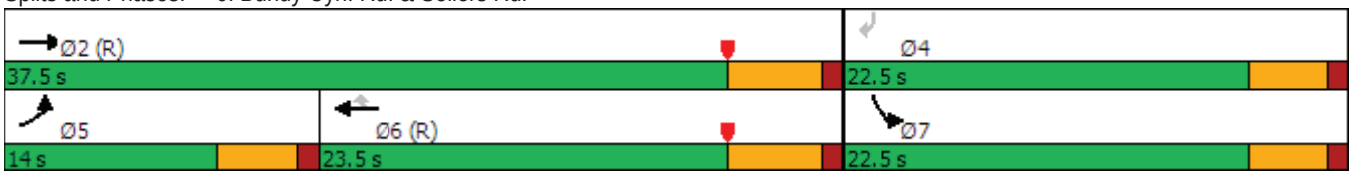
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	838	-	-	-	658
HCM Lane V/C Ratio	0.388	-	-	-	0.453
HCM Control Delay (s)	12	-	-	-	14.9
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	1.8	-	-	-	2.4

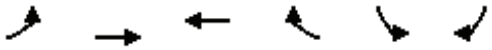


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	122	922	614	39	116	75
Future Volume (vph)	122	922	614	39	116	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	14.0	37.5	23.5	23.5	22.5	22.5
Total Split (%)	23.3%	62.5%	39.2%	39.2%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.

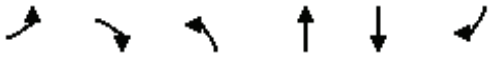




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	122	922	614	39	116	75
Future Volume (veh/h)	122	922	614	39	116	75
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	128	971	646	41	122	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	164	2740	1314	582	534	476
Arrive On Green	0.09	0.54	0.74	0.74	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1574	1781	1585
Grp Volume(v), veh/h	128	971	646	41	122	79
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1574	1781	1585
Q Serve(g_s), s	4.2	6.5	4.5	0.4	3.1	2.2
Cycle Q Clear(g_c), s	4.2	6.5	4.5	0.4	3.1	2.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	164	2740	1314	582	534	476
V/C Ratio(X)	0.78	0.35	0.49	0.07	0.23	0.17
Avail Cap(c_a), veh/h	282	2740	1314	582	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	26.6	8.0	5.5	5.0	15.8	15.5
Incr Delay (d2), s/veh	3.0	0.4	1.3	0.2	1.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.9	1.3	0.9	1.3	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.7	8.3	6.8	5.2	16.8	16.2
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		1099	687		201	
Approach Delay, s/veh		10.8	6.7		16.6	
Approach LOS		B	A		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	10.0	27.5
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	9.5	18.2
Max Q Clear Time (g_c+I1), s		8.5		5.1	6.2	6.5
Green Ext Time (p_c), s		4.7		0.2	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	121	173	145	60	19
Future Volume (vph)	63	121	173	145	60	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

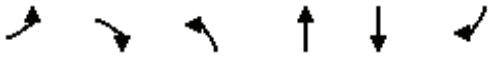
Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	121	173	145	60	19
Future Vol, veh/h	63	121	173	145	60	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	132	188	158	65	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	620	86	91	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	452	973	1504	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	386	964	1497	-	-	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	4.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497	-	637	-	-
HCM Lane V/C Ratio	0.126	-	0.314	-	-
HCM Control Delay (s)	7.8	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	123	173	256	165	16
Future Volume (vph)	62	123	173	256	165	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

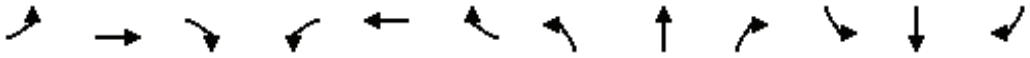
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	123	173	256	165	16
Future Vol, veh/h	62	123	173	256	165	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	134	188	278	179	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	852	198	201	0	-	0
Stage 1	193	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	330	843	1371	-	-	-
Stage 1	840	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	281	835	1364	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	3.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1364	-	503	-	-
HCM Lane V/C Ratio	0.138	-	0.4	-	-
HCM Control Delay (s)	8.1	-	16.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	1.9	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	41	64	15	45	1	117	5	85	1	3	1
Future Volume (vph)	1	41	64	15	45	1	117	5	85	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

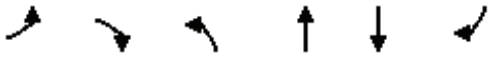
Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	41	64	15	45	1	117	5	85	1	3	1
Future Vol, veh/h	1	41	64	15	45	1	117	5	85	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	47	73	17	51	1	133	6	97	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	120	0	0	174	172	84	223	208	52
Stage 1	-	-	-	-	-	-	86	86	-	86	86	-
Stage 2	-	-	-	-	-	-	88	86	-	137	122	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1554	-	-	1468	-	-	789	721	975	733	689	1016
Stage 1	-	-	-	-	-	-	922	824	-	922	824	-
Stage 2	-	-	-	-	-	-	920	824	-	866	795	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1468	-	-	777	712	975	650	680	1016
Mov Cap-2 Maneuver	-	-	-	-	-	-	777	712	-	650	680	-
Stage 1	-	-	-	-	-	-	921	823	-	921	814	-
Stage 2	-	-	-	-	-	-	904	814	-	774	794	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.8	10.9	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	846	1554	-	-	1468	-	-	721
HCM Lane V/C Ratio	0.278	0.001	-	-	0.012	-	-	0.008
HCM Control Delay (s)	10.9	7.3	0	-	7.5	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	84	45	38	24	8
Future Volume (vph)	21	84	45	38	24	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	84	45	38	24	8
Future Vol, veh/h	21	84	45	38	24	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	105	56	48	30	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	195	35	40	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	794	1038	1570	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	765	1038	1570	-	-	-
Mov Cap-2 Maneuver	765	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	869	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	969	-	-
HCM Lane V/C Ratio	0.036	-	0.135	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

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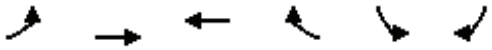


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	943	799	419	0	323
Future Volume (vph)	0	943	799	419	0	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	943	799	419	0	323
Future Vol, veh/h	0	943	799	419	0	323
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	993	841	441	0	340

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	431
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	573
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	568
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

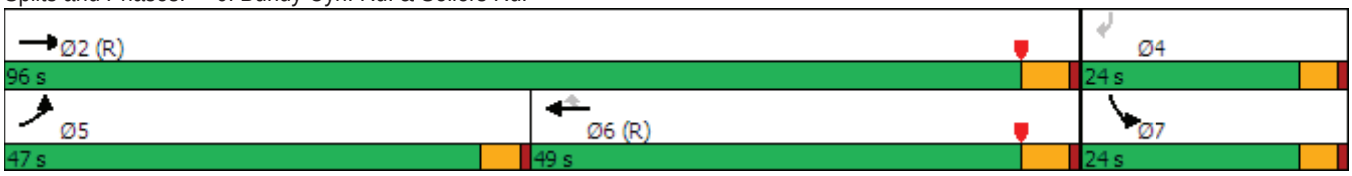
Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.3
HCM LOS			C

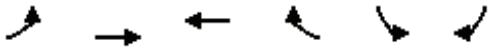
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	568
HCM Lane V/C Ratio	-	-	-	0.599
HCM Control Delay (s)	-	-	-	20.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	3.9

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	370	531	812	26	132	110
Future Volume (vph)	370	531	812	26	132	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	47.0	96.0	49.0	49.0	24.0	24.0
Total Split (%)	39.2%	80.0%	40.8%	40.8%	20.0%	20.0%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.

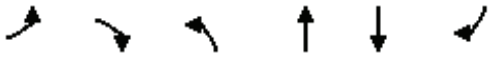




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	370	531	812	26	132	110
Future Volume (veh/h)	370	531	812	26	132	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	389	559	855	27	139	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	418	3859	1719	763	289	258
Arrive On Green	0.23	0.76	0.97	0.97	0.16	0.16
Sat Flow, veh/h	1781	5274	3647	1577	1781	1585
Grp Volume(v), veh/h	389	559	855	27	139	116
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1577	1781	1585
Q Serve(g_s), s	25.7	3.6	1.8	0.1	8.5	7.9
Cycle Q Clear(g_c), s	25.7	3.6	1.8	0.1	8.5	7.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	418	3859	1719	763	289	258
V/C Ratio(X)	0.93	0.14	0.50	0.04	0.48	0.45
Avail Cap(c_a), veh/h	631	3859	1719	763	289	258
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.91	0.91	1.00	1.00
Uniform Delay (d), s/veh	45.0	4.0	1.0	1.0	45.6	45.4
Incr Delay (d2), s/veh	12.2	0.1	0.9	0.1	5.6	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	1.1	0.6	0.9	4.3	7.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.1	4.1	2.0	1.1	51.3	51.0
LnGrp LOS	E	A	A	A	D	D
Approach Vol, veh/h		948	882		255	
Approach Delay, s/veh		25.9	2.0		51.1	
Approach LOS		C	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.0		24.0	32.7	63.3
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		90.7		19.5	42.5	43.7
Max Q Clear Time (g_c+I1), s		5.6		10.5	27.7	3.8
Green Ext Time (p_c), s		2.7		0.3	0.5	4.3

Intersection Summary		
HCM 6th Ctrl Delay		18.8
HCM 6th LOS		B



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	132	187	110	80	21
Future Volume (vph)	63	132	187	110	80	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

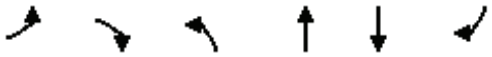
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	132	187	110	80	21
Future Vol, veh/h	63	132	187	110	80	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	143	203	120	87	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	635	109	115	0	-	0
Stage 1	104	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	443	945	1474	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	374	936	1467	-	-	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	587	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	4.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1467	-	630	-	-
HCM Lane V/C Ratio	0.139	-	0.336	-	-
HCM Control Delay (s)	7.8	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.5	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	130	187	233	194	18
Future Volume (vph)	64	130	187	233	194	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

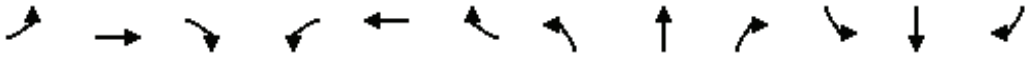
Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	64	130	187	233	194	18
Future Vol, veh/h	64	130	187	233	194	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	141	203	253	211	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	890	231	236	0	-	0
Stage 1	226	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	313	808	1331	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	263	800	1325	-	-	-
Mov Cap-2 Maneuver	263	-	-	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.3	3.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1325	-	478	-	-
HCM Lane V/C Ratio	0.153	-	0.441	-	-
HCM Control Delay (s)	8.2	-	18.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	77	75	24	88	3	48	3	70	4	4	3
Future Volume (vph)	1	77	75	24	88	3	48	3	70	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

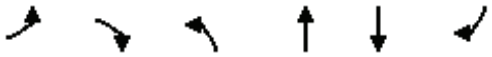
Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	77	75	24	88	3	48	3	70	4	4	3
Future Vol, veh/h	1	77	75	24	88	3	48	3	70	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	90	87	28	102	3	56	3	81	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	105	0	0	177	0	0	300	297	134	338	339	104
Stage 1	-	-	-	-	-	-	136	136	-	160	160	-
Stage 2	-	-	-	-	-	-	164	161	-	178	179	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1486	-	-	1399	-	-	652	615	915	616	582	951
Stage 1	-	-	-	-	-	-	867	784	-	842	766	-
Stage 2	-	-	-	-	-	-	838	765	-	824	751	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1399	-	-	635	601	915	549	569	951
Mov Cap-2 Maneuver	-	-	-	-	-	-	635	601	-	549	569	-
Stage 1	-	-	-	-	-	-	866	783	-	841	750	-
Stage 2	-	-	-	-	-	-	812	749	-	747	750	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	10.7	10.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	770	1486	-	-	1399	-	-	630
HCM Lane V/C Ratio	0.183	0.001	-	-	0.02	-	-	0.02
HCM Control Delay (s)	10.7	7.4	0	-	7.6	0	-	10.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	112	70	10	47	18
Future Volume (vph)	36	112	70	10	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

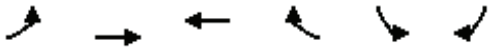
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	112	70	10	47	18
Future Vol, veh/h	36	112	70	10	47	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	132	82	12	55	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	242	66	76	0	-	0
Stage 1	66	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	746	998	1523	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	706	998	1523	-	-	-
Mov Cap-2 Maneuver	706	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	6.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1523	-	907	-	-
HCM Lane V/C Ratio	0.054	-	0.192	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1306	625	429	0	289
Future Volume (vph)	0	1306	625	429	0	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1306	625	429	0	289
Future Vol, veh/h	0	1306	625	429	0	289
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1346	644	442	0	298

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	332
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	664
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	658
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.9
HCM LOS			B

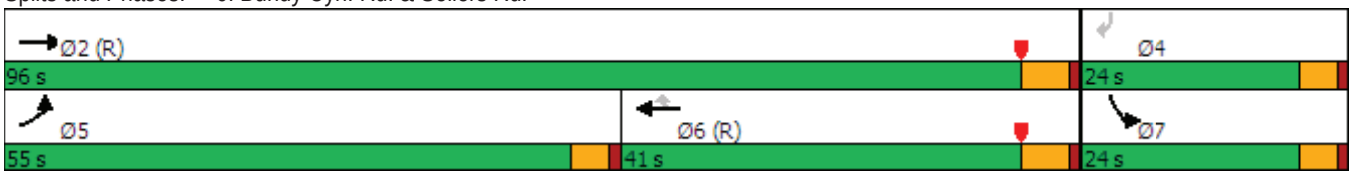
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	658
HCM Lane V/C Ratio	-	-	-	0.453
HCM Control Delay (s)	-	-	-	14.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	2.4

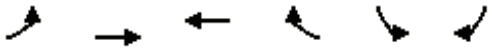
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	437	922	614	39	116	75
Future Volume (vph)	437	922	614	39	116	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	55.0	96.0	41.0	41.0	24.0	24.0
Total Split (%)	45.8%	80.0%	34.2%	34.2%	20.0%	20.0%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.

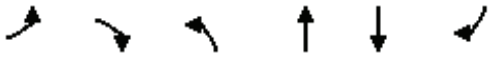




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	437	922	614	39	116	75
Future Volume (veh/h)	437	922	614	39	116	75
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	460	971	646	41	122	79
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	489	3859	1577	699	289	258
Arrive On Green	0.27	0.76	0.89	0.89	0.16	0.16
Sat Flow, veh/h	1781	5274	3647	1576	1781	1585
Grp Volume(v), veh/h	460	971	646	41	122	79
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1576	1781	1585
Q Serve(g_s), s	30.3	6.9	3.9	0.4	7.4	5.3
Cycle Q Clear(g_c), s	30.3	6.9	3.9	0.4	7.4	5.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	489	3859	1577	699	289	258
V/C Ratio(X)	0.94	0.25	0.41	0.06	0.42	0.31
Avail Cap(c_a), veh/h	750	3859	1577	699	289	258
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	42.6	4.4	4.0	3.8	45.2	44.3
Incr Delay (d2), s/veh	11.7	0.2	0.8	0.2	4.5	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	2.1	1.2	1.6	3.7	5.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.2	4.6	4.7	3.9	49.6	47.4
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		1431	687		201	
Approach Delay, s/veh		20.5	4.7		48.7	
Approach LOS		C	A		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.0		24.0	37.5	58.5
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		90.7		19.5	50.5	35.7
Max Q Clear Time (g_c+I1), s		8.9		9.4	32.3	5.9
Green Ext Time (p_c), s		5.2		0.2	0.7	3.0

Intersection Summary		
HCM 6th Ctrl Delay	18.3	
HCM 6th LOS	B	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	121	173	145	60	19
Future Volume (vph)	63	121	173	145	60	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

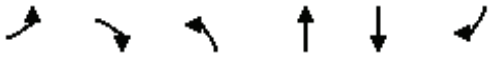
Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	121	173	145	60	19
Future Vol, veh/h	63	121	173	145	60	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	132	188	158	65	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	620	86	91	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	452	973	1504	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	386	964	1497	-	-	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	4.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497	-	637	-	-
HCM Lane V/C Ratio	0.126	-	0.314	-	-
HCM Control Delay (s)	7.8	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	123	173	256	165	16
Future Volume (vph)	62	123	173	256	165	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

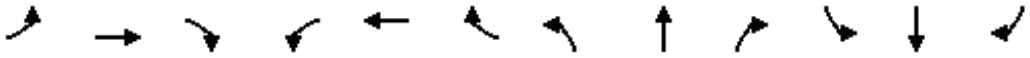
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	123	173	256	165	16
Future Vol, veh/h	62	123	173	256	165	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	134	188	278	179	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	852	198	201	0	-	0
Stage 1	193	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	330	843	1371	-	-	-
Stage 1	840	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	281	835	1364	-	-	-
Mov Cap-2 Maneuver	281	-	-	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	3.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1364	-	503	-	-
HCM Lane V/C Ratio	0.138	-	0.4	-	-
HCM Control Delay (s)	8.1	-	16.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	1.9	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	41	64	15	45	1	117	5	85	1	3	1
Future Volume (vph)	1	41	64	15	45	1	117	5	85	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

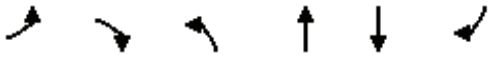
Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	41	64	15	45	1	117	5	85	1	3	1
Future Vol, veh/h	1	41	64	15	45	1	117	5	85	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	47	73	17	51	1	133	6	97	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	120	0	0	174	172	84	223	208	52
Stage 1	-	-	-	-	-	-	86	86	-	86	86	-
Stage 2	-	-	-	-	-	-	88	86	-	137	122	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1554	-	-	1468	-	-	789	721	975	733	689	1016
Stage 1	-	-	-	-	-	-	922	824	-	922	824	-
Stage 2	-	-	-	-	-	-	920	824	-	866	795	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1468	-	-	777	712	975	650	680	1016
Mov Cap-2 Maneuver	-	-	-	-	-	-	777	712	-	650	680	-
Stage 1	-	-	-	-	-	-	921	823	-	921	814	-
Stage 2	-	-	-	-	-	-	904	814	-	774	794	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.8	10.9	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	846	1554	-	-	1468	-	-	721
HCM Lane V/C Ratio	0.278	0.001	-	-	0.012	-	-	0.008
HCM Control Delay (s)	10.9	7.3	0	-	7.5	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	84	45	38	24	8
Future Volume (vph)	21	84	45	38	24	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	84	45	38	24	8
Future Vol, veh/h	21	84	45	38	24	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	105	56	48	30	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	195	35	40	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	794	1038	1570	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	765	1038	1570	-	-	-
Mov Cap-2 Maneuver	765	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	869	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	969	-	-
HCM Lane V/C Ratio	0.036	-	0.135	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **856**

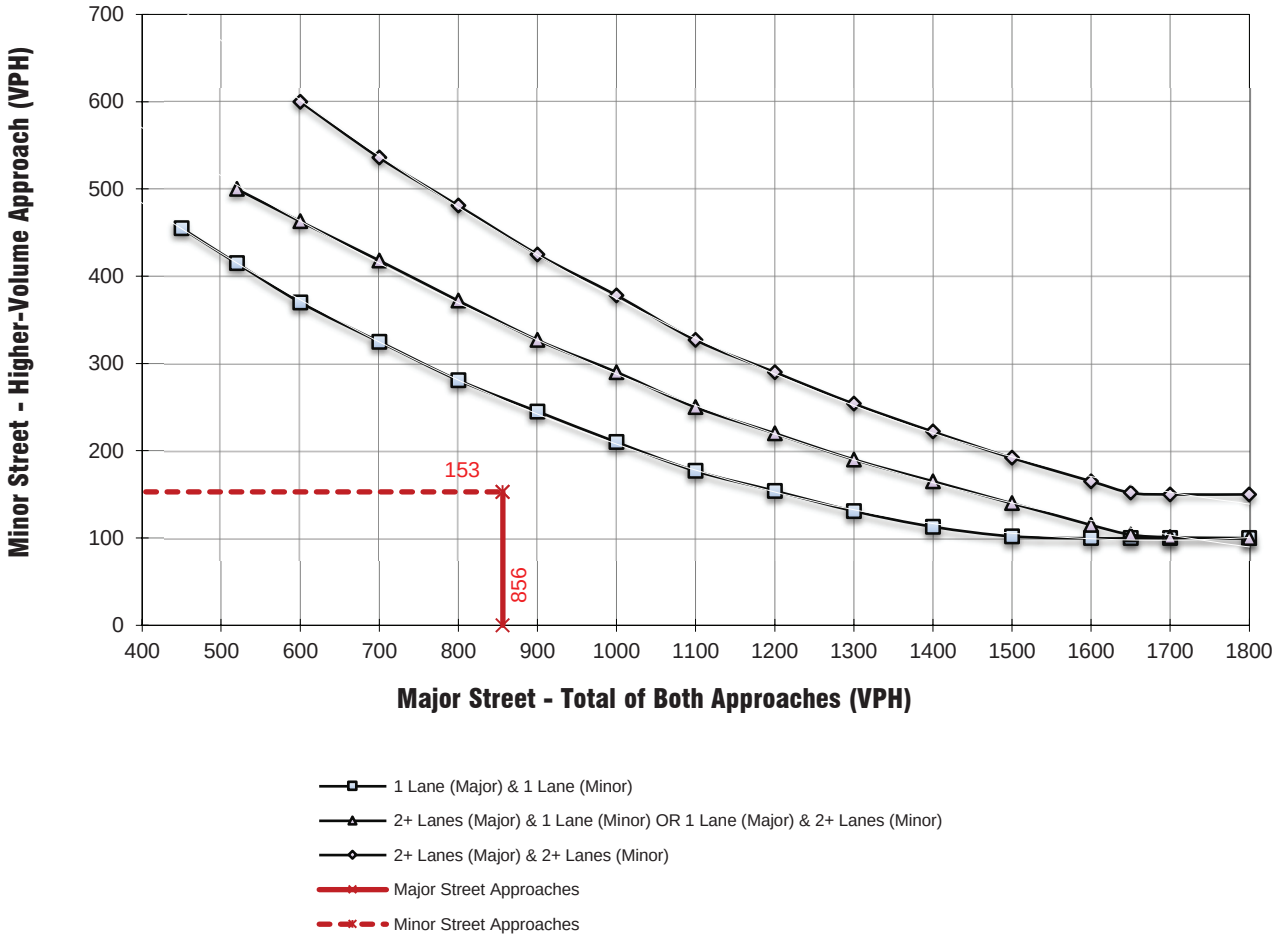
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **153**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1014**

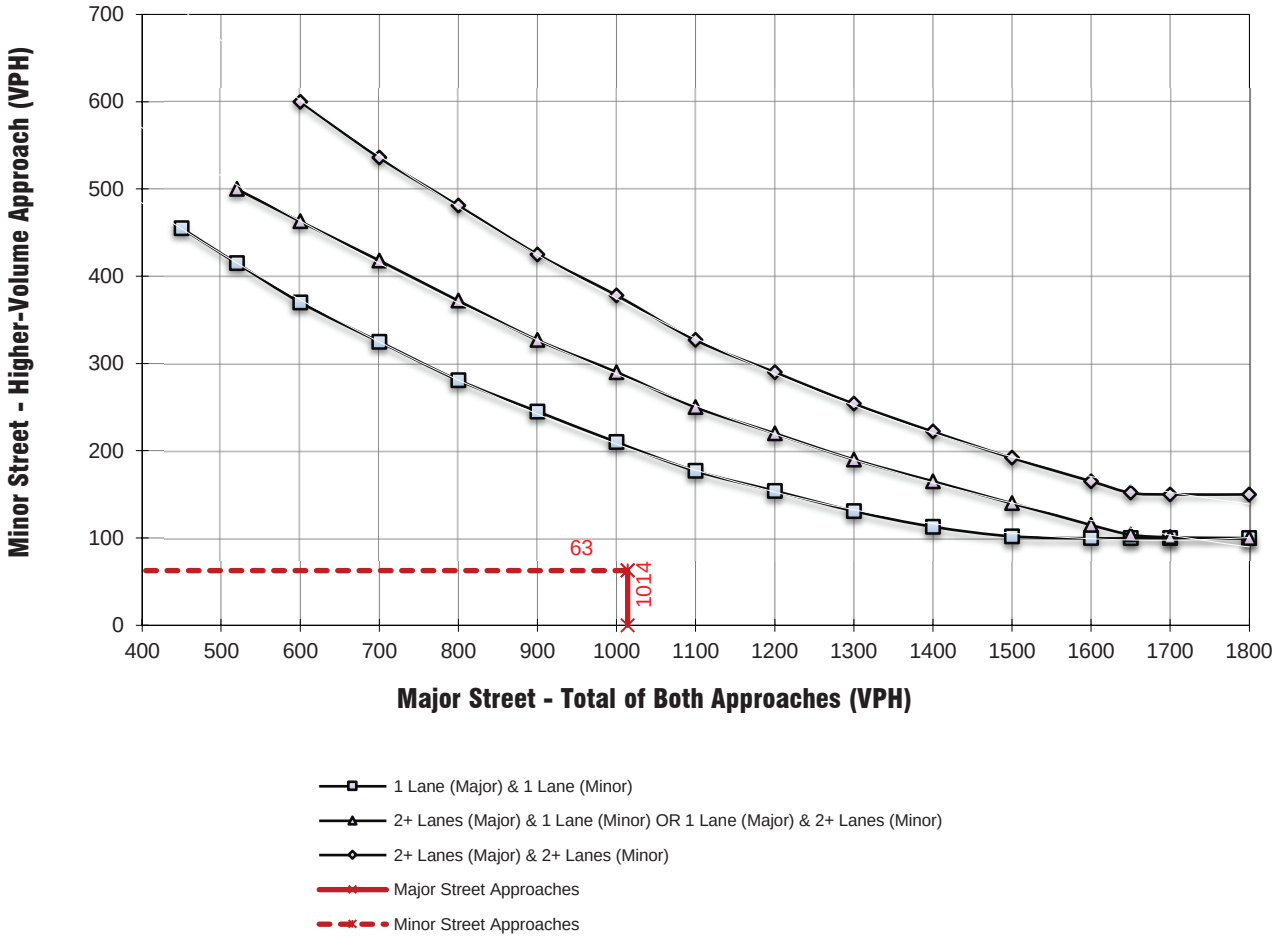
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **63**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1844**

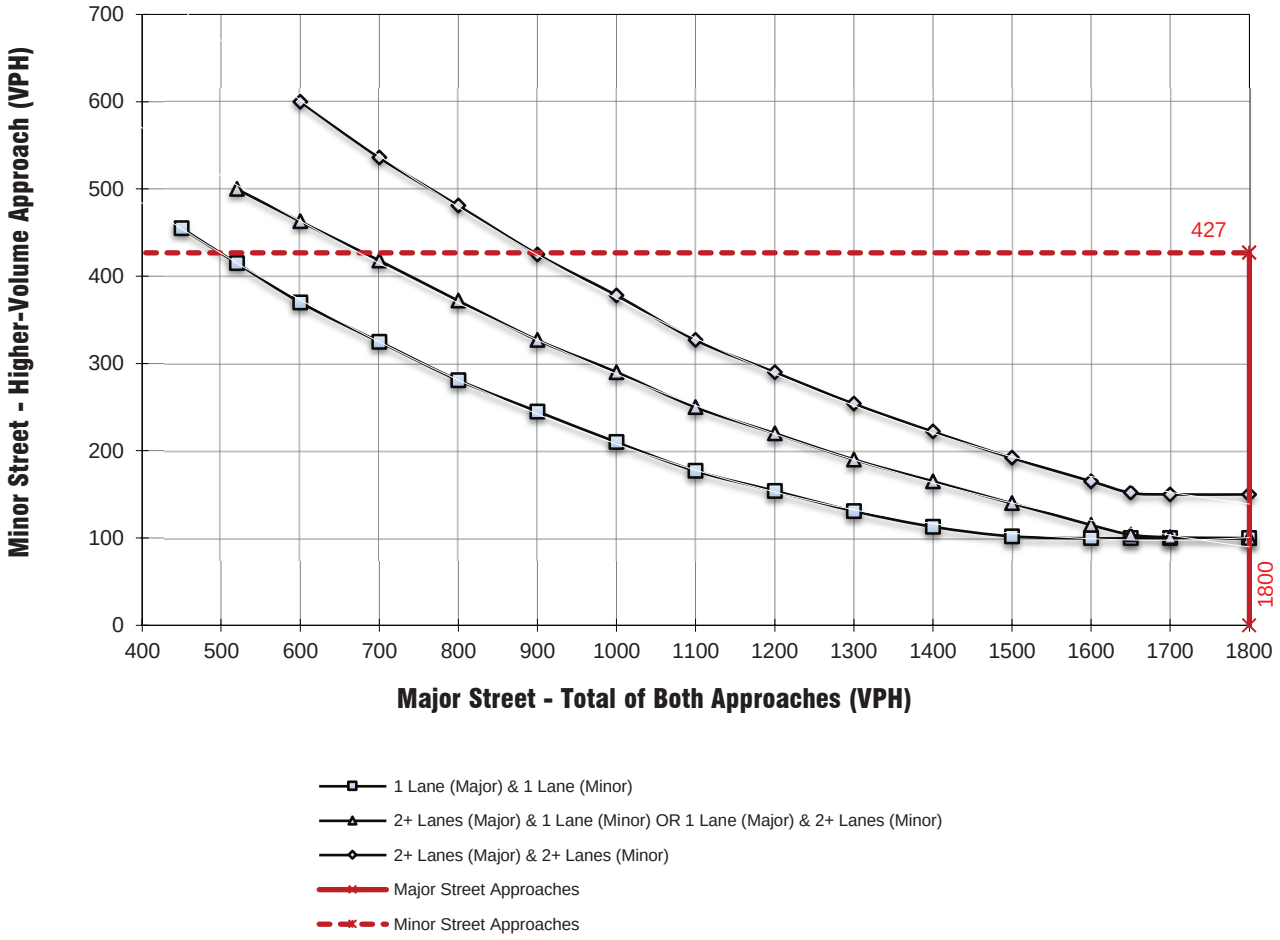
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **427**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **2045**

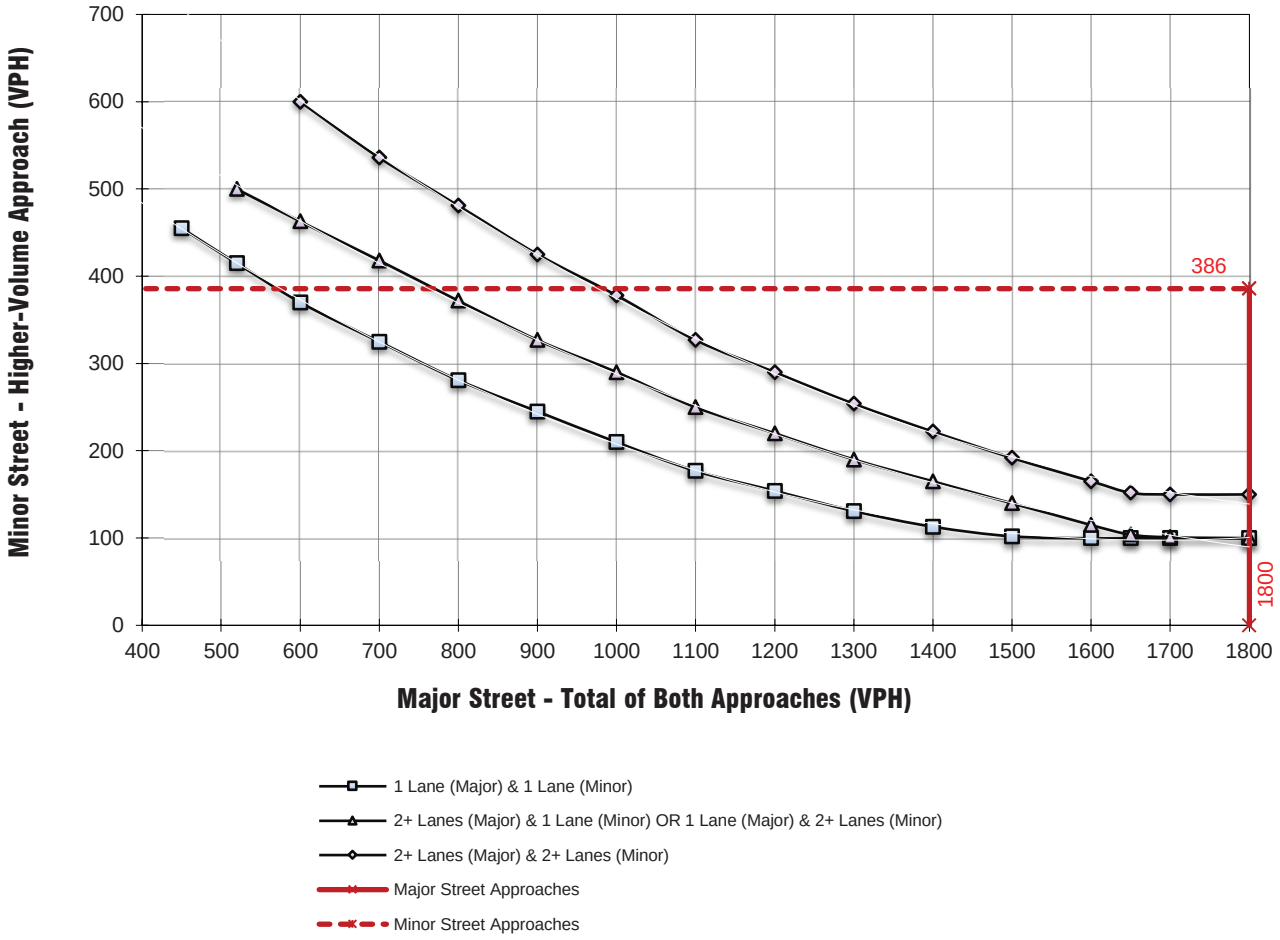
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **386**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1507**

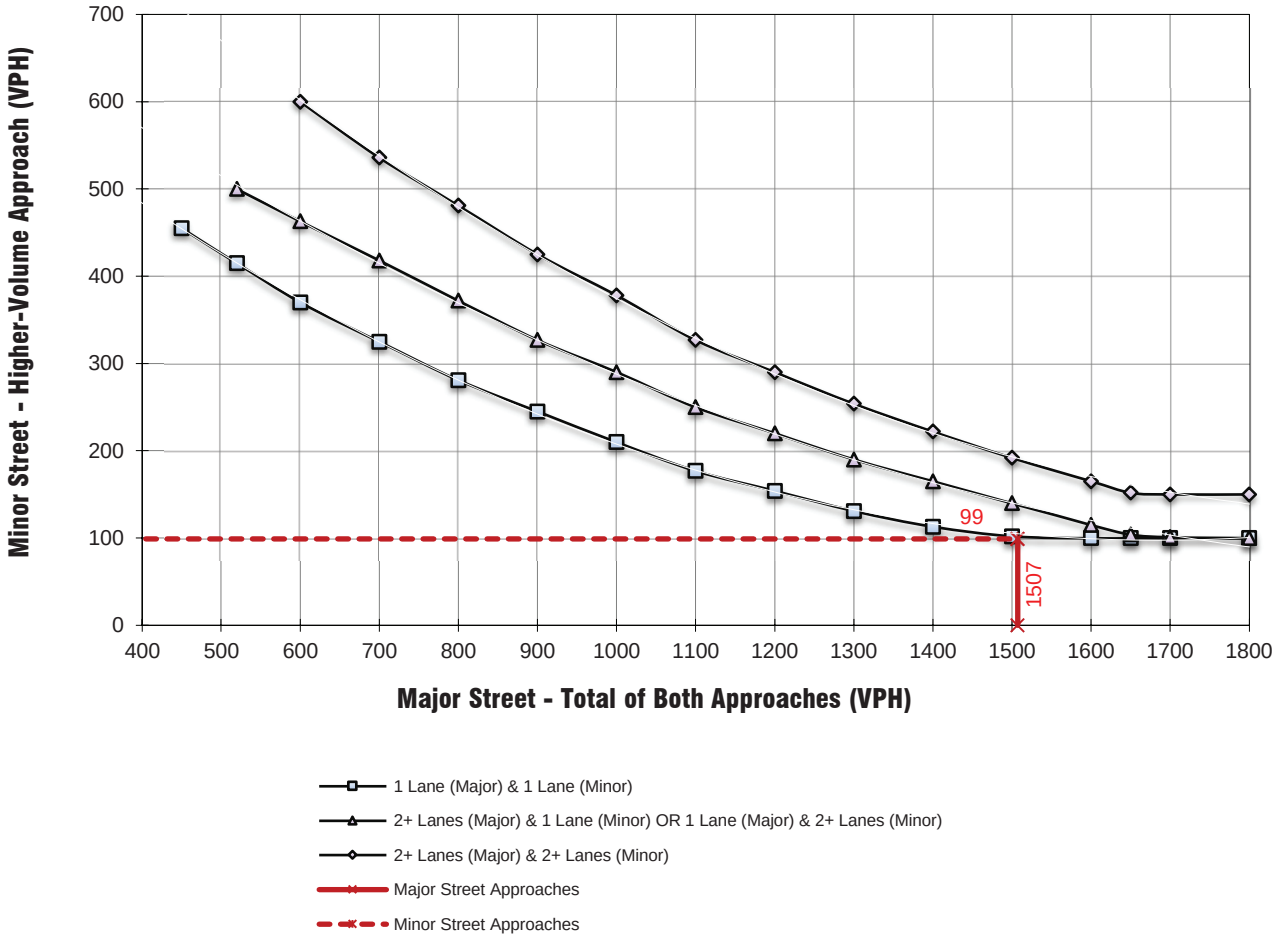
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **99**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1752**

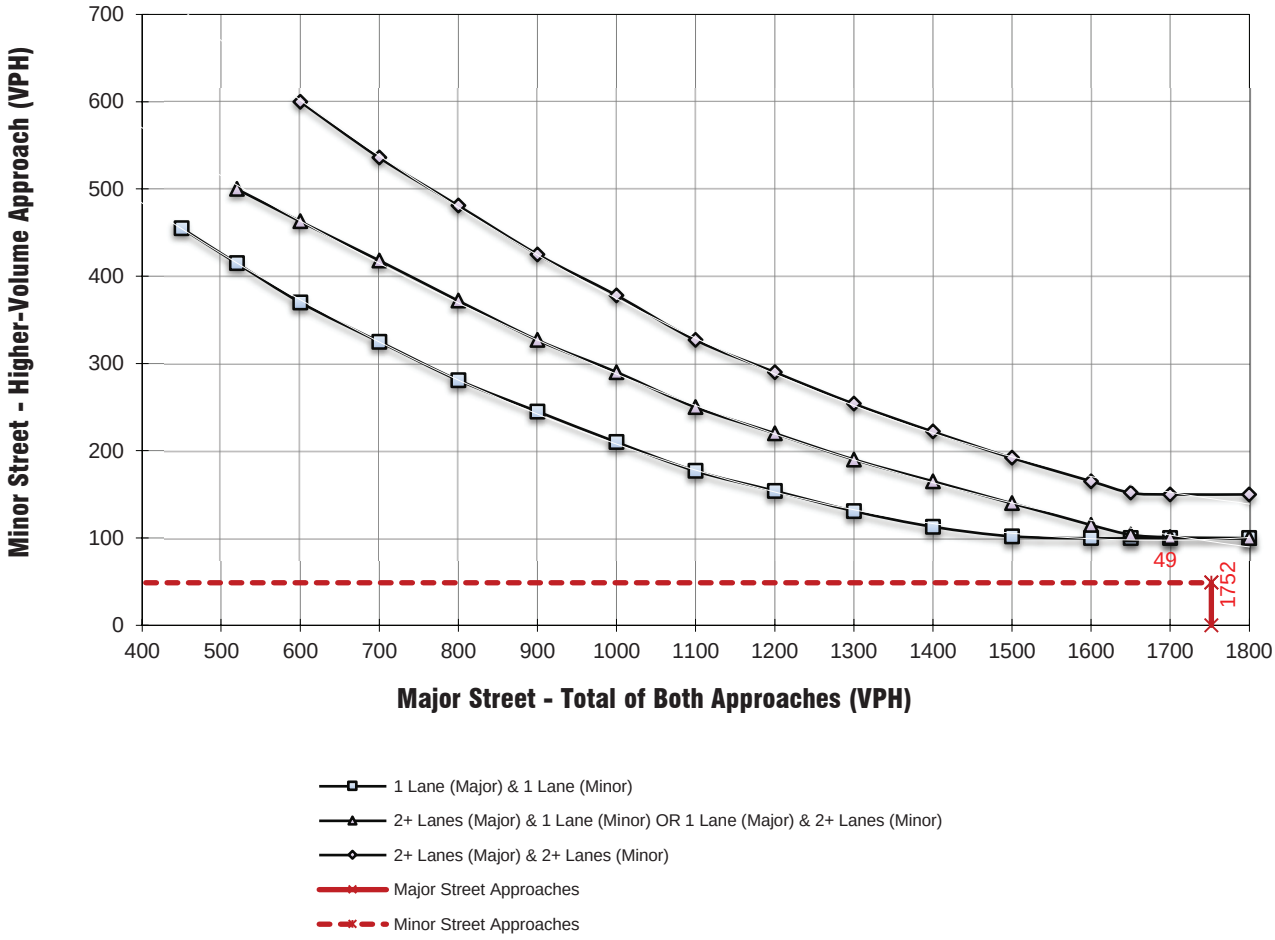
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **49**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Orange St.**

Total of Both Approaches (VPH) = **758**

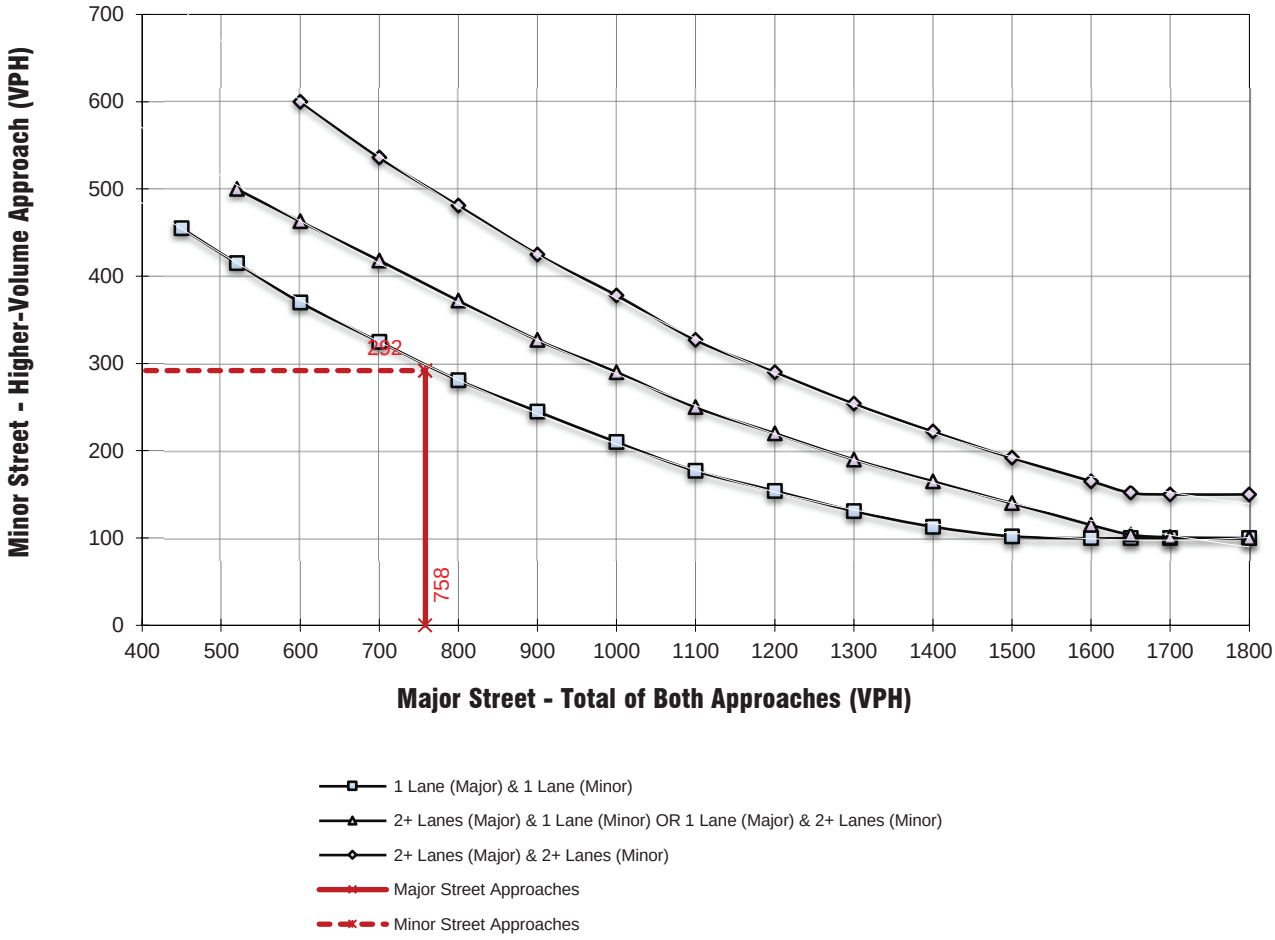
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Canyon Dr.**

High Volume Approach (VPH) = **292**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Orange St.**

Total of Both Approaches (VPH) = **481**

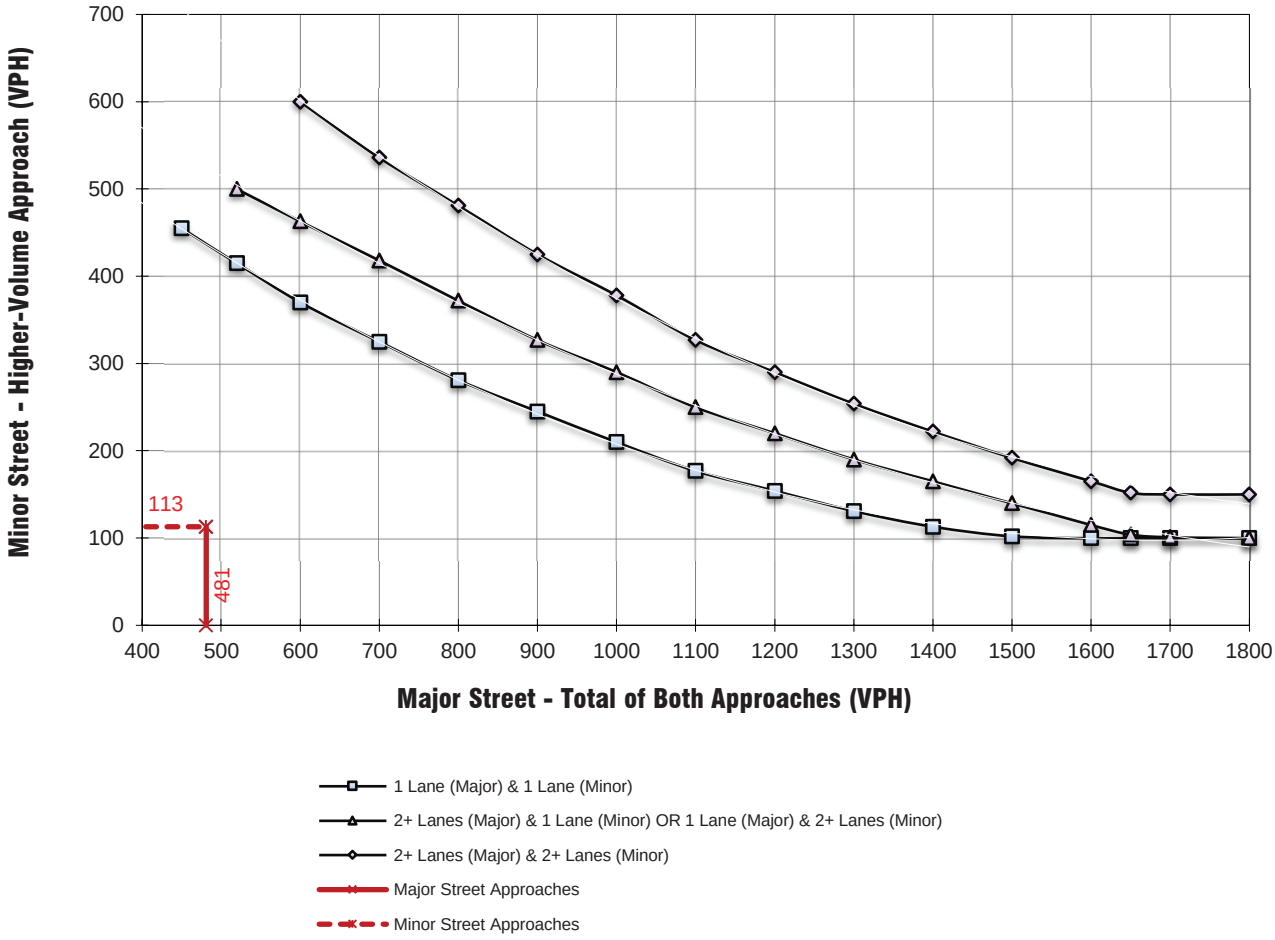
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Canyon Dr.**

High Volume Approach (VPH) = **113**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **162**

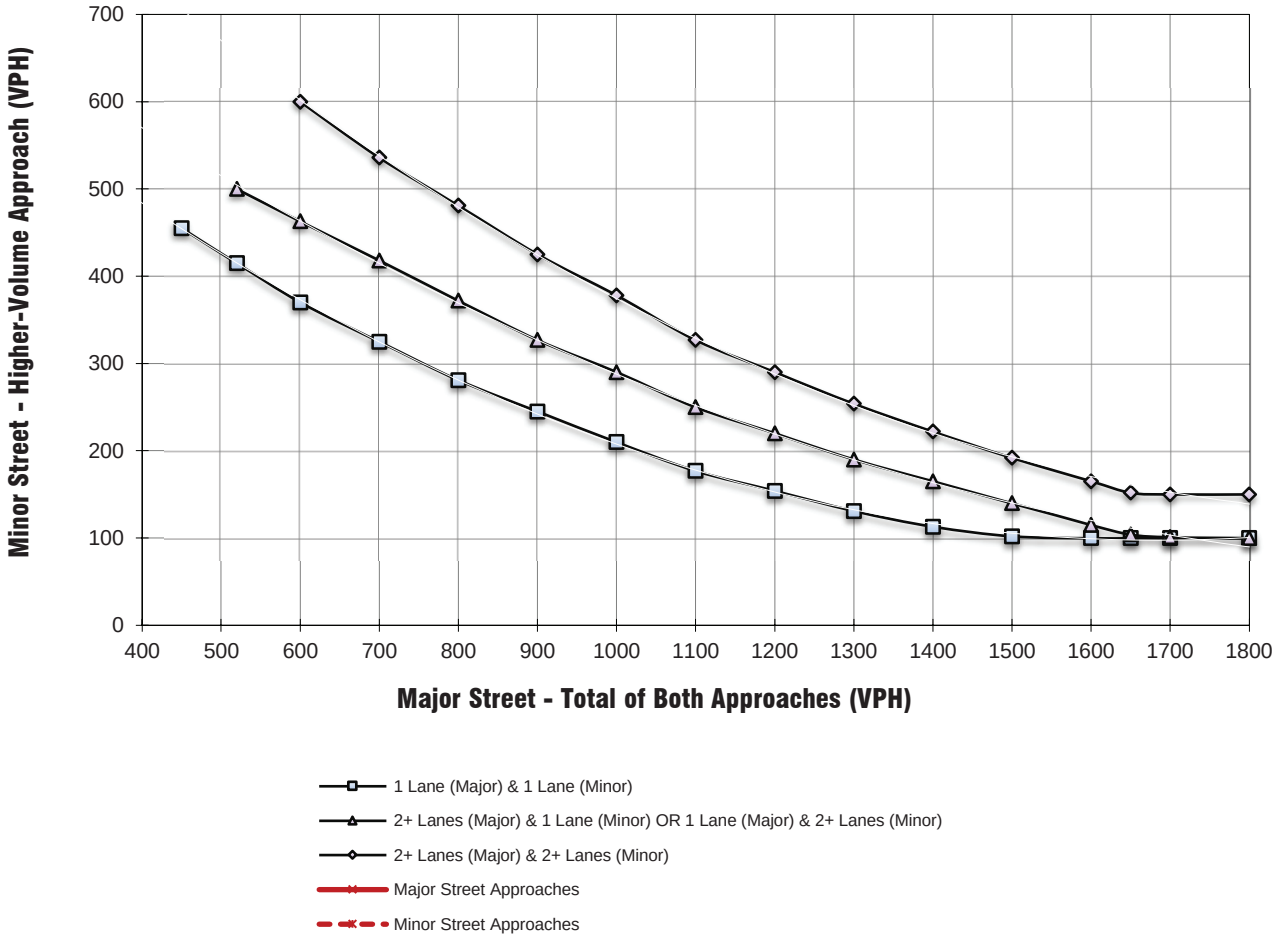
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **81**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **130**

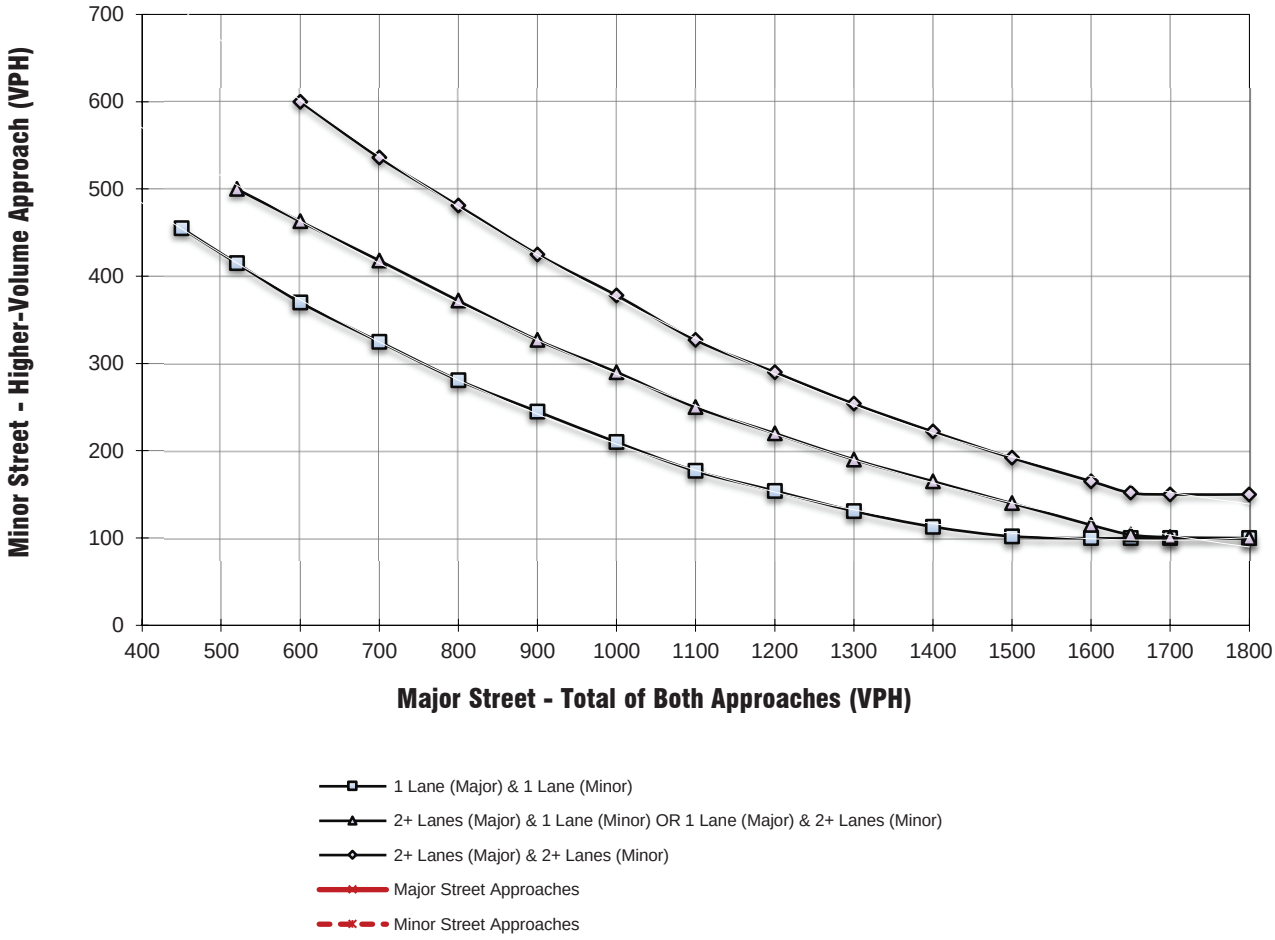
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **45**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **270**

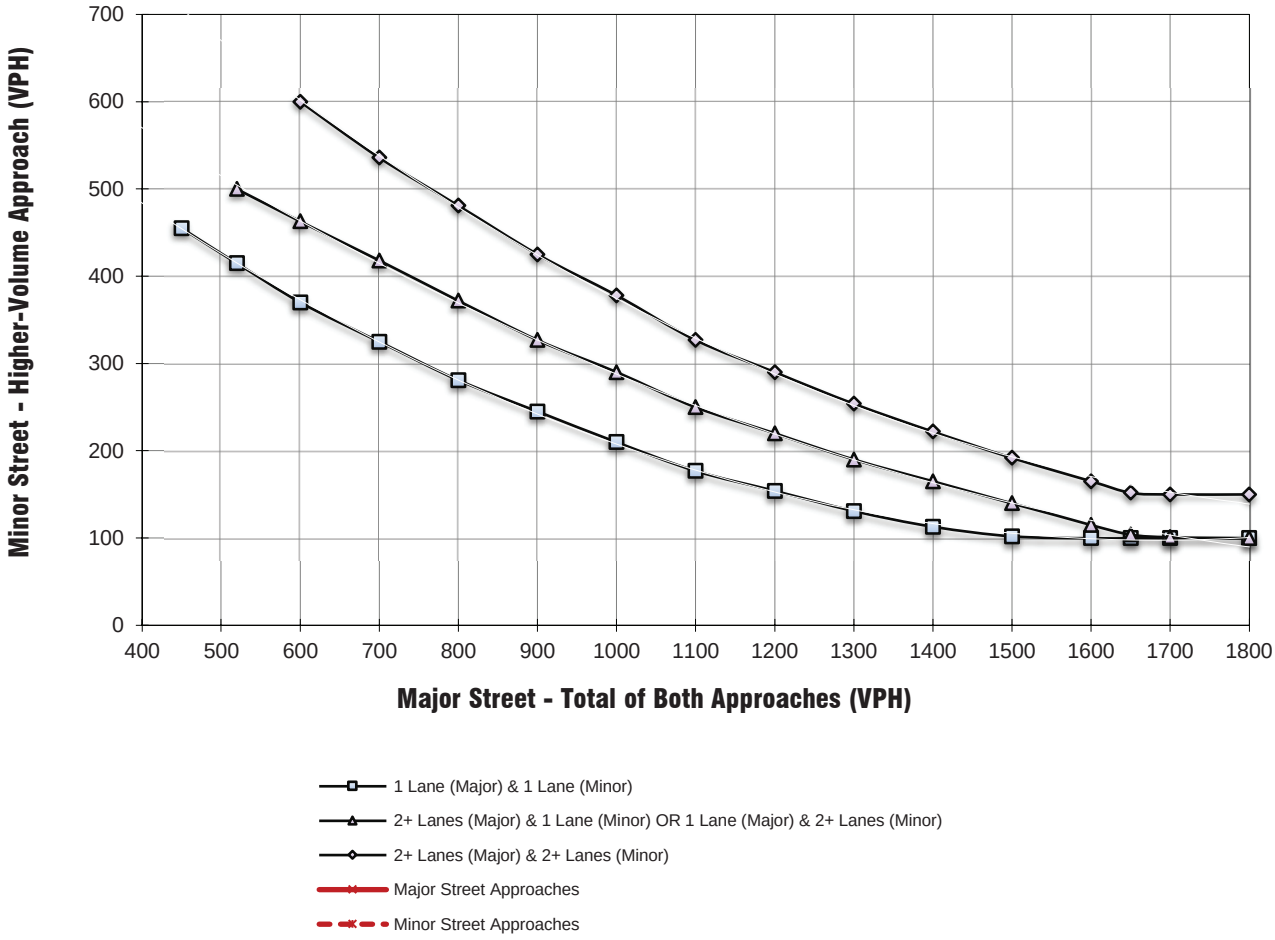
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **149**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **236**

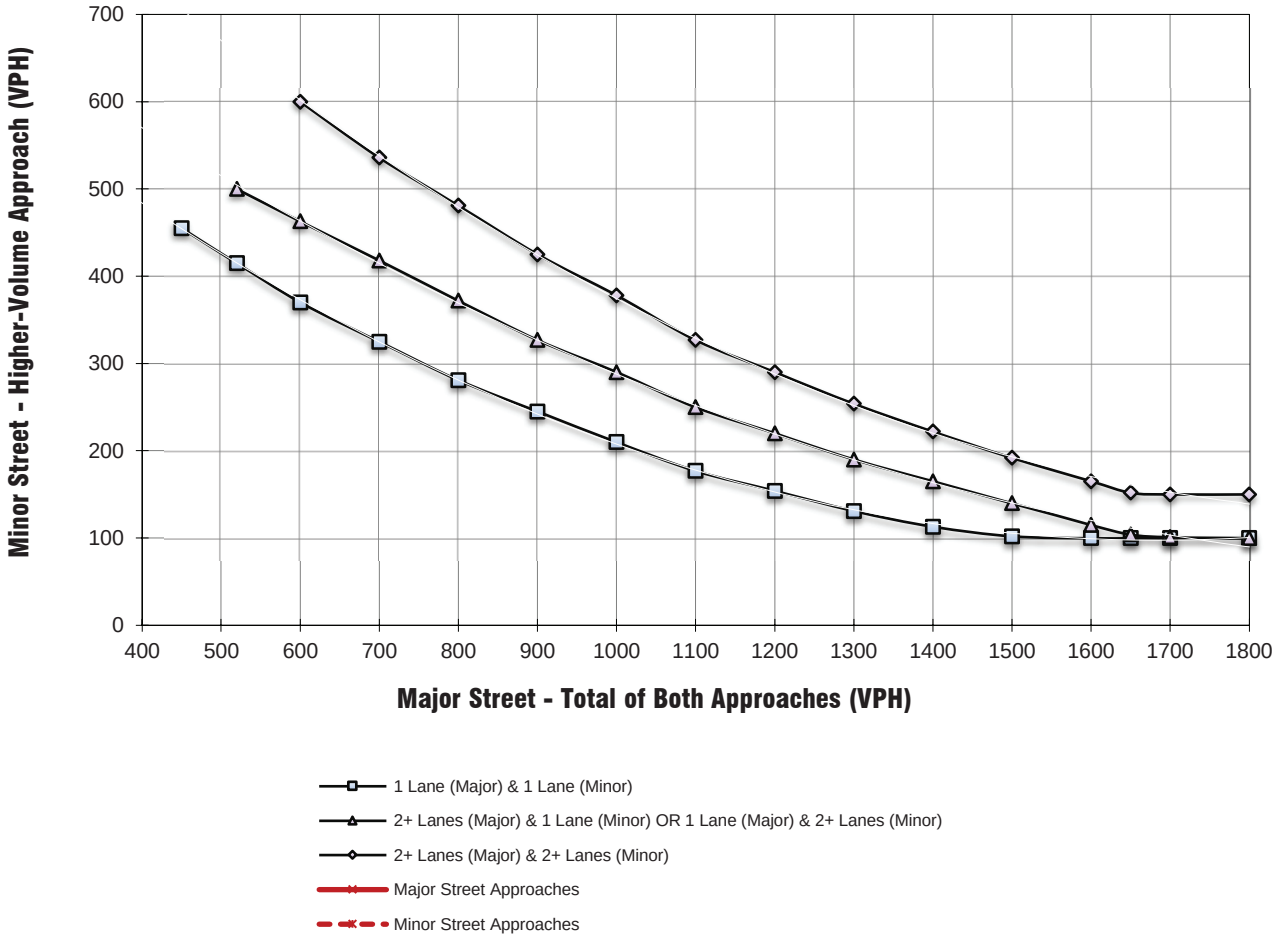
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **138**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **458**

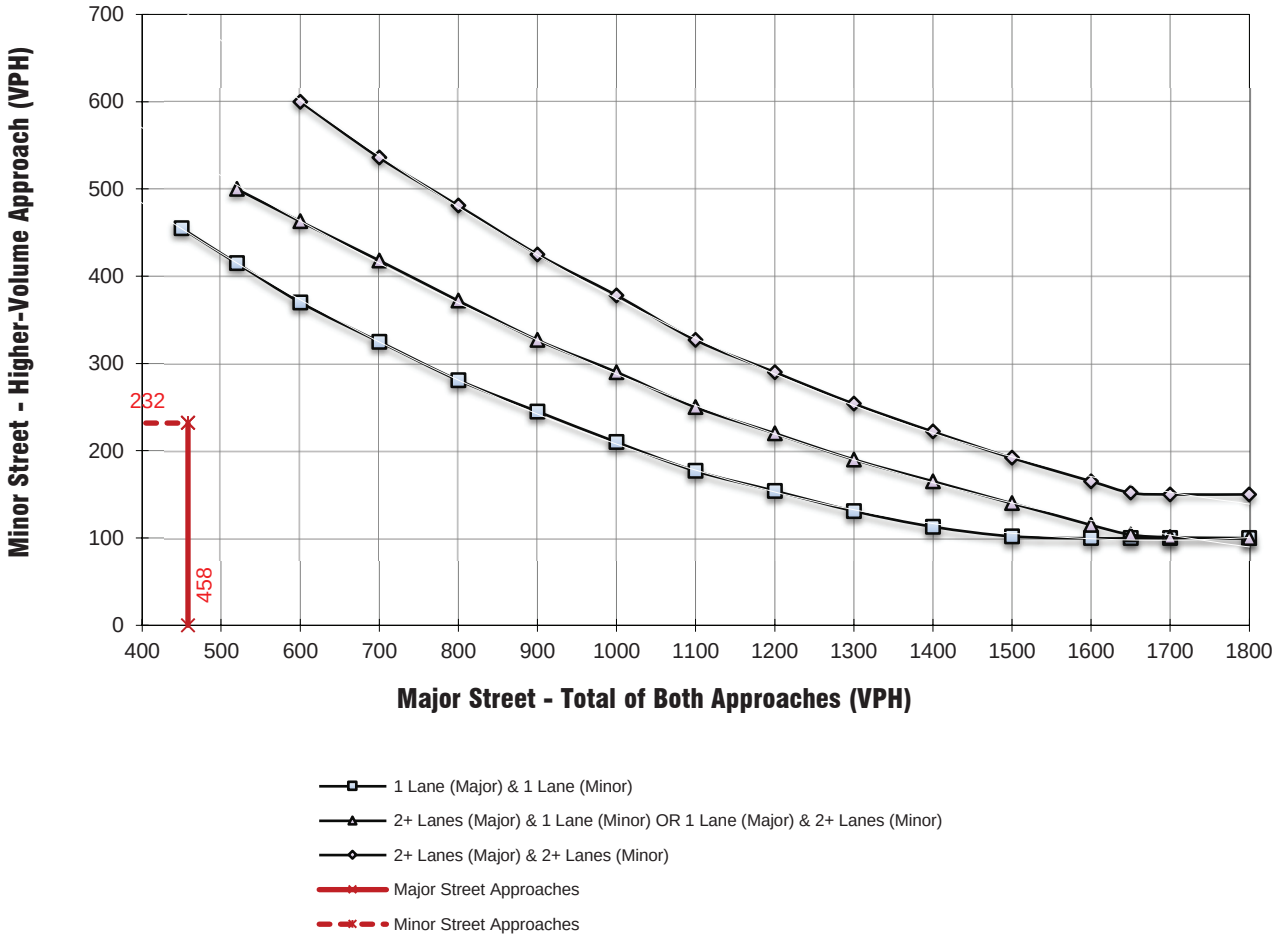
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **232**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **377**

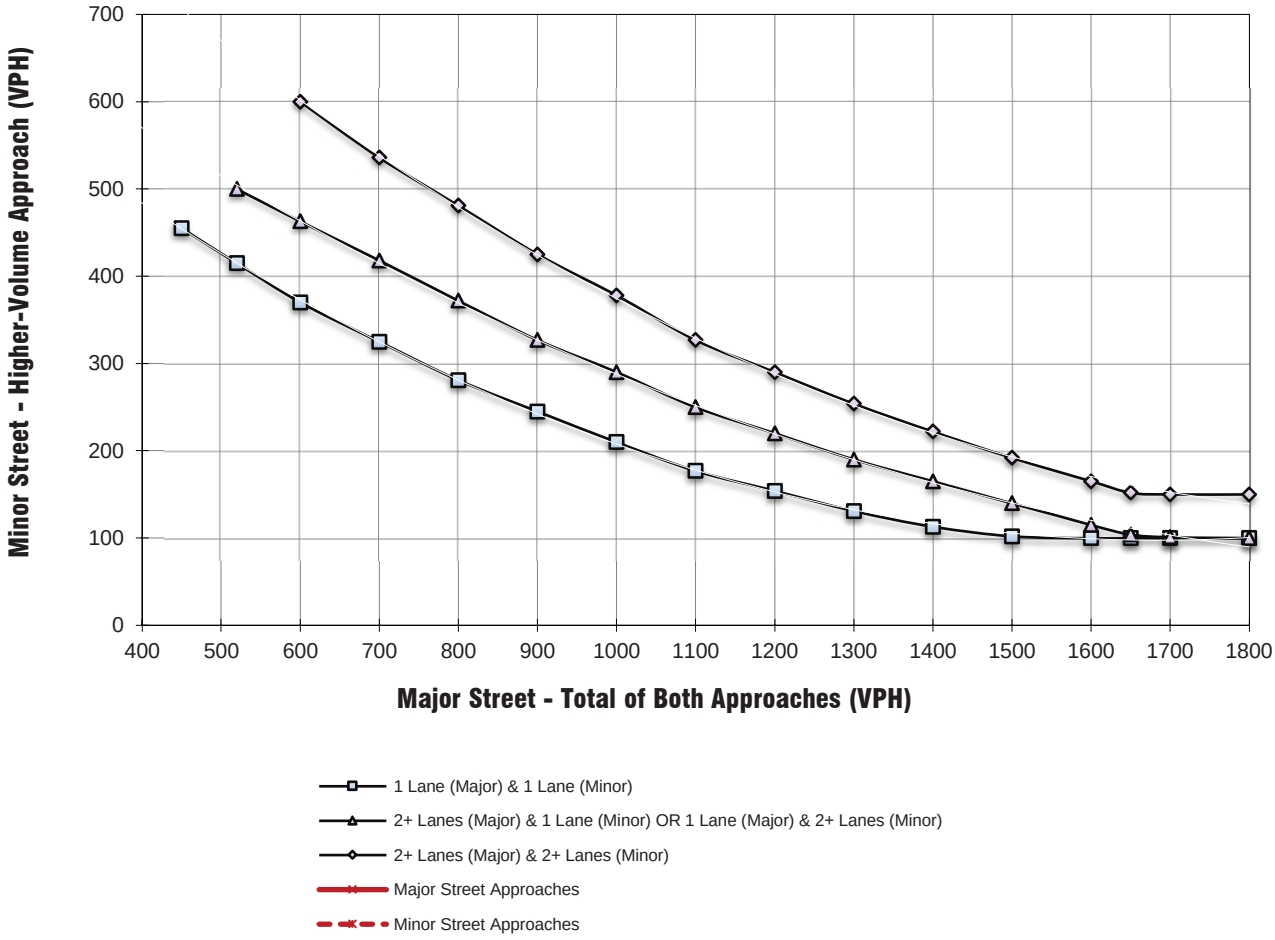
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **130**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (AM Peak Hour)

Major Street Name = **Almond St.**

Total of Both Approaches (VPH) = **351**

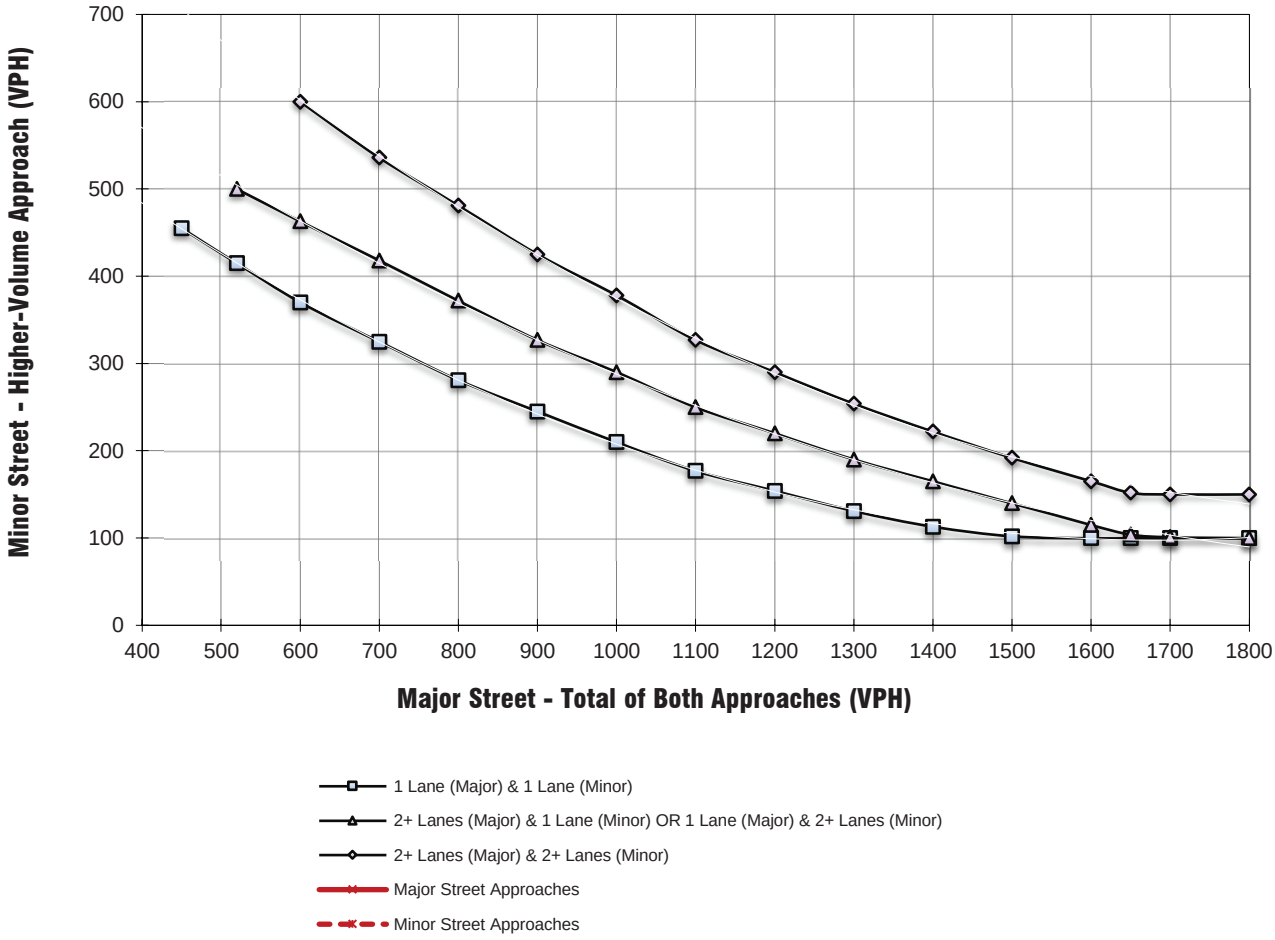
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **182**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

E+P CONDITIONS (PM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **272**

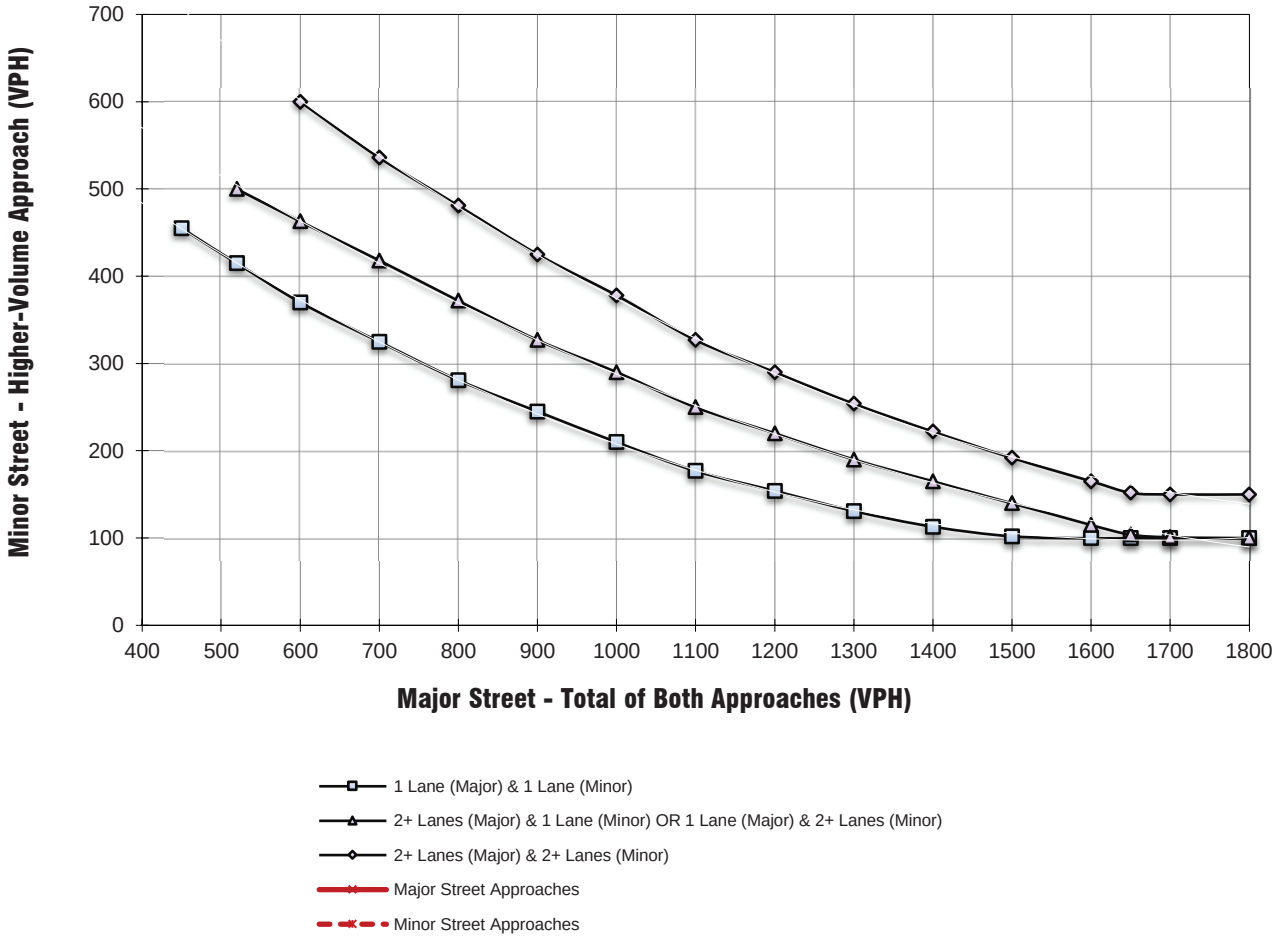
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **118**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

EXISTING PLUS PROJECT CONDITIONS

Jurisdiction: City of Wildomar
Major Street: Cherry St.
Minor Street: N. Dwy.

Critical Approach Speed (Major): 35 mph
Critical Approach Speed (Minor): 30 mph

Major Street Approach Lanes = 1 lane
Minor Street Approach Lanes = 1 lane

Major Street Future ADT = 4,408 vpd
Minor Street Future ADT = 2,231 vpd

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT	
XX		
CONDITION A - Minimum Vehicular Volume		
Satisfied / Not Satisfied: XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Number of lanes for moving traffic on each approa		
Major Street / Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 4,408 / *1* 2,231	*8,000* / *5,600*	*2,400* / *1,680*
2 + / *1*	*9,600* / *6,720*	*2,400* / *1,680*
2 + / *2 +*	*9,600* / *6,720*	*3,200* / *2,240*
1 / *2 +*	*8,000* / *5,600*	*3,200* / *2,240*
CONDITION B - Interruption of Continuous Traffic		
Satisfied / Not Satisfied: XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Number of lanes for moving traffic on each approa		
Major Street / Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 4,408 / *1* 2,231	*12,000* / *8,400*	*1,200* * / *850*
2 + / *1*	*14,400* / *10,080*	*1,200* / *850*
2 + / *2 +*	*14,400* / *10,080*	*1,600* / *1,120*
1 / *2 +*	*12,000* / *8,400*	*1,600* / *1,120*
Combination of CONDITIONS A + B		
Satisfied / Not Satisfied: XX	2 CONDITIONS	2 CONDITIONS
No one condition satisfied, but following condition fulfilled 80% of more .... A: 55% B: 37%	80%	80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

EXISTING PLUS PROJECT CONDITIONS

Jurisdiction: City of Wildomar
Major Street: Cherry St. — Critical Approach Speed (Major): 35 mph
Minor Street: S. Dwy. — Critical Approach Speed (Minor): 30 mph

Major Street Approach Lanes = 1 lane — Minor Street Approach Lanes = 1 lane

Major Street Future ADT = 7,845 vpd — Minor Street Future ADT = 2,216 vpd

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL		Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*		*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*	
Number of lanes for moving traffic on each approa					
Major Street	Minor Street	*Urban*	*Rural*	*Urban*	*Rural*
1 7,845	*1* 2,216	*8,000*	*5,600*	*2,400*	*1,680*
2 +	*1*	*9,600*	*6,720*	*2,400*	*1,680*
2 +	*2 +*	*9,600*	*6,720*	*3,200*	*2,240*
1	*2 +*	*8,000*	*5,600*	*3,200*	*2,240*
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*		*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*	
Number of lanes for moving traffic on each approa					
Major Street	Minor Street	*Urban*	*Rural*	*Urban*	*Rural*
1 7,845	*1* 2,216	*12,000*	*8,400*	*1,200* *	*850*
2 +	*1*	*14,400*	*10,080*	*1,200*	*850*
2 +	*2 +*	*14,400*	*10,080*	*1,600*	*1,120*
1	*2 +*	*12,000*	*8,400*	*1,600*	*1,120*
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following condition fulfilled 80% of more	A 92% B 65%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX F

EXISTING PLUS PROJECT (E+P) CONDITIONS
RAMP JUNCTION ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	4061	633
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4504	702
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.426
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1464
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.615	Outer Lanes Freeway Speed (SO), mi/h	69.5
Flow in Lanes 1 and 2 (v12), pc/h	3040	Ramp Junction Speed (S), mi/h	59.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.3

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HCS7 Freeway Merge Report

Project Information			
Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3428	938
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3802	1040
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.69	0.52

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.393
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1563
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	56.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	61.2
Flow in Lanes 1 and 2 (v12), pc/h	2239	Ramp Junction Speed (S), mi/h	57.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	3279	Average Density (D), pc/mi/ln	28.0
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.1

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2954	551
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3276	611
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.46	0.31

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.418
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	933
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.650	Outer Lanes Freeway Speed (SO), mi/h	71.3
Flow in Lanes 1 and 2 (v12), pc/h	2343	Ramp Junction Speed (S), mi/h	59.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	18.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.0

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2403	626
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2665	694
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.48	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.315
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1580	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	2274	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	19.5

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3420	696
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3793	772
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.54	0.39

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.432
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1118
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.630	Outer Lanes Freeway Speed (SO), mi/h	70.8
Flow in Lanes 1 and 2 (v12), pc/h	2675	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	21.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	25.2

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2724	540
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3021	599
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.51	0.30

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.331
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1242
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1779	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2378	Average Density (D), pc/mi/ln	20.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.3

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3758	867
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4168	962
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.48

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.450
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1244
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.612	Outer Lanes Freeway Speed (SO), mi/h	70.4
Flow in Lanes 1 and 2 (v12), pc/h	2924	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	28.0

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	12/18/19
Agency	Trames Solutions, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2891	447
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3207	496
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.53	0.25

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.320
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1305
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1902	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2398	Average Density (D), pc/mi/ln	20.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.5

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APPENDIX G

EXISTING PLUS AMBIENT PLUS PROJECT (EAP 2025) CONDITIONS INTERSECTION ANALYSIS CALCULATION WORKSHEETS AND TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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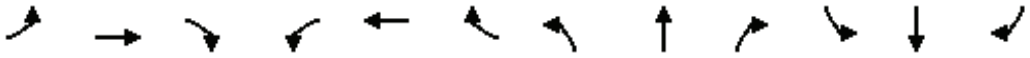


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	405	30	65	326	42	24	33	68	83	35	41
Future Volume (vph)	22	405	30	65	326	42	24	33	68	83	35	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	16.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	405	30	65	326	42	24	33	68	83	35	41
Future Vol, veh/h	22	405	30	65	326	42	24	33	68	83	35	41
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	494	37	79	398	51	29	40	83	101	43	50
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

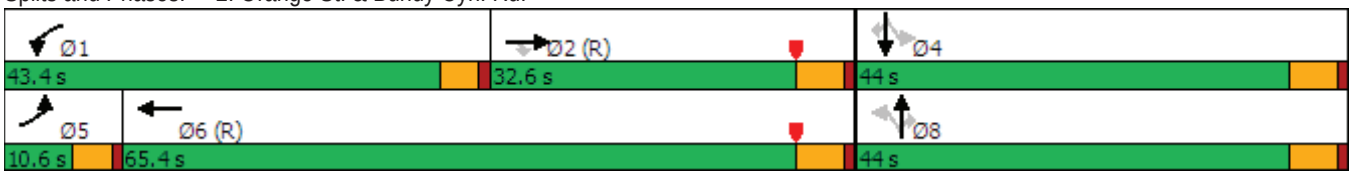
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	17.5	15.2	13.9	16.2
HCM LOS	C	C	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	19%	14%	0%	0%	37%	0%	0%	52%
Vol Thru, %	26%	86%	100%	0%	63%	100%	0%	22%
Vol Right, %	54%	0%	0%	100%	0%	0%	100%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	157	270	30	174	217	42	159
LT Vol	24	22	0	0	65	0	0	83
Through Vol	33	135	270	0	109	217	0	35
RT Vol	68	0	0	30	0	0	42	41
Lane Flow Rate	152	191	329	37	212	265	51	194
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.322	0.369	0.628	0.062	0.418	0.509	0.088	0.421
Departure Headway (Hd)	7.603	6.937	6.865	6.146	7.103	6.911	6.192	7.814
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	519	527	582	506	522	578	461
Service Time	5.356	4.682	4.61	3.891	4.849	4.657	3.937	5.565
HCM Lane V/C Ratio	0.321	0.368	0.624	0.064	0.419	0.508	0.088	0.421
HCM Control Delay	13.9	13.7	20.6	9.3	14.9	16.6	9.5	16.2
HCM Lane LOS	B	B	C	A	B	C	A	C
HCM 95th-tile Q	1.4	1.7	4.3	0.2	2	2.9	0.3	2.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	491	24	350	414	83	9	58	405	204	47	7
Future Volume (vph)	25	491	24	350	414	83	9	58	405	204	47	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	10.6	32.6	32.6	43.4	65.4		44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	8.8%	27.2%	27.2%	36.2%	54.5%		36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	491	24	350	414	83	9	58	405	204	47	7
Future Volume (veh/h)	25	491	24	350	414	83	9	58	405	204	47	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	540	26	385	455	91	10	64	445	224	52	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	1146	507	408	1555	309	34	187	509	54	0	509
Arrive On Green	0.02	0.32	0.32	0.38	0.88	0.88	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1781	3554	1573	1781	2952	586	0	581	1578	0	0	1578
Grp Volume(v), veh/h	27	540	26	385	273	273	74	0	445	276	0	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1573	1781	1777	1762	581	0	1578	0	0	1578
Q Serve(g_s), s	1.8	14.6	1.4	25.0	3.0	3.0	0.0	0.0	31.9	0.0	0.0	0.4
Cycle Q Clear(g_c), s	1.8	14.6	1.4	25.0	3.0	3.0	38.7	0.0	31.9	38.7	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.33	0.14		1.00	0.81		1.00
Lane Grp Cap(c), veh/h	44	1146	507	408	936	928	222	0	509	54	0	509
V/C Ratio(X)	0.61	0.47	0.05	0.94	0.29	0.29	0.33	0.00	0.87	5.08	0.00	0.02
Avail Cap(c_a), veh/h	91	1146	507	577	936	928	222	0	509	54	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.9	32.5	28.0	36.3	3.6	3.6	31.6	0.0	38.4	60.0	0.0	27.7
Incr Delay (d2), s/veh	5.0	1.4	0.2	16.5	0.8	0.8	0.3	0.0	15.0	1875.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	6.4	0.5	11.1	1.1	1.1	1.5	0.0	14.2	30.0	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	33.9	28.2	52.8	4.3	4.4	32.0	0.0	53.4	1935.6	0.0	27.7
LnGrp LOS	E	C	C	D	A	A	C	A	D	F	A	C
Approach Vol, veh/h		593			931			519			284	
Approach Delay, s/veh		35.0			24.4			50.3			1881.9	
Approach LOS		C			C			D			F	

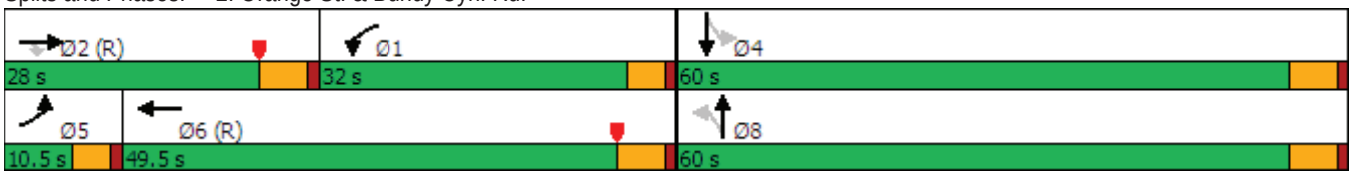
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	32.0	44.0		44.0	7.5	68.5		44.0				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	38.9	27.3		38.7	6.1	60.1		38.7				
Max Q Clear Time (g_c+I1), s	27.0	16.6		40.7	3.8	5.0		40.7				
Green Ext Time (p_c), s	0.5	1.8		0.0	0.0	2.2		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		259.6	
HCM 6th LOS		F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	491	24	350	414	83	9	58	405	204	47	7
Future Volume (vph)	25	491	24	350	414	83	9	58	405	204	47	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	100		100	100		100
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3		23.3	23.3	
Total Split (s)	10.5	28.0	28.0	32.0	49.5		60.0	60.0		60.0	60.0	
Total Split (%)	8.8%	23.3%	23.3%	26.7%	41.3%		50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		5.3	5.3		5.3	5.3	
Lead/Lag	Lead	Lead	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min		Min	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	491	24	350	414	83	9	58	405	204	47	7
Future Volume (veh/h)	25	491	24	350	414	83	9	58	405	204	47	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	540	26	385	455	91	10	64	445	224	52	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	672	296	616	1526	303	646	92	642	242	721	111
Arrive On Green	0.02	0.15	0.15	0.11	0.17	0.17	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	1781	3554	1564	1781	2952	586	1339	203	1409	891	1582	243
Grp Volume(v), veh/h	27	540	26	385	273	273	10	0	509	224	0	60
Grp Sat Flow(s),veh/h/ln	1781	1777	1564	1781	1777	1761	1339	0	1611	891	0	1826
Q Serve(g_s), s	1.8	17.6	1.7	24.7	16.1	16.3	0.5	0.0	30.2	24.5	0.0	2.2
Cycle Q Clear(g_c), s	1.8	17.6	1.7	24.7	16.1	16.3	2.7	0.0	30.2	54.7	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.87	1.00		0.13
Lane Grp Cap(c), veh/h	44	672	296	616	919	911	646	0	734	242	0	832
V/C Ratio(X)	0.61	0.80	0.09	0.62	0.30	0.30	0.02	0.00	0.69	0.92	0.00	0.07
Avail Cap(c_a), veh/h	89	672	296	616	919	911	646	0	734	242	0	832
HCM Platoon Ratio	0.80	0.80	0.80	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.2	48.8	42.0	45.7	30.7	30.8	19.1	0.0	26.0	50.0	0.0	18.4
Incr Delay (d2), s/veh	5.0	9.8	0.6	1.4	0.8	0.8	0.0	0.0	2.4	37.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.8	0.7	12.1	7.9	7.9	0.2	0.0	11.7	9.3	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	58.6	42.6	47.2	31.5	31.6	19.1	0.0	28.3	87.4	0.0	18.4
LnGrp LOS	E	E	D	D	C	C	B	A	C	F	A	B
Approach Vol, veh/h		593			931			519			284	
Approach Delay, s/veh		58.1			38.0			28.2			72.9	
Approach LOS		E			D			C			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	46.9	28.0		60.0	7.5	67.5		60.0				
Change Period (Y+Rc), s	5.3	* 5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	27.5	* 23		54.7	6.0	44.2		54.7				
Max Q Clear Time (g_c+I1), s	26.7	19.6		56.7	3.8	18.3		32.2				
Green Ext Time (p_c), s	0.1	0.8		0.0	0.0	2.1		2.3				

Intersection Summary			
HCM 6th Ctrl Delay		45.2	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	553	546	409	630	0	0	0	0	373	7	262
Future Volume (vph)	0	553	546	409	630	0	0	0	0	373	7	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		46.0		38.0	84.0					36.0	36.0	
Total Split (%)		38.3%		31.7%	70.0%					30.0%	30.0%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	553	546	409	630	0	0	0	0	373	7	262
Future Volume (veh/h)	0	553	546	409	630	0	0	0	0	373	7	262
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	576	569	426	656	0				389	7	273
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	690	612	444	2402	0				420	9	364
Arrive On Green	0.00	0.78	0.78	0.50	1.00	0.00				0.24	0.24	0.24
Sat Flow, veh/h	0	1870	1575	1781	3647	0				1781	40	1542
Grp Volume(v), veh/h	0	576	569	426	656	0				389	0	280
Grp Sat Flow(s),veh/h/ln	0	1777	1575	1781	1777	0				1781	0	1581
Q Serve(g_s), s	0.0	24.7	34.9	27.6	0.0	0.0				25.6	0.0	19.7
Cycle Q Clear(g_c), s	0.0	24.7	34.9	27.6	0.0	0.0				25.6	0.0	19.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	690	612	444	2402	0				420	0	373
V/C Ratio(X)	0.00	0.83	0.93	0.96	0.27	0.00				0.93	0.00	0.75
Avail Cap(c_a), veh/h	0	690	612	496	2402	0				456	0	405
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.85	0.85	0.65	0.65	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.0	12.1	29.5	0.0	0.0				44.8	0.0	42.6
Incr Delay (d2), s/veh	0.0	9.9	20.3	21.4	0.2	0.0				23.1	0.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	7.6	11.2	0.1	0.0				13.9	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.8	32.4	50.9	0.2	0.0				67.9	0.0	48.6
LnGrp LOS	A	C	C	D	A	A				E	A	D
Approach Vol, veh/h		1145			1082						669	
Approach Delay, s/veh		26.6			20.2						59.8	
Approach LOS		C			C						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	34.5	51.9		33.6		86.4						
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3						
Max Green Setting (Gmax), s	33.4	40.7		30.7		78.7						
Max Q Clear Time (g_c+I1), s	29.6	36.9		27.6		2.0						
Green Ext Time (p_c), s	0.3	1.9		0.7		3.1						

Intersection Summary												
HCM 6th Ctrl Delay			31.9									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	701	0	0	749	409	290	0	270	0	0	0
Future Volume (vph)	226	701	0	0	749	409	290	0	270	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	27.0	85.0			58.0		35.0	35.0				
Total Split (%)	22.5%	70.8%			48.3%		29.2%	29.2%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

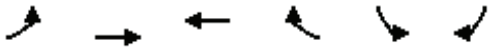
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	701	0	0	749	409	290	0	270	0	0	0
Future Volume (veh/h)	226	701	0	0	749	409	290	0	270	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	231	715	0	0	764	417	296	0	276			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	255	2541	0	0	1195	649	350	0	309			
Arrive On Green	0.29	1.00	0.00	0.00	0.54	0.54	0.20	0.00	0.20			
Sat Flow, veh/h	1781	3647	0	0	2312	1205	1781	0	1573			
Grp Volume(v), veh/h	231	715	0	0	611	570	296	0	276			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1647	1781	0	1573			
Q Serve(g_s), s	15.0	0.0	0.0	0.0	29.0	29.3	19.2	0.0	20.5			
Cycle Q Clear(g_c), s	15.0	0.0	0.0	0.0	29.0	29.3	19.2	0.0	20.5			
Prop In Lane	1.00		0.00	0.00		0.73	1.00		1.00			
Lane Grp Cap(c), veh/h	255	2541	0	0	957	887	350	0	309			
V/C Ratio(X)	0.91	0.28	0.00	0.00	0.64	0.64	0.85	0.00	0.89			
Avail Cap(c_a), veh/h	341	2541	0	0	957	887	441	0	389			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.37	0.37	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	42.1	0.0	0.0	0.0	19.5	19.5	46.4	0.0	47.0			
Incr Delay (d2), s/veh	8.5	0.1	0.0	0.0	3.3	3.6	9.7	0.0	16.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	0.0	12.3	11.6	9.4	0.0	9.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	0.1	0.0	0.0	22.7	23.1	56.2	0.0	63.7			
LnGrp LOS	D	A	A	A	C	C	E	A	E			
Approach Vol, veh/h		946			1181			572				
Approach Delay, s/veh		12.4			22.9			59.8				
Approach LOS		B			C			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		91.1			21.2	69.9		28.9				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		79.7			23.0	52.7		29.7				
Max Q Clear Time (g_c+I1), s		2.0			17.0	31.3		22.5				
Green Ext Time (p_c), s		3.5			0.2	5.5		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			27.0									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	319	652	832	102	105	326
Future Volume (vph)	319	652	832	102	105	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	47.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	319	652	832	102	105	326
Future Vol, veh/h	319	652	832	102	105	326
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	336	686	876	107	111	343

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	988	0	-	0	1832	448
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	951	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	2.8
Pot Cap-1 Maneuver	695	-	-	-	~ 88	642
Stage 1	-	-	-	-	356	-
Stage 2	-	-	-	-	311	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	692	-	-	-	~ 45	636
Mov Cap-2 Maneuver	-	-	-	-	123	-
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	309	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	246.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	692	-	-	-	315
HCM Lane V/C Ratio	0.485	-	-	-	1.44
HCM Control Delay (s)	15	-	-	-	246.7
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	2.7	-	-	-	24.3

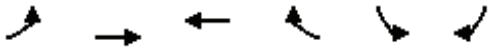
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	319	652	832	102	105	326
Future Volume (vph)	319	652	832	102	105	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				30	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	41.0	90.0	49.0	49.0	30.0	30.0
Total Split (%)	34.2%	75.0%	40.8%	40.8%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Bundy Cyn. Rd. & Cherry St.

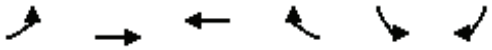




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	319	652	832	102	105	326
Future Volume (veh/h)	319	652	832	102	105	326
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	336	686	876	107	111	343
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	362	3638	1676	744	379	337
Arrive On Green	0.41	1.00	0.47	0.47	0.21	0.21
Sat Flow, veh/h	1781	5274	3647	1577	1781	1585
Grp Volume(v), veh/h	336	686	876	107	111	343
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1577	1781	1585
Q Serve(g_s), s	21.6	0.0	20.7	4.6	6.3	25.5
Cycle Q Clear(g_c), s	21.6	0.0	20.7	4.6	6.3	25.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	362	3638	1676	744	379	337
V/C Ratio(X)	0.93	0.19	0.52	0.14	0.29	1.02
Avail Cap(c_a), veh/h	542	3638	1676	744	379	337
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	0.0	22.2	18.0	39.7	47.3
Incr Delay (d2), s/veh	16.6	0.1	1.2	0.4	0.4	53.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.0	8.7	1.7	2.8	25.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.4	0.1	23.4	18.4	40.1	101.0
LnGrp LOS	D	A	C	B	D	F
Approach Vol, veh/h		1022	983		454	
Approach Delay, s/veh		17.0	22.8		86.1	
Approach LOS		B	C		F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		90.0		30.0	28.9	61.1
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		85.5		25.5	36.5	44.5
Max Q Clear Time (g_c+I1), s		2.0		27.5	23.6	22.7
Green Ext Time (p_c), s		5.4		0.0	0.8	6.6

Intersection Summary		
HCM 6th Ctrl Delay		32.1
HCM 6th LOS		C



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	319	652	832	102	0	326
Future Volume (vph)	319	652	832	102	0	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

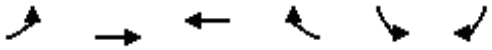
Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	319	652	832	102	0	326
Future Vol, veh/h	319	652	832	102	0	326
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	336	686	876	107	0	343

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	988	0	-	0	-	448
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	695	-	-	-	0	558
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	692	-	-	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	21.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	692	-	-	-	553
HCM Lane V/C Ratio	0.485	-	-	-	0.621
HCM Control Delay (s)	15	-	-	-	21.6
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	2.7	-	-	-	4.2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	971	832	421	0	326
Future Volume (vph)	0	971	832	421	0	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

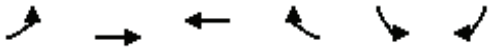
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	971	832	421	0	326
Future Vol, veh/h	0	971	832	421	0	326
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1022	876	443	0	343

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	448
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	558
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	21.6
HCM LOS			C

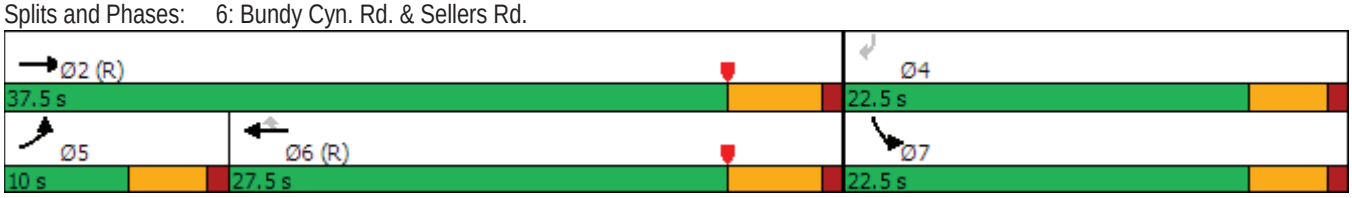
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	553
HCM Lane V/C Ratio	-	-	-	0.621
HCM Control Delay (s)	-	-	-	21.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	4.2

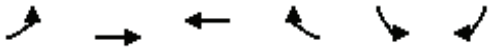


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	72	641	843	27	47	114
Future Volume (vph)	72	641	843	27	47	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	10.0	37.5	27.5	27.5	22.5	22.5
Total Split (%)	16.7%	62.5%	45.8%	45.8%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.

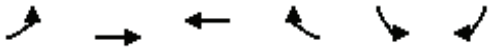




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	641	843	27	47	114
Future Volume (veh/h)	72	641	843	27	47	114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	675	887	28	49	120
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	107	2740	1428	633	534	476
Arrive On Green	0.06	0.54	0.80	0.80	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1575	1781	1585
Grp Volume(v), veh/h	76	675	887	28	49	120
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1575	1781	1585
Q Serve(g_s), s	2.5	4.2	5.9	0.2	1.2	3.4
Cycle Q Clear(g_c), s	2.5	4.2	5.9	0.2	1.2	3.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	107	2740	1428	633	534	476
V/C Ratio(X)	0.71	0.25	0.62	0.04	0.09	0.25
Avail Cap(c_a), veh/h	163	2740	1428	633	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	27.7	7.4	4.1	3.5	15.1	15.9
Incr Delay (d2), s/veh	3.3	0.2	1.8	0.1	0.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.2	1.5	0.6	0.5	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.0	7.6	5.9	3.7	15.5	17.2
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		751	915		169	
Approach Delay, s/veh		10.0	5.9		16.7	
Approach LOS		A	A		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	8.1	29.4
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	5.5	22.2
Max Q Clear Time (g_c+I1), s		6.2		5.4	4.5	7.9
Green Ext Time (p_c), s		3.2		0.2	0.0	3.7

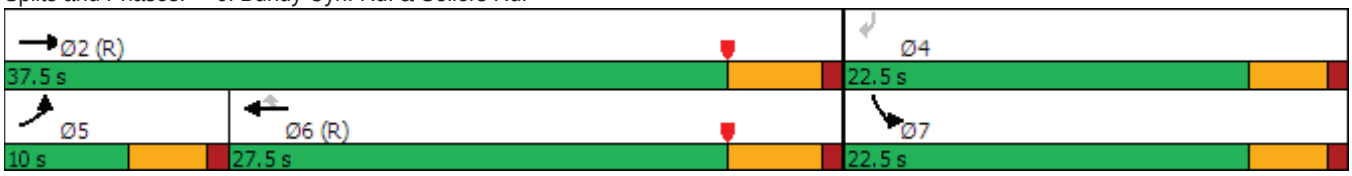
Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

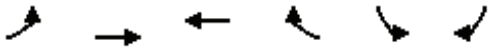


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	553	843	27	134	114
Future Volume (vph)	55	553	843	27	134	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	10.0	37.5	27.5	27.5	22.5	22.5
Total Split (%)	16.7%	62.5%	45.8%	45.8%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	55	553	843	27	134	114
Future Volume (veh/h)	55	553	843	27	134	114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	582	887	28	141	120
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	92	2740	1457	646	534	476
Arrive On Green	0.05	0.54	0.82	0.82	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1575	1781	1585
Grp Volume(v), veh/h	58	582	887	28	141	120
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1575	1781	1585
Q Serve(g_s), s	1.9	3.6	5.4	0.2	3.6	3.4
Cycle Q Clear(g_c), s	1.9	3.6	5.4	0.2	3.6	3.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	92	2740	1457	646	534	476
V/C Ratio(X)	0.63	0.21	0.61	0.04	0.26	0.25
Avail Cap(c_a), veh/h	163	2740	1457	646	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	27.9	7.3	3.7	3.2	16.0	15.9
Incr Delay (d2), s/veh	2.6	0.2	1.7	0.1	1.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.1	1.3	0.6	1.6	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.5	7.4	5.4	3.3	17.2	17.2
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		640	915		261	
Approach Delay, s/veh		9.5	5.3		17.2	
Approach LOS		A	A		B	

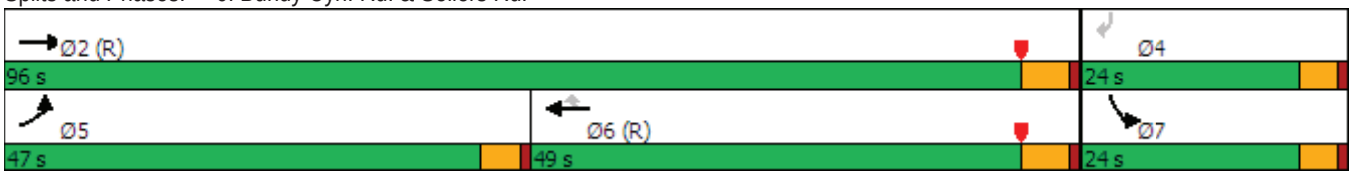
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	7.6	29.9
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	5.5	22.2
Max Q Clear Time (g_c+I1), s		5.6		5.6	3.9	7.4
Green Ext Time (p_c), s		2.7		0.3	0.0	3.7

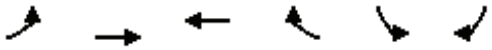
Intersection Summary	
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	374	553	843	27	134	114
Future Volume (vph)	374	553	843	27	134	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		4
Detector Phase	5	2	6	6	7	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	47.0	96.0	49.0	49.0	24.0	24.0
Total Split (%)	39.2%	80.0%	40.8%	40.8%	20.0%	20.0%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





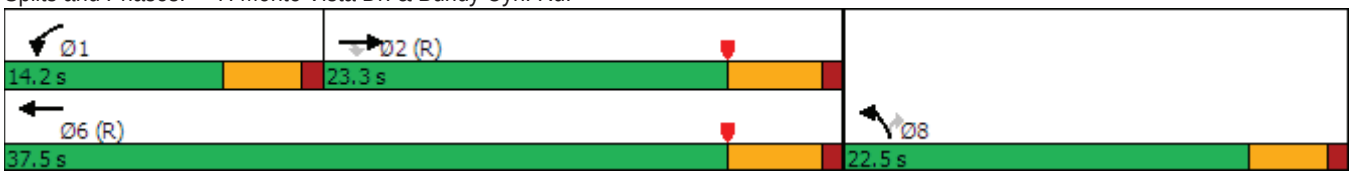
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	374	553	843	27	134	114
Future Volume (veh/h)	374	553	843	27	134	114
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	394	582	887	28	141	120
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	423	3859	1709	758	289	258
Arrive On Green	0.24	0.76	0.96	0.96	0.16	0.16
Sat Flow, veh/h	1781	5274	3647	1577	1781	1585
Grp Volume(v), veh/h	394	582	887	28	141	120
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1577	1781	1585
Q Serve(g_s), s	26.0	3.8	2.3	0.1	8.6	8.2
Cycle Q Clear(g_c), s	26.0	3.8	2.3	0.1	8.6	8.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	423	3859	1709	758	289	258
V/C Ratio(X)	0.93	0.15	0.52	0.04	0.49	0.47
Avail Cap(c_a), veh/h	631	3859	1709	758	289	258
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	44.8	4.0	1.2	1.2	45.7	45.5
Incr Delay (d2), s/veh	12.6	0.1	1.0	0.1	5.8	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	1.1	0.7	1.0	4.3	7.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.4	4.1	2.3	1.3	51.5	51.5
LnGrp LOS	E	A	A	A	D	D
Approach Vol, veh/h		976	915		261	
Approach Delay, s/veh		25.6	2.2		51.5	
Approach LOS		C	A		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.0		24.0	33.0	63.0
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		90.7		19.5	42.5	43.7
Max Q Clear Time (g_c+I1), s		5.8		10.6	28.0	4.3
Green Ext Time (p_c), s		2.8		0.3	0.5	4.6
Intersection Summary						
HCM 6th Ctrl Delay			18.8			
HCM 6th LOS			B			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	574	114	177	815	54	80
Future Volume (vph)	574	114	177	815	54	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	23.3	23.3	14.2	37.5	22.5	22.5
Total Split (%)	38.8%	38.8%	23.7%	62.5%	37.5%	37.5%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.

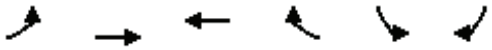




Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	574	114	177	815	54	80
Future Volume (veh/h)	574	114	177	815	54	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	631	125	195	896	59	88
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1669	514	240	1907	1037	476
Arrive On Green	0.65	0.65	0.13	0.54	0.30	0.30
Sat Flow, veh/h	5274	1573	1781	3647	3456	1585
Grp Volume(v), veh/h	631	125	195	896	59	88
Grp Sat Flow(s),veh/h/ln	1702	1573	1781	1777	1728	1585
Q Serve(g_s), s	3.4	2.0	6.4	9.4	0.7	2.5
Cycle Q Clear(g_c), s	3.4	2.0	6.4	9.4	0.7	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1669	514	240	1907	1037	476
V/C Ratio(X)	0.38	0.24	0.81	0.47	0.06	0.19
Avail Cap(c_a), veh/h	1669	514	288	1907	1037	476
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.6	7.3	25.2	8.6	15.0	15.6
Incr Delay (d2), s/veh	0.6	1.1	11.5	0.8	0.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.7	3.2	2.8	0.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.2	8.4	36.8	9.4	15.1	16.4
LnGrp LOS	A	A	D	A	B	B
Approach Vol, veh/h	756			1091	147	
Approach Delay, s/veh	8.3			14.3	15.9	
Approach LOS	A			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	12.6	24.9				37.5	22.5
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	9.7	18.0				32.2	18.0
Max Q Clear Time (g_c+I1), s	8.4	5.4				11.4	4.5
Green Ext Time (p_c), s	0.0	2.6				3.9	0.2

Intersection Summary			
HCM 6th Ctrl Delay		12.1	
HCM 6th LOS		B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	44	611	902	8	12	90
Future Volume (vph)	44	611	902	8	12	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

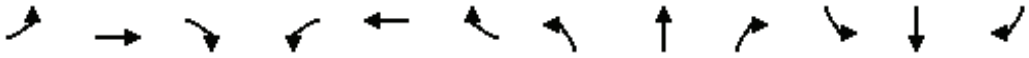
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	611	902	8	12	90
Future Vol, veh/h	44	611	902	8	12	90
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	657	970	9	13	97

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	984	0	-	0	1342	500
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	362	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	698	-	-	-	173	516
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	639	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	695	-	-	-	160	511
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	636	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	695	-	-	-	451
HCM Lane V/C Ratio	0.068	-	-	-	0.243
HCM Control Delay (s)	10.6	-	-	-	15.5
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	2	77	2	9	54	158	195	4	26	122	280
Future Volume (vph)	224	2	77	2	9	54	158	195	4	26	122	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	33.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	224	2	77	2	9	54	158	195	4	26	122	280
Future Vol, veh/h	224	2	77	2	9	54	158	195	4	26	122	280
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	270	2	93	2	11	65	190	235	5	31	147	337
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	26.9	12.6	33.7	42.1
HCM LOS	D	B	D	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	74%	3%	6%
Vol Thru, %	55%	1%	14%	29%
Vol Right, %	1%	25%	83%	65%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	357	303	65	428
LT Vol	158	224	2	26
Through Vol	195	2	9	122
RT Vol	4	77	54	280
Lane Flow Rate	430	365	78	516
Geometry Grp	1	1	1	1
Degree of Util (X)	0.816	0.725	0.171	0.9
Departure Headway (Hd)	6.833	7.149	7.839	6.281
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	529	507	455	578
Service Time	4.898	5.177	5.936	4.311
HCM Lane V/C Ratio	0.813	0.72	0.171	0.893
HCM Control Delay	33.7	26.9	12.6	42.1
HCM Lane LOS	D	D	B	E
HCM 95th-tile Q	8	5.9	0.6	10.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	2	77	2	9	54	158	195	4	26	122	280
Future Volume (vph)	224	2	77	2	9	54	158	195	4	26	122	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	0		0	100		0	0		100
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

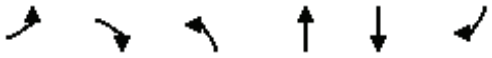
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	23.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	224	2	77	2	9	54	158	195	4	26	122	280
Future Vol, veh/h	224	2	77	2	9	54	158	195	4	26	122	280
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	273	2	94	2	11	66	193	238	5	32	149	341
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	24.4	12	32	16.8
HCM LOS	C	B	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	44%	74%	3%	18%	0%
Vol Thru, %	55%	1%	14%	82%	0%
Vol Right, %	1%	25%	83%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	357	303	65	148	280
LT Vol	158	224	2	26	0
Through Vol	195	2	9	122	0
RT Vol	4	77	54	0	280
Lane Flow Rate	435	370	79	180	341
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.806	0.7	0.165	0.358	0.601
Departure Headway (Hd)	6.662	6.822	7.508	7.139	6.331
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	540	528	480	502	567
Service Time	4.731	4.89	5.508	4.913	4.105
HCM Lane V/C Ratio	0.806	0.701	0.165	0.359	0.601
HCM Control Delay	32	24.4	12	13.9	18.3
HCM Lane LOS	D	C	B	B	C
HCM 95th-tile Q	7.8	5.5	0.6	1.6	4



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	177	187	67	96	21
Future Volume (vph)	18	177	187	67	96	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

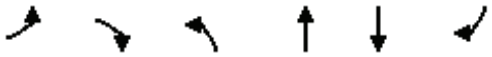
Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	177	187	67	96	21
Future Vol, veh/h	18	177	187	67	96	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	192	203	73	104	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	605	126	132	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	461	924	1453	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	390	915	1446	-	-	-
Mov Cap-2 Maneuver	390	-	-	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	617	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	5.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1446	-	814	-	-
HCM Lane V/C Ratio	0.141	-	0.26	-	-
HCM Control Delay (s)	7.9	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	132	187	112	83	21
Future Volume (vph)	63	132	187	112	83	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

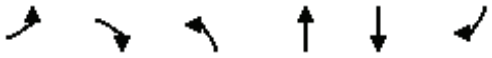
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	132	187	112	83	21
Future Vol, veh/h	63	132	187	112	83	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	143	203	122	90	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	640	112	118	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	440	941	1470	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	371	932	1463	-	-	-
Mov Cap-2 Maneuver	371	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	585	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	4.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	626	-	-
HCM Lane V/C Ratio	0.139	-	0.339	-	-
HCM Control Delay (s)	7.9	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.5	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	132	187	112	83	21
Future Volume (vph)	63	132	187	112	83	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

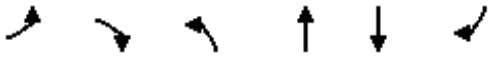
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	132	187	112	83	21
Future Vol, veh/h	63	132	187	112	83	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	143	203	122	90	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	640	112	118	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	440	941	1470	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	371	932	1463	-	-	-
Mov Cap-2 Maneuver	371	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	585	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	4.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	626	-	-
HCM Lane V/C Ratio	0.139	-	0.339	-	-
HCM Control Delay (s)	7.9	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.5	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	175	187	235	255	18
Future Volume (vph)	19	175	187	235	255	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	175	187	235	255	18
Future Vol, veh/h	19	175	187	235	255	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	190	203	255	277	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	958	297	302	0	-	0
Stage 1	292	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	285	742	1259	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	735	1253	-	-	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	3.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1253	-	610	-	-
HCM Lane V/C Ratio	0.162	-	0.346	-	-
HCM Control Delay (s)	8.4	-	14	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	1.5	-	-

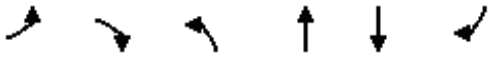
Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	64	130	187	235	197	18
Future Vol, veh/h	64	130	187	235	197	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	141	203	255	214	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	895	234	239	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	311	805	1328	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	797	1322	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	3.6	0
HCM LOS	C		

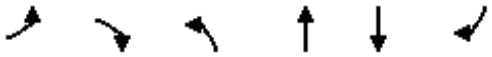
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1322	-	475	-	-
HCM Lane V/C Ratio	0.154	-	0.444	-	-
HCM Control Delay (s)	8.2	-	18.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	130	187	235	197	18
Future Volume (vph)	64	130	187	235	197	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	130	187	235	197	18
Future Volume (vph)	64	130	187	235	197	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

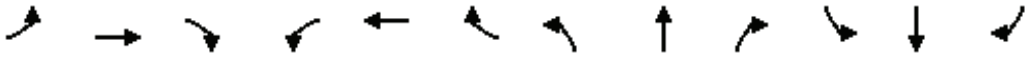
Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	64	130	187	235	197	18
Future Vol, veh/h	64	130	187	235	197	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	141	203	255	214	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	895	234	239	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	311	805	1328	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	797	1322	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.5	3.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1322	-	475	-	-
HCM Lane V/C Ratio	0.154	-	0.444	-	-
HCM Control Delay (s)	8.2	-	18.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	80	77	25	92	3	49	3	3	4	4	3
Future Volume (vph)	1	80	77	25	92	3	49	3	3	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

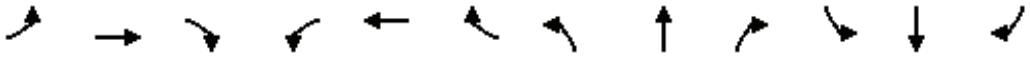
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	80	77	25	92	3	49	3	3	4	4	3
Future Vol, veh/h	1	80	77	25	92	3	49	3	3	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	93	90	29	107	3	57	3	3	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	183	0	0	311	308	138	310	352	109
Stage 1	-	-	-	-	-	-	140	140	-	167	167	-
Stage 2	-	-	-	-	-	-	171	168	-	143	185	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1392	-	-	642	606	910	642	573	945
Stage 1	-	-	-	-	-	-	863	781	-	835	760	-
Stage 2	-	-	-	-	-	-	831	759	-	860	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1480	-	-	1392	-	-	625	592	910	625	560	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	625	592	-	625	560	-
Stage 1	-	-	-	-	-	-	862	780	-	834	743	-
Stage 2	-	-	-	-	-	-	805	742	-	852	746	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	11.3	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	634	1480	-	-	1392	-	-	658
HCM Lane V/C Ratio	0.101	0.001	-	-	0.021	-	-	0.019
HCM Control Delay (s)	11.3	7.4	0	-	7.6	0	-	10.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	80	77	25	92	3	49	3	70	4	4	3
Future Volume (vph)	1	80	77	25	92	3	49	3	70	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

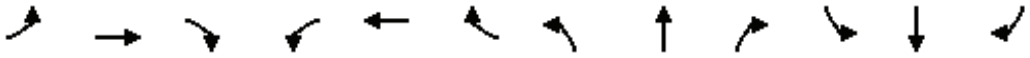
Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	80	77	25	92	3	49	3	70	4	4	3
Future Vol, veh/h	1	80	77	25	92	3	49	3	70	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	93	90	29	107	3	57	3	81	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	183	0	0	311	308	138	349	352	109
Stage 1	-	-	-	-	-	-	140	140	-	167	167	-
Stage 2	-	-	-	-	-	-	171	168	-	182	185	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1392	-	-	642	606	910	606	573	945
Stage 1	-	-	-	-	-	-	863	781	-	835	760	-
Stage 2	-	-	-	-	-	-	831	759	-	820	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1480	-	-	1392	-	-	625	592	910	540	560	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	625	592	-	540	560	-
Stage 1	-	-	-	-	-	-	862	780	-	834	743	-
Stage 2	-	-	-	-	-	-	805	742	-	743	746	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	10.8	10.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	761	1480	-	-	1392	-	-	621
HCM Lane V/C Ratio	0.186	0.001	-	-	0.021	-	-	0.021
HCM Control Delay (s)	10.8	7.4	0	-	7.6	0	-	10.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	80	77	25	92	3	49	3	70	4	4	3
Future Volume (vph)	1	80	77	25	92	3	49	3	70	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

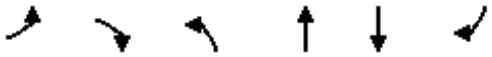
Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	80	77	25	92	3	49	3	70	4	4	3
Future Vol, veh/h	1	80	77	25	92	3	49	3	70	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	93	90	29	107	3	57	3	81	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	183	0	0	311	308	138	349	352	109
Stage 1	-	-	-	-	-	-	140	140	-	167	167	-
Stage 2	-	-	-	-	-	-	171	168	-	182	185	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1392	-	-	642	606	910	606	573	945
Stage 1	-	-	-	-	-	-	863	781	-	835	760	-
Stage 2	-	-	-	-	-	-	831	759	-	820	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1480	-	-	1392	-	-	625	592	910	540	560	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	625	592	-	540	560	-
Stage 1	-	-	-	-	-	-	862	780	-	834	743	-
Stage 2	-	-	-	-	-	-	805	742	-	743	746	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	10.8	10.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	761	1480	-	-	1392	-	-	621
HCM Lane V/C Ratio	0.186	0.001	-	-	0.021	-	-	0.021
HCM Control Delay (s)	10.8	7.4	0	-	7.6	0	-	10.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	65	73	27	48	19
Future Volume (vph)	20	65	73	27	48	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

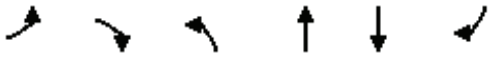
Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	65	73	27	48	19
Future Vol, veh/h	20	65	73	27	48	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	76	86	32	56	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	271	67	78	0	-	0
Stage 1	67	-	-	-	-	-
Stage 2	204	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	718	997	1520	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	676	997	1520	-	-	-
Mov Cap-2 Maneuver	676	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	830	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	5.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	897	-	-
HCM Lane V/C Ratio	0.057	-	0.111	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	115	73	10	48	19
Future Volume (vph)	37	115	73	10	48	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

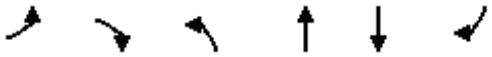
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	115	73	10	48	19
Future Vol, veh/h	37	115	73	10	48	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	135	86	12	56	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	251	67	78	0	-	0
Stage 1	67	-	-	-	-	-
Stage 2	184	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	738	997	1520	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	696	997	1520	-	-	-
Mov Cap-2 Maneuver	696	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	6.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	902	-	-
HCM Lane V/C Ratio	0.057	-	0.198	-	-
HCM Control Delay (s)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	115	73	10	48	19
Future Volume (vph)	37	115	73	10	48	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

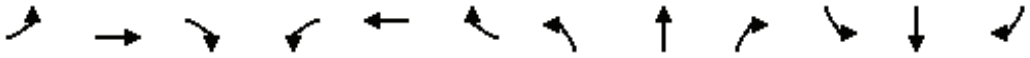
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	115	73	10	48	19
Future Vol, veh/h	37	115	73	10	48	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	135	86	12	56	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	251	67	78	0	-	0
Stage 1	67	-	-	-	-	-
Stage 2	184	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	738	997	1520	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	696	997	1520	-	-	-
Mov Cap-2 Maneuver	696	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	6.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1520	-	902	-	-
HCM Lane V/C Ratio	0.057	-	0.198	-	-
HCM Control Delay (s)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	37	107	34	87	1	129	2	22	1	12	19
Future Volume (vph)	12	37	107	34	87	1	129	2	22	1	12	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

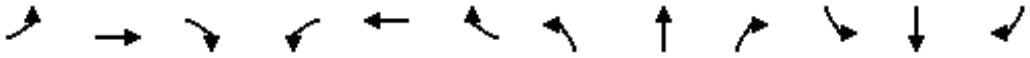
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	37	107	34	87	1	129	2	22	1	12	19
Future Vol, veh/h	12	37	107	34	87	1	129	2	22	1	12	19
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	44	126	40	102	1	152	2	26	1	14	22
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.7	9.6	9.4	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	84%	8%	28%	0%	3%
Vol Thru, %	1%	24%	72%	0%	38%
Vol Right, %	14%	69%	0%	100%	59%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	156	121	1	32
LT Vol	129	12	34	0	1
Through Vol	2	37	87	0	12
RT Vol	22	107	0	1	19
Lane Flow Rate	180	184	142	1	38
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.242	0.223	0.212	0.001	0.048
Departure Headway (Hd)	4.842	4.367	5.367	4.521	4.603
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	740	820	668	789	774
Service Time	2.882	2.405	3.107	2.261	2.654
HCM Lane V/C Ratio	0.243	0.224	0.213	0.001	0.049
HCM Control Delay	9.4	8.7	9.6	7.3	7.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.9	0.9	0.8	0	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	103	80	155	135	1	80	2	159	1	3	1
Future Volume (vph)	1	103	80	155	135	1	80	2	159	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

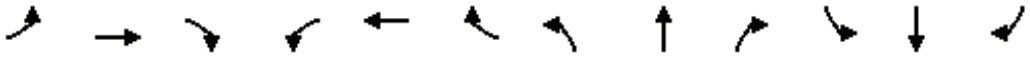
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	103	80	155	135	1	80	2	159	1	3	1
Future Vol, veh/h	1	103	80	155	135	1	80	2	159	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	112	87	168	147	1	87	2	173	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	148	0	0	199	0	0	600	598	112	729	685	148
Stage 1	-	-	-	-	-	-	114	114	-	484	484	-
Stage 2	-	-	-	-	-	-	486	484	-	245	201	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1434	-	-	1373	-	-	413	416	941	338	371	899
Stage 1	-	-	-	-	-	-	891	801	-	564	552	-
Stage 2	-	-	-	-	-	-	563	552	-	759	735	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1434	-	-	1373	-	-	367	360	941	246	321	899
Mov Cap-2 Maneuver	-	-	-	-	-	-	367	360	-	246	321	-
Stage 1	-	-	-	-	-	-	890	800	-	563	479	-
Stage 2	-	-	-	-	-	-	484	479	-	617	734	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.3	15.2	15.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	614	1434	-	-	1373	-	-	344
HCM Lane V/C Ratio	0.427	0.001	-	-	0.123	-	-	0.016
HCM Control Delay (s)	15.2	7.5	0	-	8	0	-	15.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.1	0	-	-	0.4	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	66	15	8	51	129	18	83	6	115	139	3
Future Volume (vph)	11	66	15	8	51	129	18	83	6	115	139	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

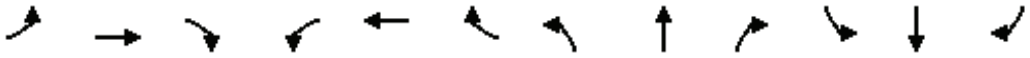
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	66	15	8	51	129	18	83	6	115	139	3
Future Vol, veh/h	11	66	15	8	51	129	18	83	6	115	139	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	71	16	9	55	139	19	89	6	124	149	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	9.3	9	10.9
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	12%	4%	45%
Vol Thru, %	78%	72%	27%	54%
Vol Right, %	6%	16%	69%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	107	92	188	257
LT Vol	18	11	8	115
Through Vol	83	66	51	139
RT Vol	6	15	129	3
Lane Flow Rate	115	99	202	276
Geometry Grp	1	1	1	1
Degree of Util (X)	0.16	0.14	0.26	0.374
Departure Headway (Hd)	4.999	5.078	4.623	4.873
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	710	699	770	732
Service Time	3.083	3.157	2.689	2.943
HCM Lane V/C Ratio	0.162	0.142	0.262	0.377
HCM Control Delay	9	9	9.3	10.9
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.6	0.5	1	1.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	451	7	6	532	48	10	6	16	49	1	16
Future Volume (vph)	9	451	7	6	532	48	10	6	16	49	1	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	451	7	6	532	48	10	6	16	49	1	16
Future Vol, veh/h	9	451	7	6	532	48	10	6	16	49	1	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	501	8	7	591	53	11	7	18	54	1	18
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13.1	14	10.3	11.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	31%	6%	0%	0%	3%	0%	0%	74%
Vol Thru, %	19%	94%	100%	0%	97%	100%	0%	2%
Vol Right, %	50%	0%	0%	100%	0%	0%	100%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	159	301	7	183	355	48	66
LT Vol	10	9	0	0	6	0	0	49
Through Vol	6	150	301	0	177	355	0	1
RT Vol	16	0	0	7	0	0	48	16
Lane Flow Rate	36	177	334	8	204	394	53	73
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.069	0.28	0.526	0.011	0.314	0.606	0.072	0.149
Departure Headway (Hd)	7.014	5.696	5.668	4.962	5.55	5.533	4.828	7.29
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	510	632	638	722	648	654	742	492
Service Time	4.761	3.424	3.395	2.689	3.276	3.259	2.553	5.031
HCM Lane V/C Ratio	0.071	0.28	0.524	0.011	0.315	0.602	0.071	0.148
HCM Control Delay	10.3	10.6	14.5	7.7	10.8	16.4	7.9	11.3
HCM Lane LOS	B	B	B	A	B	C	A	B
HCM 95th-tile Q	0.2	1.1	3.1	0	1.3	4.1	0.2	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	471	25	245	568	164	16	42	241	131	31	20
Future Volume (vph)	23	471	25	245	568	164	16	42	241	131	31	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	13.0	41.0	41.0	40.0	68.0		39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	10.8%	34.2%	34.2%	33.3%	56.7%		32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	471	25	245	568	164	16	42	241	131	31	20
Future Volume (veh/h)	23	471	25	245	568	164	16	42	241	131	31	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	481	26	250	580	167	16	43	246	134	32	20
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	1561	692	275	1554	446	38	83	443	54	7	443
Arrive On Green	0.02	0.44	0.44	0.31	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1781	3554	1576	1781	2721	781	0	297	1577	0	27	1577
Grp Volume(v), veh/h	23	481	26	250	378	369	59	0	246	166	0	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1576	1781	1777	1726	297	0	1577	27	0	1577
Q Serve(g_s), s	1.5	10.5	1.1	16.2	0.0	0.0	0.0	0.0	16.0	0.0	0.0	1.1
Cycle Q Clear(g_c), s	1.5	10.5	1.1	16.2	0.0	0.0	33.7	0.0	16.0	33.7	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.45	0.27		1.00	0.81		1.00
Lane Grp Cap(c), veh/h	40	1561	692	275	1015	985	122	0	443	62	0	443
V/C Ratio(X)	0.58	0.31	0.04	0.91	0.37	0.37	0.49	0.00	0.56	2.69	0.00	0.05
Avail Cap(c_a), veh/h	126	1561	692	527	1015	985	122	0	443	62	0	443
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.1	21.8	19.2	40.7	0.0	0.0	35.4	0.0	36.8	56.0	0.0	31.4
Incr Delay (d2), s/veh	4.9	0.5	0.1	4.3	0.9	1.0	1.1	0.0	0.9	805.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.4	0.4	6.2	0.3	0.3	1.3	0.0	6.2	15.7	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	22.3	19.3	45.0	0.9	1.0	36.5	0.0	37.7	861.3	0.0	31.4
LnGrp LOS	E	C	B	D	A	A	D	A	D	F	A	C
Approach Vol, veh/h		530			997			305			186	
Approach Delay, s/veh		24.0			12.0			37.5			772.1	
Approach LOS		C			B			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	58.0		39.0	7.2	73.8		39.0				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	35.5	35.7		33.7	8.5	62.7		33.7				
Max Q Clear Time (g_c+I1), s	18.2	12.5		35.7	3.5	2.0		35.7				
Green Ext Time (p_c), s	0.3	2.1		0.0	0.0	3.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			89.1									
HCM 6th LOS			F									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	471	25	245	568	164	16	42	241	131	31	20
Future Volume (vph)	23	471	25	245	568	164	16	42	241	131	31	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	100		100	100		100
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Detector Phase	5	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3		23.3	23.3	
Total Split (s)	12.0	37.0	37.0	37.0	62.0		46.0	46.0		46.0	46.0	
Total Split (%)	10.0%	30.8%	30.8%	30.8%	51.7%		38.3%	38.3%		38.3%	38.3%	
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3		4.3	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		5.3	5.3		5.3	5.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min		Min	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	471	25	245	568	164	16	42	241	131	31	20
Future Volume (veh/h)	23	471	25	245	568	164	16	42	241	131	31	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	481	26	250	580	167	16	43	246	134	32	20
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	1517	673	274	1520	436	426	70	403	212	315	197
Arrive On Green	0.02	0.43	0.43	0.31	1.00	1.00	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1781	3554	1576	1781	2721	781	1347	240	1374	1090	1074	671
Grp Volume(v), veh/h	23	481	26	250	378	369	16	0	289	134	0	52
Grp Sat Flow(s),veh/h/ln	1781	1777	1576	1781	1777	1726	1347	0	1615	1090	0	1745
Q Serve(g_s), s	1.5	10.8	1.2	16.2	0.0	0.0	1.1	0.0	18.5	14.5	0.0	2.6
Cycle Q Clear(g_c), s	1.5	10.8	1.2	16.2	0.0	0.0	3.7	0.0	18.5	33.0	0.0	2.6
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.85	1.00		0.38
Lane Grp Cap(c), veh/h	40	1517	673	274	993	964	426	0	473	212	0	512
V/C Ratio(X)	0.58	0.32	0.04	0.91	0.38	0.38	0.04	0.00	0.61	0.63	0.00	0.10
Avail Cap(c_a), veh/h	111	1517	673	482	993	964	488	0	548	262	0	592
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.1	22.8	20.0	40.7	0.0	0.0	32.2	0.0	36.5	50.7	0.0	30.9
Incr Delay (d2), s/veh	4.9	0.5	0.1	6.0	1.0	1.0	0.0	0.0	0.8	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.6	0.4	6.3	0.3	0.3	0.3	0.0	7.3	4.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	23.3	20.1	46.7	1.0	1.0	32.2	0.0	37.3	52.2	0.0	30.9
LnGrp LOS	E	C	C	D	A	A	C	A	D	D	A	C
Approach Vol, veh/h		530			997			305			186	
Approach Delay, s/veh		24.9			12.5			37.0			46.2	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	56.5		40.5	7.2	72.3		40.5				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	32.5	31.7		40.7	7.5	56.7		40.7				
Max Q Clear Time (g_c+I1), s	18.2	12.8		35.0	3.5	2.0		20.5				
Green Ext Time (p_c), s	0.3	2.0		0.2	0.0	3.2		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		22.6	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	548	293	255	830	0	0	0	0	505	2	204
Future Volume (vph)	0	548	293	255	830	0	0	0	0	505	2	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		45.0		35.0	80.0					40.0	40.0	
Total Split (%)		37.5%		29.2%	66.7%					33.3%	33.3%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	548	293	255	830	0	0	0	0	505	2	204
Future Volume (veh/h)	0	548	293	255	830	0	0	0	0	505	2	204
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	583	312	271	883	0				537	2	217
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	934	500	295	2212	0				515	4	452
Arrive On Green	0.00	0.42	0.42	0.33	1.00	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	2324	1193	1781	3647	0				1781	14	1565
Grp Volume(v), veh/h	0	464	431	271	883	0				537	0	219
Grp Sat Flow(s),veh/h/ln	0	1777	1647	1781	1777	0				1781	0	1579
Q Serve(g_s), s	0.0	24.7	24.7	17.6	0.0	0.0				34.7	0.0	13.7
Cycle Q Clear(g_c), s	0.0	24.7	24.7	17.6	0.0	0.0				34.7	0.0	13.7
Prop In Lane	0.00		0.72	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	744	690	295	2212	0				515	0	457
V/C Ratio(X)	0.00	0.62	0.62	0.92	0.40	0.00				1.04	0.00	0.48
Avail Cap(c_a), veh/h	0	744	690	451	2212	0				515	0	457
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.94	0.94	0.65	0.65	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	27.4	27.5	39.4	0.0	0.0				42.6	0.0	35.2
Incr Delay (d2), s/veh	0.0	3.7	4.0	9.5	0.4	0.0				51.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.0	10.3	7.0	0.1	0.0				22.4	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.1	31.4	48.9	0.4	0.0				93.8	0.0	35.5
LnGrp LOS	A	C	C	D	A	A				F	A	D
Approach Vol, veh/h		895			1154						756	
Approach Delay, s/veh		31.3			11.8						76.9	
Approach LOS		C			B						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	24.5	55.5		40.0		80.0
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3
Max Green Setting (Gmax), s	30.4	39.7		34.7		74.7
Max Q Clear Time (g_c+I1), s	19.6	26.7		36.7		2.0
Green Ext Time (p_c), s	0.3	3.2		0.0		4.5

Intersection Summary		
HCM 6th Ctrl Delay		35.6
HCM 6th LOS		D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	913	0	0	633	308	452	3	437	0	0	0
Future Volume (vph)	139	913	0	0	633	308	452	3	437	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	25.0	73.0			48.0		47.0	47.0				
Total Split (%)	20.8%	60.8%			40.0%		39.2%	39.2%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

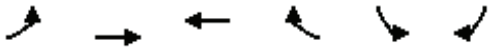
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	913	0	0	633	308	452	3	437	0	0	0
Future Volume (veh/h)	139	913	0	0	633	308	452	3	437	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	143	941	0	0	653	318	466	3	451			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	168	2139	0	0	1096	534	552	3	486			
Arrive On Green	0.19	1.00	0.00	0.00	0.47	0.47	0.31	0.31	0.31			
Sat Flow, veh/h	1781	3647	0	0	2405	1126	1781	10	1569			
Grp Volume(v), veh/h	143	941	0	0	502	469	466	0	454			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1661	1781	0	1579			
Q Serve(g_s), s	9.3	0.0	0.0	0.0	24.8	24.8	29.3	0.0	33.4			
Cycle Q Clear(g_c), s	9.3	0.0	0.0	0.0	24.8	24.8	29.3	0.0	33.4			
Prop In Lane	1.00		0.00	0.00		0.68	1.00		0.99			
Lane Grp Cap(c), veh/h	168	2139	0	0	842	787	552	0	489			
V/C Ratio(X)	0.85	0.44	0.00	0.00	0.60	0.60	0.84	0.00	0.93			
Avail Cap(c_a), veh/h	312	2139	0	0	842	787	619	0	549			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.49	0.49	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	47.9	0.0	0.0	0.0	23.1	23.1	38.7	0.0	40.1			
Incr Delay (d2), s/veh	2.3	0.3	0.0	0.0	3.1	3.3	8.6	0.0	20.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.8	0.1	0.0	0.0	10.8	10.2	14.0	0.0	15.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	0.3	0.0	0.0	26.2	26.4	47.3	0.0	60.1			
LnGrp LOS	D	A	A	A	C	C	D	A	E			
Approach Vol, veh/h		1084			971			920				
Approach Delay, s/veh		6.9			26.3			53.6				
Approach LOS		A			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.5			15.3	62.2		42.5				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		67.7			21.0	42.7		41.7				
Max Q Clear Time (g_c+I1), s		2.0			11.3	26.8		35.4				
Green Ext Time (p_c), s		4.9			0.1	3.8		1.8				
Intersection Summary												
HCM 6th Ctrl Delay			27.7									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	318	1032	652	115	97	291
Future Volume (vph)	318	1032	652	115	97	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	21.2

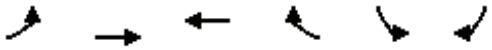
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	318	1032	652	115	97	291
Future Vol, veh/h	318	1032	652	115	97	291
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	328	1064	672	119	100	300

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	796	0	-	0	1764	346
Stage 1	-	-	-	-	677	-
Stage 2	-	-	-	-	1087	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	822	-	-	-	~ 97	650
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	262	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	818	-	-	-	~ 58	644
Mov Cap-2 Maneuver	-	-	-	-	148	-
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	261	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	126.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	818	-	-	-	350
HCM Lane V/C Ratio	0.401	-	-	-	1.143
HCM Control Delay (s)	12.3	-	-	-	126.9
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	1.9	-	-	-	15.8

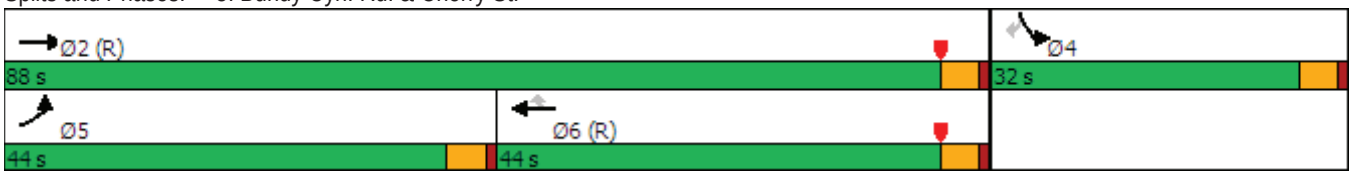
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

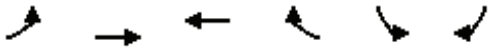


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	318	1032	652	115	97	291
Future Volume (vph)	318	1032	652	115	97	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				30	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	44.0	88.0	44.0	44.0	32.0	32.0
Total Split (%)	36.7%	73.3%	36.7%	36.7%	26.7%	26.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Bundy Cyn. Rd. & Cherry St.

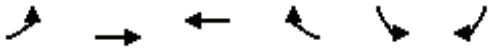




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	318	1032	652	115	97	291
Future Volume (veh/h)	318	1032	652	115	97	291
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	328	1064	672	119	100	300
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	355	3672	1714	760	367	326
Arrive On Green	0.40	1.00	0.48	0.48	0.21	0.21
Sat Flow, veh/h	1781	5274	3647	1577	1781	1585
Grp Volume(v), veh/h	328	1064	672	119	100	300
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1577	1781	1585
Q Serve(g_s), s	21.0	0.0	14.5	5.1	5.7	22.2
Cycle Q Clear(g_c), s	21.0	0.0	14.5	5.1	5.7	22.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	355	3672	1714	760	367	326
V/C Ratio(X)	0.92	0.29	0.39	0.16	0.27	0.92
Avail Cap(c_a), veh/h	586	3672	1714	760	408	363
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	0.0	19.8	17.4	40.1	46.7
Incr Delay (d2), s/veh	12.5	0.2	0.7	0.4	0.4	26.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.1	6.0	1.9	2.5	20.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.8	0.2	20.5	17.8	40.5	73.1
LnGrp LOS	D	A	C	B	D	E
Approach Vol, veh/h		1392	791		400	
Approach Delay, s/veh		11.4	20.1		64.9	
Approach LOS		B	C		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		90.8		29.2	28.4	62.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		83.5		27.5	39.5	39.5
Max Q Clear Time (g_c+I1), s		2.0		24.2	23.0	16.5
Green Ext Time (p_c), s		9.7		0.5	0.9	5.0

Intersection Summary	
HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	318	1032	652	115	0	291
Future Volume (vph)	318	1032	652	115	0	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

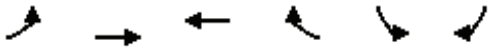
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	318	1032	652	115	0	291
Future Vol, veh/h	318	1032	652	115	0	291
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	328	1064	672	119	0	300

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	796	0	-	0	-	346
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	822	-	-	-	0	650
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	818	-	-	-	-	644
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	818	-	-	-	644
HCM Lane V/C Ratio	0.401	-	-	-	0.466
HCM Control Delay (s)	12.3	-	-	-	15.4
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	1.9	-	-	-	2.5



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1350	652	432	0	291
Future Volume (vph)	0	1350	652	432	0	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1350	652	432	0	291
Future Vol, veh/h	0	1350	652	432	0	291
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1392	672	445	0	300

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	346
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	650
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	644
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

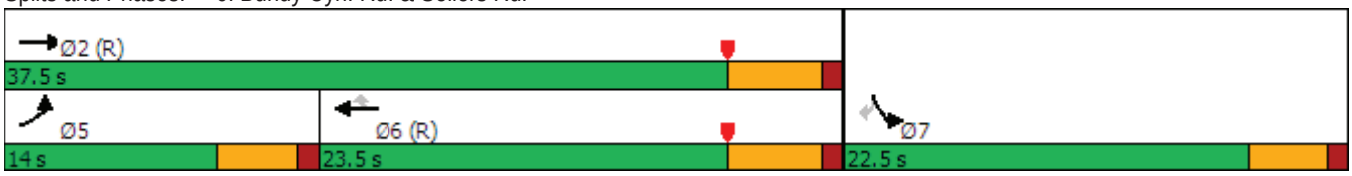
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	644
HCM Lane V/C Ratio	-	-	-	0.466
HCM Control Delay (s)	-	-	-	15.4
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	2.5

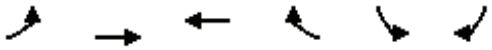
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	142	1043	637	41	35	77
Future Volume (vph)	142	1043	637	41	35	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		7
Detector Phase	5	2	6	6	7	7
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	14.0	37.5	23.5	23.5	22.5	22.5
Total Split (%)	23.3%	62.5%	39.2%	39.2%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	142	1043	637	41	35	77
Future Volume (veh/h)	142	1043	637	41	35	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	1098	671	43	37	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	189	2740	1264	560	534	476
Arrive On Green	0.11	0.54	0.71	0.71	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1574	1781	1585
Grp Volume(v), veh/h	149	1098	671	43	37	81
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1574	1781	1585
Q Serve(g_s), s	4.9	7.6	5.3	0.5	0.9	2.3
Cycle Q Clear(g_c), s	4.9	7.6	5.3	0.5	0.9	2.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	189	2740	1264	560	534	476
V/C Ratio(X)	0.79	0.40	0.53	0.08	0.07	0.17
Avail Cap(c_a), veh/h	282	2740	1264	560	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	26.2	8.2	6.3	5.7	15.0	15.5
Incr Delay (d2), s/veh	4.5	0.4	1.5	0.3	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.3	1.5	1.0	0.4	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.7	8.6	7.8	5.9	15.3	16.3
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		1247	714		118	
Approach Delay, s/veh		11.3	7.7		16.0	
Approach LOS		B	A		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	10.9	26.6
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	9.5	18.2
Max Q Clear Time (g_c+I1), s		9.6		4.3	6.9	7.3
Green Ext Time (p_c), s		5.4		0.1	0.0	2.4

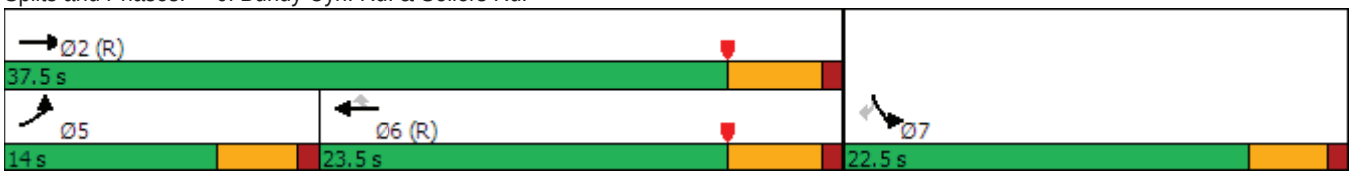
Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

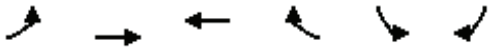
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	127	961	637	41	118	77
Future Volume (vph)	127	961	637	41	118	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		7
Detector Phase	5	2	6	6	7	7
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	14.0	37.5	23.5	23.5	22.5	22.5
Total Split (%)	23.3%	62.5%	39.2%	39.2%	37.5%	37.5%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.

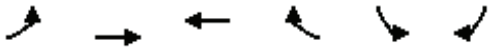




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	127	961	637	41	118	77
Future Volume (veh/h)	127	961	637	41	118	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	1012	671	43	124	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	171	2740	1299	575	534	476
Arrive On Green	0.10	0.54	0.73	0.73	0.30	0.30
Sat Flow, veh/h	1781	5274	3647	1574	1781	1585
Grp Volume(v), veh/h	134	1012	671	43	124	81
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1574	1781	1585
Q Serve(g_s), s	4.4	6.9	4.9	0.5	3.1	2.3
Cycle Q Clear(g_c), s	4.4	6.9	4.9	0.5	3.1	2.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	171	2740	1299	575	534	476
V/C Ratio(X)	0.78	0.37	0.52	0.07	0.23	0.17
Avail Cap(c_a), veh/h	282	2740	1299	575	534	476
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	26.5	8.0	5.8	5.2	15.8	15.5
Incr Delay (d2), s/veh	3.0	0.4	1.4	0.2	1.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.0	1.4	0.9	1.3	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.5	8.4	7.2	5.4	16.8	16.3
LnGrp LOS	C	A	A	A	B	B
Approach Vol, veh/h		1146	714		205	
Approach Delay, s/veh		10.9	7.1		16.6	
Approach LOS		B	A		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.5		22.5	10.3	27.2
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		32.2		18.0	9.5	18.2
Max Q Clear Time (g_c+I1), s		8.9		5.1	6.4	6.9
Green Ext Time (p_c), s		5.0		0.3	0.0	2.4

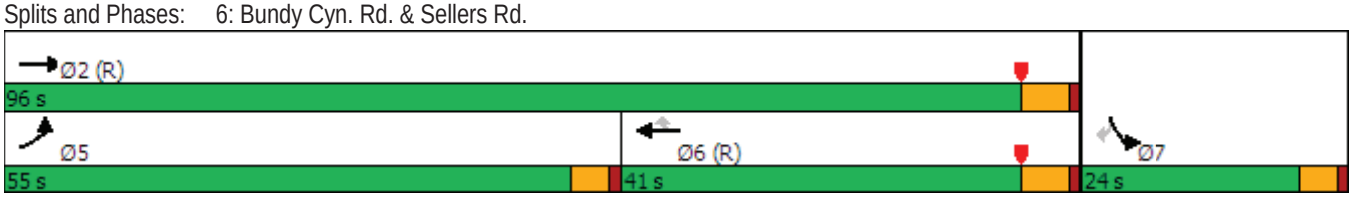
Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

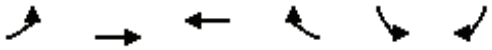


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	445	961	637	41	118	77
Future Volume (vph)	445	961	637	41	118	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			285	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	60				60	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		25	
Link Distance (ft)		377	612		1298	
Travel Time (s)		7.3	11.9		35.4	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases				6		7
Detector Phase	5	2	6	6	7	7
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	23.3	23.3	22.5	22.5
Total Split (s)	55.0	96.0	41.0	41.0	24.0	24.0
Total Split (%)	45.8%	80.0%	34.2%	34.2%	20.0%	20.0%
Yellow Time (s)	3.5	4.3	4.3	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	5.3	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Bundy Cyn. Rd. & Sellers Rd.





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	445	961	637	41	118	77
Future Volume (veh/h)	445	961	637	41	118	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	468	1012	671	43	124	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	497	3859	1561	692	289	258
Arrive On Green	0.28	0.76	0.88	0.88	0.16	0.16
Sat Flow, veh/h	1781	5274	3647	1576	1781	1585
Grp Volume(v), veh/h	468	1012	671	43	124	81
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1576	1781	1585
Q Serve(g_s), s	30.8	7.2	4.4	0.4	7.5	5.4
Cycle Q Clear(g_c), s	30.8	7.2	4.4	0.4	7.5	5.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	497	3859	1561	692	289	258
V/C Ratio(X)	0.94	0.26	0.43	0.06	0.43	0.31
Avail Cap(c_a), veh/h	750	3859	1561	692	289	258
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	42.3	4.5	4.4	4.1	45.2	44.4
Incr Delay (d2), s/veh	12.3	0.2	0.8	0.2	4.6	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.0	2.2	1.4	1.6	3.7	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.6	4.6	5.2	4.3	49.8	47.5
LnGrp LOS	D	A	A	A	D	D
Approach Vol, veh/h		1480	714		205	
Approach Delay, s/veh		20.4	5.1		48.9	
Approach LOS		C	A		D	

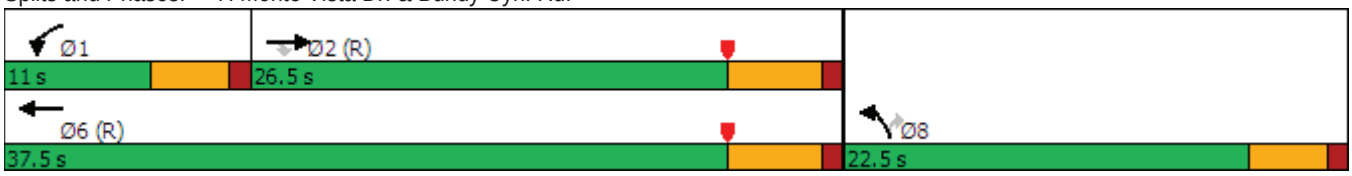
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.0		24.0	38.0	58.0
Change Period (Y+Rc), s		5.3		4.5	4.5	5.3
Max Green Setting (Gmax), s		90.7		19.5	50.5	35.7
Max Q Clear Time (g_c+I1), s		9.2		9.5	32.8	6.4
Green Ext Time (p_c), s		5.4		0.2	0.7	3.2

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1038	40	52	642	36	110
Future Volume (vph)	1038	40	52	642	36	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	26.5	26.5	11.0	37.5	22.5	22.5
Total Split (%)	44.2%	44.2%	18.3%	62.5%	37.5%	37.5%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.

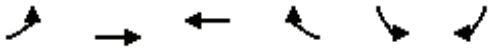




Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1038	40	52	642	36	110
Future Volume (veh/h)	1038	40	52	642	36	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1141	44	57	705	40	121
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2096	647	91	1907	1037	476
Arrive On Green	0.82	0.82	0.05	0.54	0.30	0.30
Sat Flow, veh/h	5274	1575	1781	3647	3456	1585
Grp Volume(v), veh/h	1141	44	57	705	40	121
Grp Sat Flow(s),veh/h/ln	1702	1575	1781	1777	1728	1585
Q Serve(g_s), s	4.3	0.3	1.9	6.9	0.5	3.5
Cycle Q Clear(g_c), s	4.3	0.3	1.9	6.9	0.5	3.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2096	647	91	1907	1037	476
V/C Ratio(X)	0.54	0.07	0.63	0.37	0.04	0.25
Avail Cap(c_a), veh/h	2096	647	193	1907	1037	476
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.6	3.2	27.9	8.0	14.9	15.9
Incr Delay (d2), s/veh	0.9	0.2	2.6	0.6	0.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.1	0.8	2.1	0.2	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.5	3.4	30.5	8.6	14.9	17.2
LnGrp LOS	A	A	C	A	B	B
Approach Vol, veh/h	1185			762	161	
Approach Delay, s/veh	4.5			10.2	16.6	
Approach LOS	A			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.6	29.9				37.5	22.5
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	6.5	21.2				32.2	18.0
Max Q Clear Time (g_c+I1), s	3.9	6.3				8.9	5.5
Green Ext Time (p_c), s	0.0	5.0				3.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	73	1075	654	19	9	41
Future Volume (vph)	73	1075	654	19	9	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

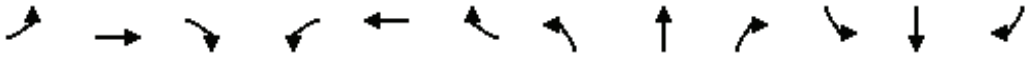
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	73	1075	654	19	9	41
Future Vol, veh/h	73	1075	654	19	9	41
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	79	1168	711	21	10	45

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	737	0	-	0	1357	376
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	630	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	865	-	-	-	169	622
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	462	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	861	-	-	-	152	616
Mov Cap-2 Maneuver	-	-	-	-	260	-
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	460	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	861	-	-	-	494
HCM Lane V/C Ratio	0.092	-	-	-	0.11
HCM Control Delay (s)	9.6	-	-	-	13.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	7	18	1	4	35	11	176	2	46	183	80
Future Volume (vph)	92	7	18	1	4	35	11	176	2	46	183	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	7	18	1	4	35	11	176	2	46	183	80
Future Vol, veh/h	92	7	18	1	4	35	11	176	2	46	183	80
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	8	19	1	4	38	12	189	2	49	197	86
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.5	8.2	9.5	10.7
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	79%	3%	15%
Vol Thru, %	93%	6%	10%	59%
Vol Right, %	1%	15%	88%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	117	40	309
LT Vol	11	92	1	46
Through Vol	176	7	4	183
RT Vol	2	18	35	80
Lane Flow Rate	203	126	43	332
Geometry Grp	1	1	1	1
Degree of Util (X)	0.268	0.184	0.058	0.414
Departure Headway (Hd)	4.746	5.263	4.816	4.483
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	754	677	736	801
Service Time	2.799	3.332	2.895	2.529
HCM Lane V/C Ratio	0.269	0.186	0.058	0.414
HCM Control Delay	9.5	9.5	8.2	10.7
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1.1	0.7	0.2	2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	7	18	1	4	35	11	176	2	46	183	80
Future Volume (vph)	92	7	18	1	4	35	11	176	2	46	183	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	0		0	0		0	0		100
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

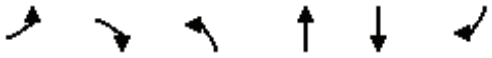
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	7	18	1	4	35	11	176	2	46	183	80
Future Vol, veh/h	92	7	18	1	4	35	11	176	2	46	183	80
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	99	8	19	1	4	38	12	189	2	49	197	86
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	9.6	8.2	9.8	10.1
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	6%	79%	3%	20%	0%
Vol Thru, %	93%	6%	10%	80%	0%
Vol Right, %	1%	15%	88%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	117	40	229	80
LT Vol	11	92	1	46	0
Through Vol	176	7	4	183	0
RT Vol	2	18	35	0	80
Lane Flow Rate	203	126	43	246	86
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.274	0.185	0.058	0.359	0.106
Departure Headway (Hd)	4.856	5.293	4.848	5.251	4.445
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	736	674	732	682	802
Service Time	2.913	3.354	2.923	3.004	2.198
HCM Lane V/C Ratio	0.276	0.187	0.059	0.361	0.107
HCM Control Delay	9.8	9.6	8.2	10.9	7.7
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	1.1	0.7	0.2	1.6	0.4



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	167	173	102	67	19
Future Volume (vph)	17	167	173	102	67	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

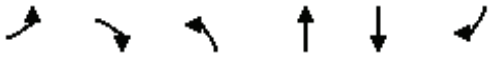
Intersection	
Int Delay, s/veh	6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	167	173	102	67	19
Future Vol, veh/h	17	167	173	102	67	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	182	188	111	73	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	581	94	99	0	-	0
Stage 1	89	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	476	963	1494	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	407	954	1487	-	-	-
Mov Cap-2 Maneuver	407	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	612	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	4.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1487	-	849	-	-
HCM Lane V/C Ratio	0.126	-	0.236	-	-
HCM Control Delay (s)	7.8	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.9	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	121	173	148	62	19
Future Volume (vph)	63	121	173	148	62	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

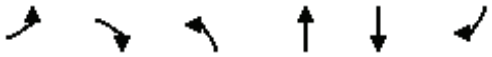
Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	121	173	148	62	19
Future Vol, veh/h	63	121	173	148	62	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	132	188	161	67	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	625	88	93	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	449	970	1501	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	383	961	1494	-	-	-
Mov Cap-2 Maneuver	383	-	-	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	4.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1494	-	634	-	-
HCM Lane V/C Ratio	0.126	-	0.315	-	-
HCM Control Delay (s)	7.8	0	13.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	121	173	148	62	19
Future Volume (vph)	63	121	173	148	62	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

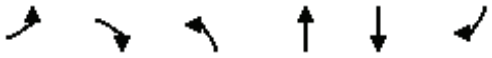
Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	121	173	148	62	19
Future Vol, veh/h	63	121	173	148	62	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	132	188	161	67	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	625	88	93	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	449	970	1501	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	383	961	1494	-	-	-
Mov Cap-2 Maneuver	383	-	-	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	4.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1494	-	634	-	-
HCM Lane V/C Ratio	0.126	-	0.315	-	-
HCM Control Delay (s)	7.8	0	13.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	169	173	259	218	16
Future Volume (vph)	16	169	173	259	218	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

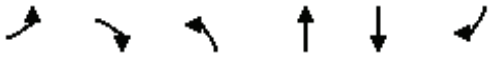
Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	169	173	259	218	16
Future Vol, veh/h	16	169	173	259	218	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	184	188	282	237	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	914	256	259	0	-	0
Stage 1	251	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	303	783	1306	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	256	776	1300	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	3.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1300	-	660	-	-
HCM Lane V/C Ratio	0.145	-	0.305	-	-
HCM Control Delay (s)	8.2	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	123	173	259	167	16
Future Volume (vph)	62	123	173	259	167	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

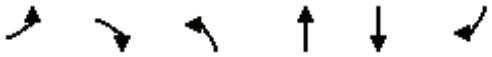
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	123	173	259	167	16
Future Vol, veh/h	62	123	173	259	167	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	134	188	282	182	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	859	201	204	0	-	0
Stage 1	196	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	327	840	1368	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	279	832	1361	-	-	-
Mov Cap-2 Maneuver	279	-	-	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1361	-	500	-	-
HCM Lane V/C Ratio	0.138	-	0.402	-	-
HCM Control Delay (s)	8.1	-	17	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	1.9	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	123	173	259	167	16
Future Volume (vph)	62	123	173	259	167	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

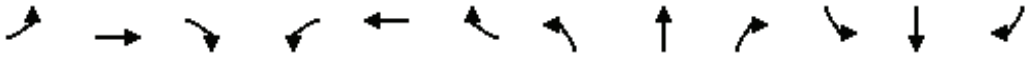
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	123	173	259	167	16
Future Vol, veh/h	62	123	173	259	167	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	134	188	282	182	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	859	201	204	0	-	0
Stage 1	196	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	327	840	1368	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	279	832	1361	-	-	-
Mov Cap-2 Maneuver	279	-	-	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1361	-	500	-	-
HCM Lane V/C Ratio	0.138	-	0.402	-	-
HCM Control Delay (s)	8.1	-	17	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	1.9	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	43	65	16	47	1	121	5	26	1	3	1
Future Volume (vph)	1	43	65	16	47	1	121	5	26	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

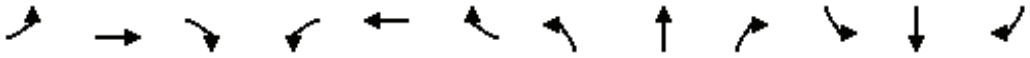
Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	43	65	16	47	1	121	5	26	1	3	1
Future Vol, veh/h	1	43	65	16	47	1	121	5	26	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	49	74	18	53	1	138	6	30	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	123	0	0	180	178	86	196	215	54
Stage 1	-	-	-	-	-	-	88	88	-	90	90	-
Stage 2	-	-	-	-	-	-	92	90	-	106	125	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1464	-	-	782	716	973	763	683	1013
Stage 1	-	-	-	-	-	-	920	822	-	917	820	-
Stage 2	-	-	-	-	-	-	915	820	-	900	792	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1464	-	-	769	706	973	727	673	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	769	706	-	727	673	-
Stage 1	-	-	-	-	-	-	919	821	-	916	809	-
Stage 2	-	-	-	-	-	-	898	809	-	866	791	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	10.8	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	795	1551	-	-	1464	-	-	733
HCM Lane V/C Ratio	0.217	0.001	-	-	0.012	-	-	0.008
HCM Control Delay (s)	10.8	7.3	0	-	7.5	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	43	65	16	47	1	121	5	86	1	3	1
Future Volume (vph)	1	43	65	16	47	1	121	5	86	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

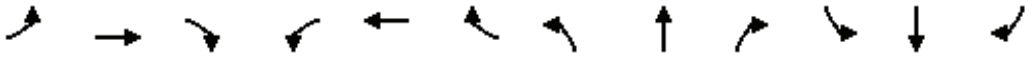
Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	43	65	16	47	1	121	5	86	1	3	1
Future Vol, veh/h	1	43	65	16	47	1	121	5	86	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	49	74	18	53	1	138	6	98	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	123	0	0	180	178	86	230	215	54
Stage 1	-	-	-	-	-	-	88	88	-	90	90	-
Stage 2	-	-	-	-	-	-	92	90	-	140	125	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1464	-	-	782	716	973	725	683	1013
Stage 1	-	-	-	-	-	-	920	822	-	917	820	-
Stage 2	-	-	-	-	-	-	915	820	-	863	792	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1464	-	-	769	706	973	642	673	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	769	706	-	642	673	-
Stage 1	-	-	-	-	-	-	919	821	-	916	809	-
Stage 2	-	-	-	-	-	-	898	809	-	770	791	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	11	10.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	839	1551	-	-	1464	-	-	714
HCM Lane V/C Ratio	0.287	0.001	-	-	0.012	-	-	0.008
HCM Control Delay (s)	11	7.3	0	-	7.5	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.2	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	43	65	16	47	1	121	5	86	1	3	1
Future Volume (vph)	1	43	65	16	47	1	121	5	86	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

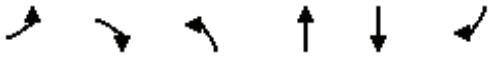
Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	43	65	16	47	1	121	5	86	1	3	1
Future Vol, veh/h	1	43	65	16	47	1	121	5	86	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	49	74	18	53	1	138	6	98	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	123	0	0	180	178	86	230	215	54
Stage 1	-	-	-	-	-	-	88	88	-	90	90	-
Stage 2	-	-	-	-	-	-	92	90	-	140	125	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1464	-	-	782	716	973	725	683	1013
Stage 1	-	-	-	-	-	-	920	822	-	917	820	-
Stage 2	-	-	-	-	-	-	915	820	-	863	792	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1464	-	-	769	706	973	642	673	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	769	706	-	642	673	-
Stage 1	-	-	-	-	-	-	919	821	-	916	809	-
Stage 2	-	-	-	-	-	-	898	809	-	770	791	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	11	10.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	839	1551	-	-	1464	-	-	714
HCM Lane V/C Ratio	0.287	0.001	-	-	0.012	-	-	0.008
HCM Control Delay (s)	11	7.3	0	-	7.5	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.2	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	41	47	55	24	8
Future Volume (vph)	6	41	47	55	24	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

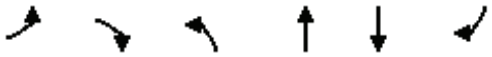
Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	41	47	55	24	8
Future Vol, veh/h	6	41	47	55	24	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	51	59	69	30	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	222	35	40	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	766	1038	1570	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	736	1038	1570	-	-	-
Mov Cap-2 Maneuver	736	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	845	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	3.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	986	-	-
HCM Lane V/C Ratio	0.037	-	0.06	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	86	47	40	24	8
Future Volume (vph)	21	86	47	40	24	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

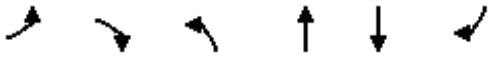
Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	86	47	40	24	8
Future Vol, veh/h	21	86	47	40	24	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	108	59	50	30	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	203	35	40	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	786	1038	1570	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	755	1038	1570	-	-	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	862	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	967	-	-
HCM Lane V/C Ratio	0.037	-	0.138	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	86	47	40	24	8
Future Volume (vph)	21	86	47	40	24	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

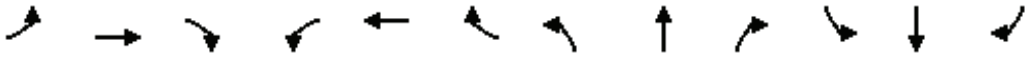
Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	86	47	40	24	8
Future Vol, veh/h	21	86	47	40	24	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	108	59	50	30	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	203	35	40	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	786	1038	1570	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	755	1038	1570	-	-	-
Mov Cap-2 Maneuver	755	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	862	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	967	-	-
HCM Lane V/C Ratio	0.037	-	0.138	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	63	92	28	46	1	88	14	41	1	3	9
Future Volume (vph)	14	63	92	28	46	1	88	14	41	1	3	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

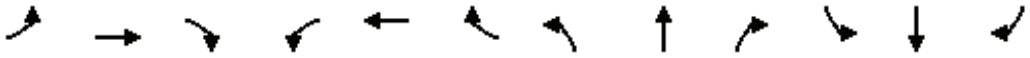
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	63	92	28	46	1	88	14	41	1	3	9
Future Vol, veh/h	14	63	92	28	46	1	88	14	41	1	3	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	68	99	30	49	1	95	15	44	1	3	10
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.4	8.7	8.6	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	62%	8%	38%	0%	8%
Vol Thru, %	10%	37%	62%	0%	23%
Vol Right, %	29%	54%	0%	100%	69%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	143	169	74	1	13
LT Vol	88	14	28	0	1
Through Vol	14	63	46	0	3
RT Vol	41	92	0	1	9
Lane Flow Rate	154	182	80	1	14
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.192	0.213	0.116	0.001	0.017
Departure Headway (Hd)	4.505	4.222	5.26	4.366	4.321
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	798	852	683	821	828
Service Time	2.524	2.24	2.982	2.087	2.347
HCM Lane V/C Ratio	0.193	0.214	0.117	0.001	0.017
HCM Control Delay	8.6	8.4	8.7	7.1	7.4
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.7	0.8	0.4	0	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	162	54	74	99	1	73	1	61	1	1	1
Future Volume (vph)	1	162	54	74	99	1	73	1	61	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

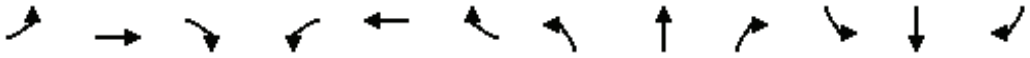
Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	162	54	74	99	1	73	1	61	1	1	1
Future Vol, veh/h	1	162	54	74	99	1	73	1	61	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	174	58	80	106	1	78	1	66	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	107	0	0	232	0	0	444	443	174	506	501	107
Stage 1	-	-	-	-	-	-	176	176	-	267	267	-
Stage 2	-	-	-	-	-	-	268	267	-	239	234	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1484	-	-	1336	-	-	524	509	869	477	472	947
Stage 1	-	-	-	-	-	-	826	753	-	738	688	-
Stage 2	-	-	-	-	-	-	738	688	-	764	711	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1484	-	-	1336	-	-	497	476	869	418	441	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	497	476	-	418	441	-
Stage 1	-	-	-	-	-	-	825	752	-	737	644	-
Stage 2	-	-	-	-	-	-	689	644	-	705	710	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.3	12.6	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	616	1484	-	-	1336	-	-	525
HCM Lane V/C Ratio	0.236	0.001	-	-	0.06	-	-	0.006
HCM Control Delay (s)	12.6	7.4	0	-	7.9	0	-	11.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0.2	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	67	9	1	91	111	16	31	8	74	41	8
Future Volume (vph)	2	67	9	1	91	111	16	31	8	74	41	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	67	9	1	91	111	16	31	8	74	41	8
Future Vol, veh/h	2	67	9	1	91	111	16	31	8	74	41	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	76	10	1	103	126	18	35	9	84	47	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8.8	8.3	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	3%	0%	60%
Vol Thru, %	56%	86%	45%	33%
Vol Right, %	15%	12%	55%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	78	203	123
LT Vol	16	2	1	74
Through Vol	31	67	91	41
RT Vol	8	9	111	8
Lane Flow Rate	62	89	231	140
Geometry Grp	1	1	1	1
Degree of Util (X)	0.083	0.114	0.269	0.186
Departure Headway (Hd)	4.785	4.613	4.205	4.795
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	747	776	854	748
Service Time	2.826	2.646	2.232	2.831
HCM Lane V/C Ratio	0.083	0.115	0.27	0.187
HCM Control Delay	8.3	8.2	8.8	8.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	1.1	0.7

Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **890**

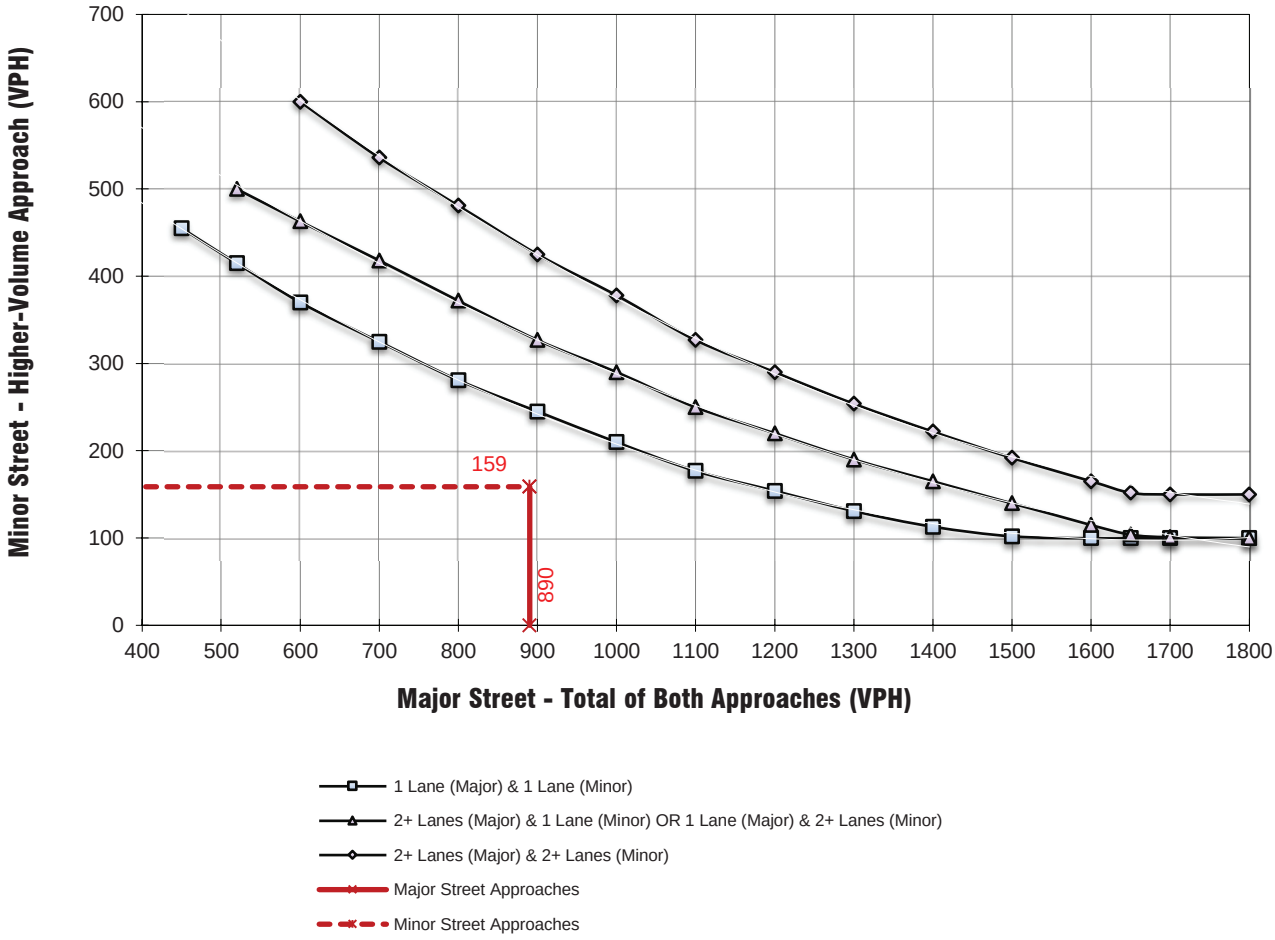
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **159**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1053**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **66**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED

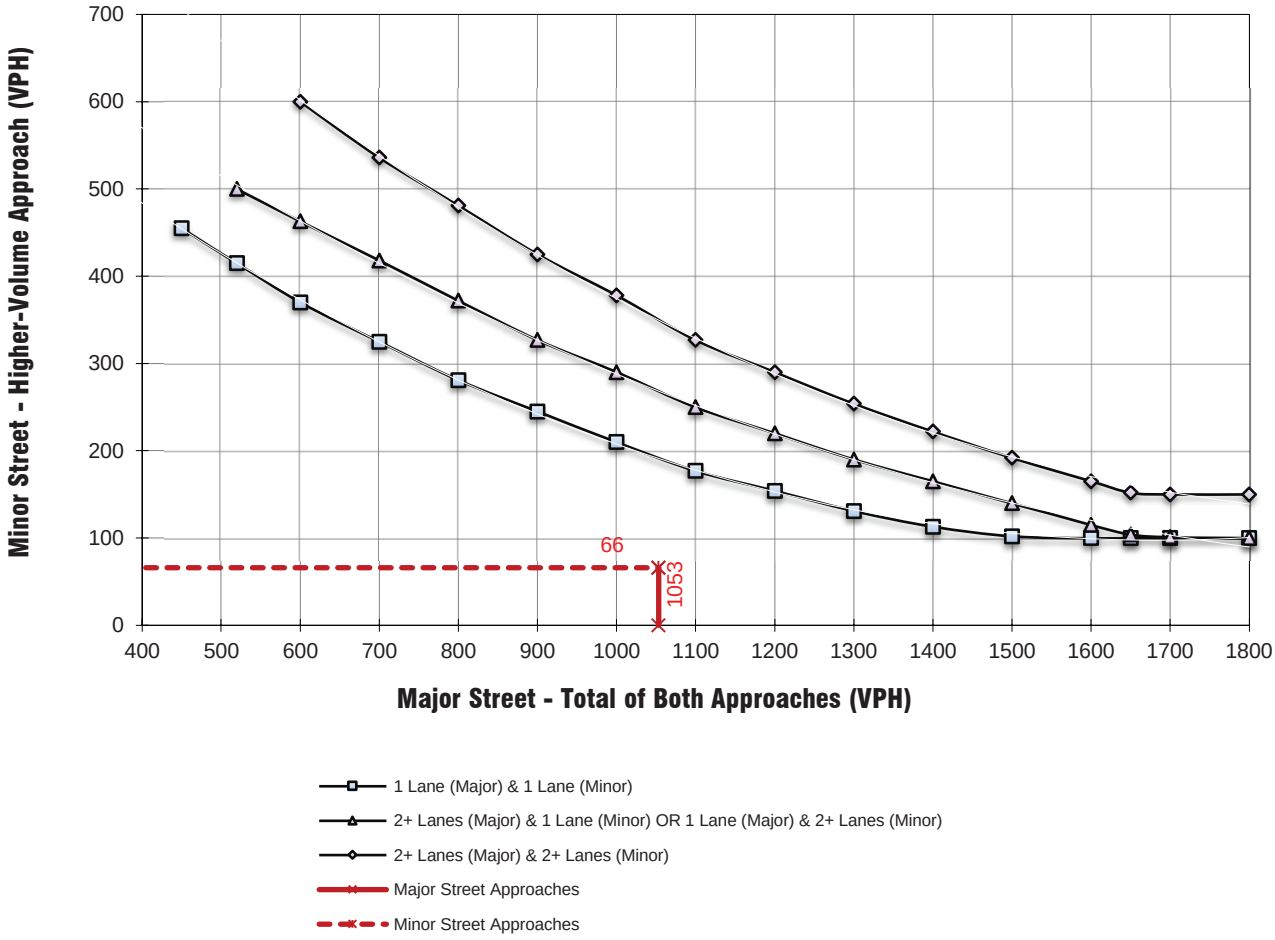


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Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1565**

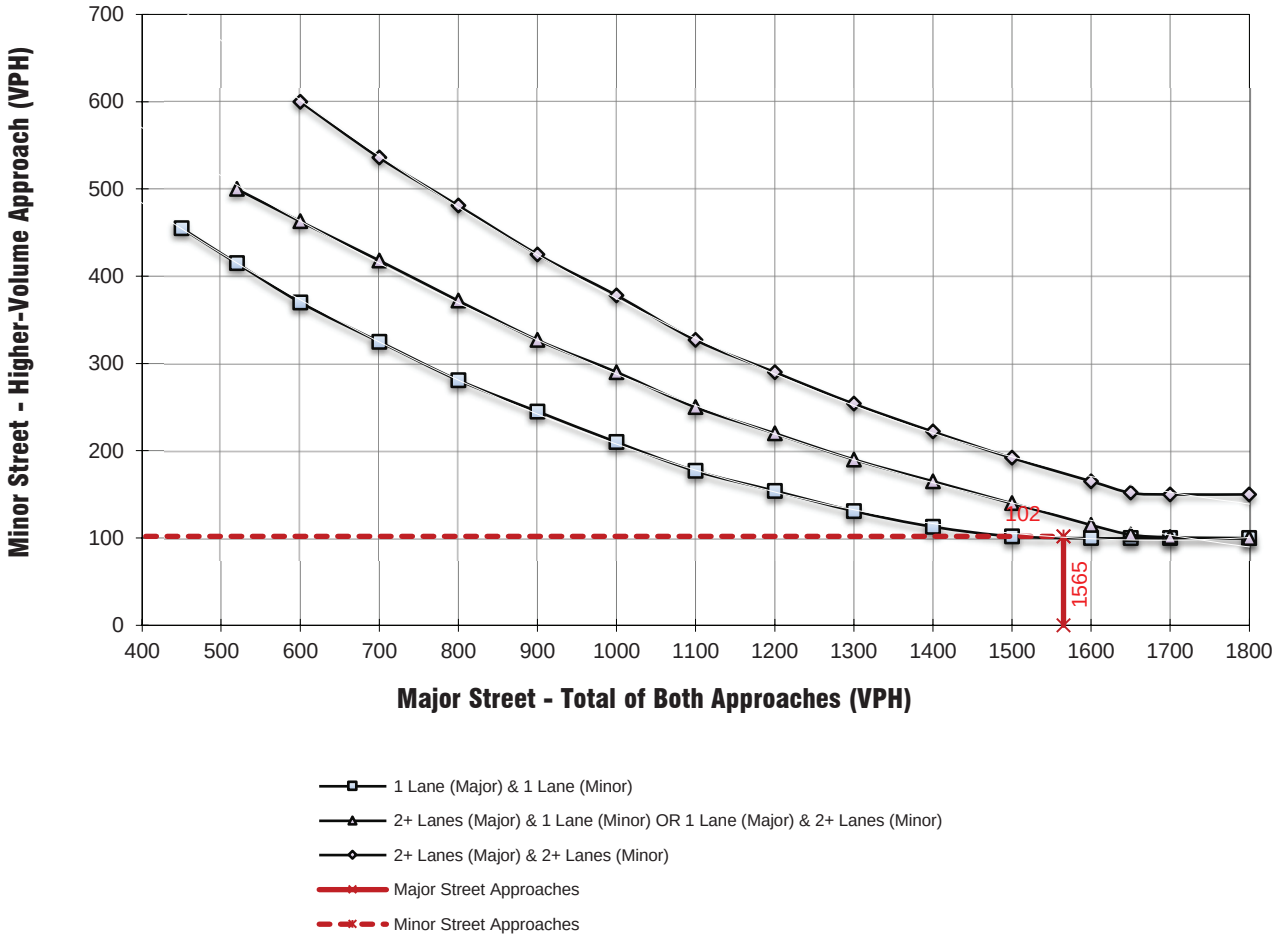
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **102**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1821**

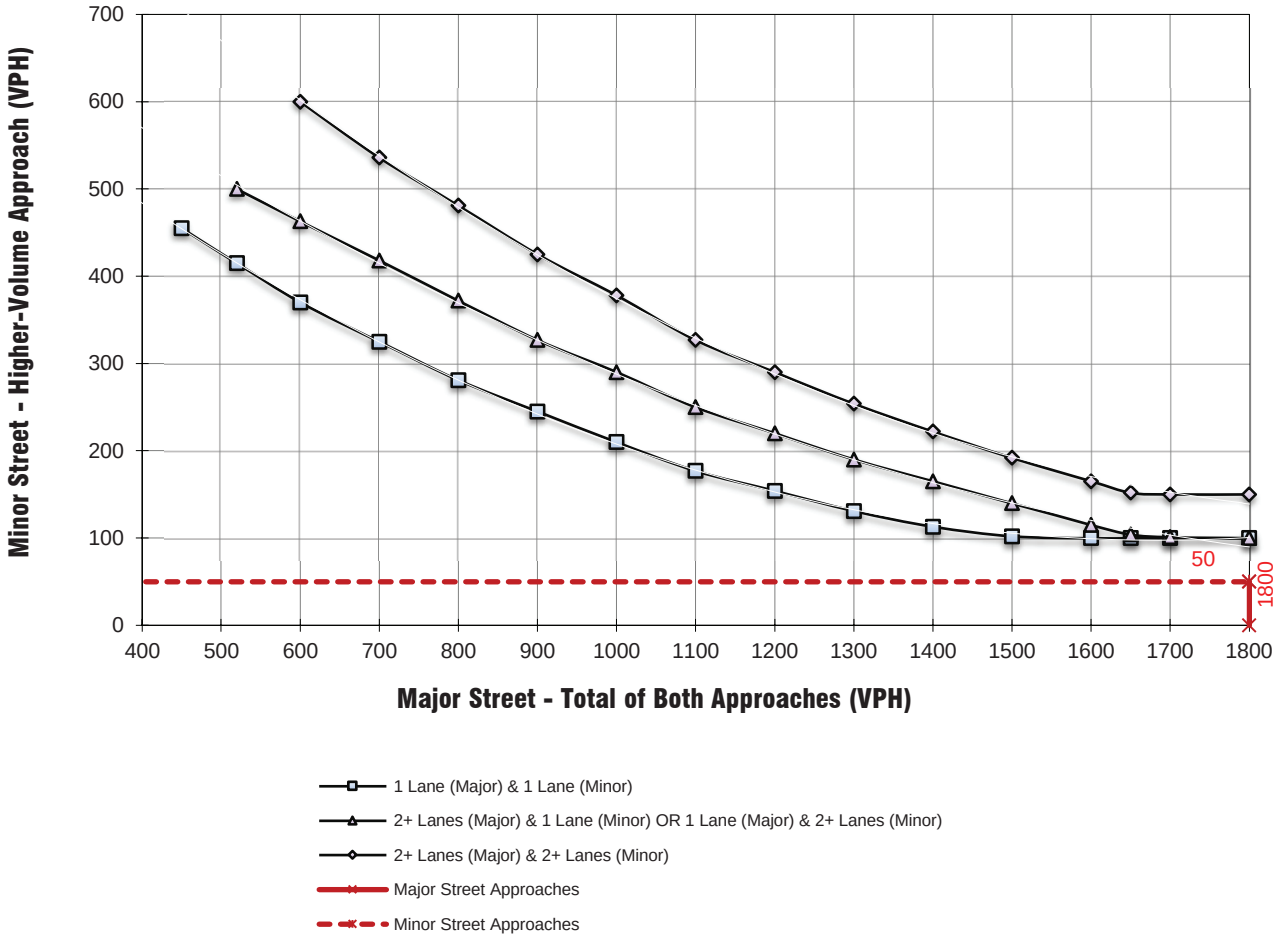
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **50**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (AM Peak Hour)

Major Street Name = **Orange St.**

Total of Both Approaches (VPH) = **785**

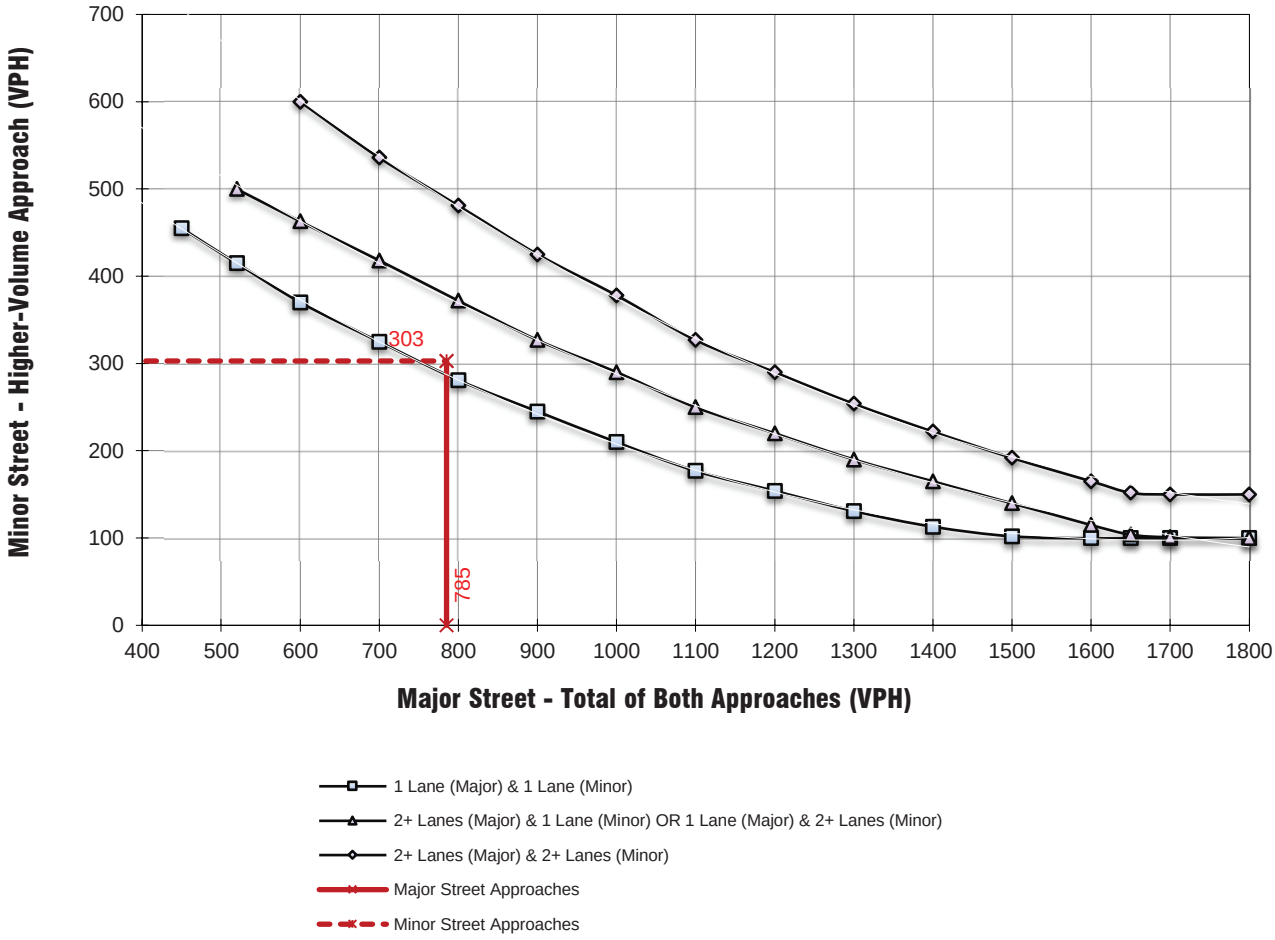
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Canyon Dr.**

High Volume Approach (VPH) = **303**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (PM Peak Hour)

Major Street Name = **Orange St.**

Total of Both Approaches (VPH) = **498**

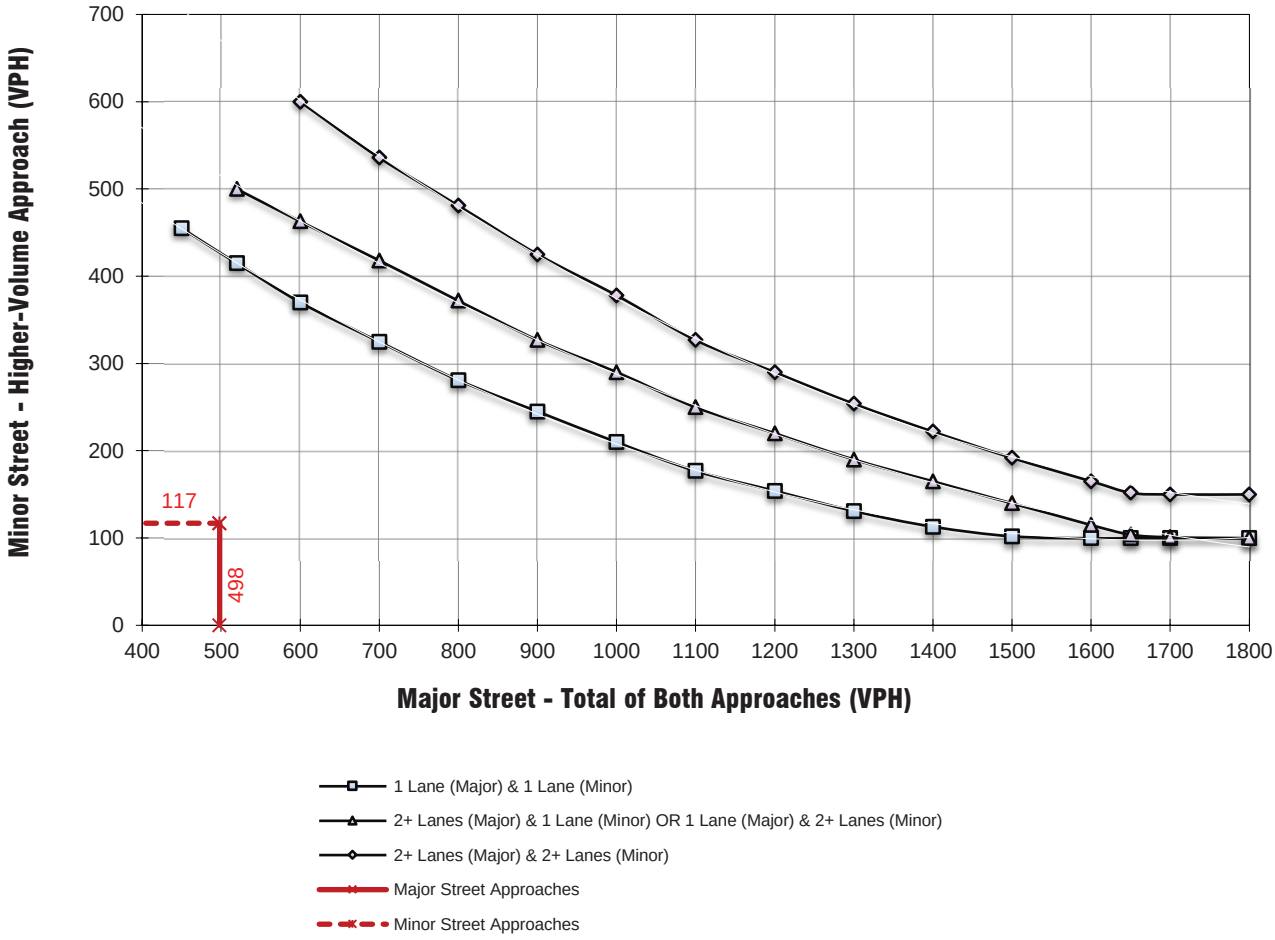
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Canyon Dr.**

High Volume Approach (VPH) = **117**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **167**

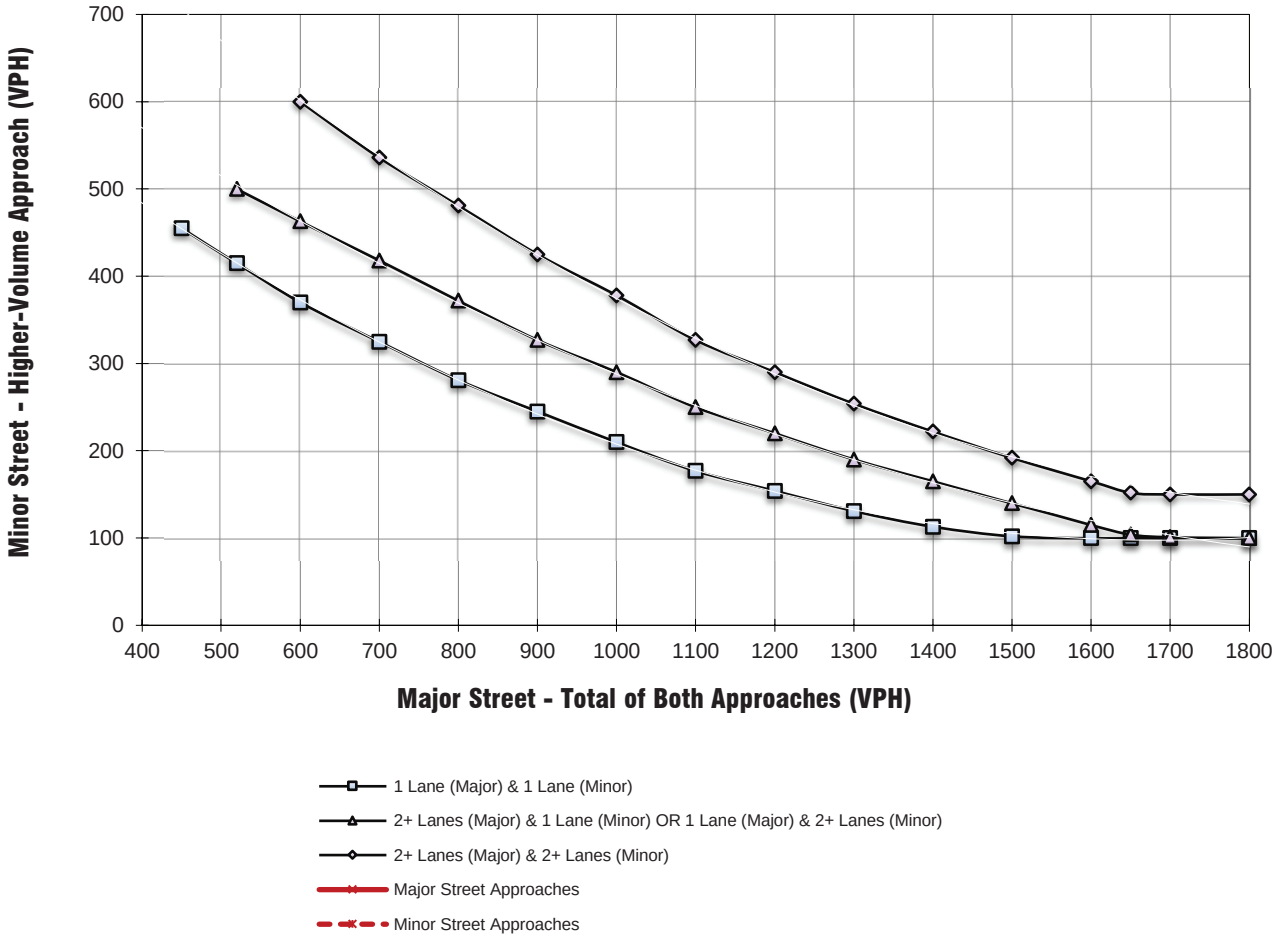
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **85**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **134**

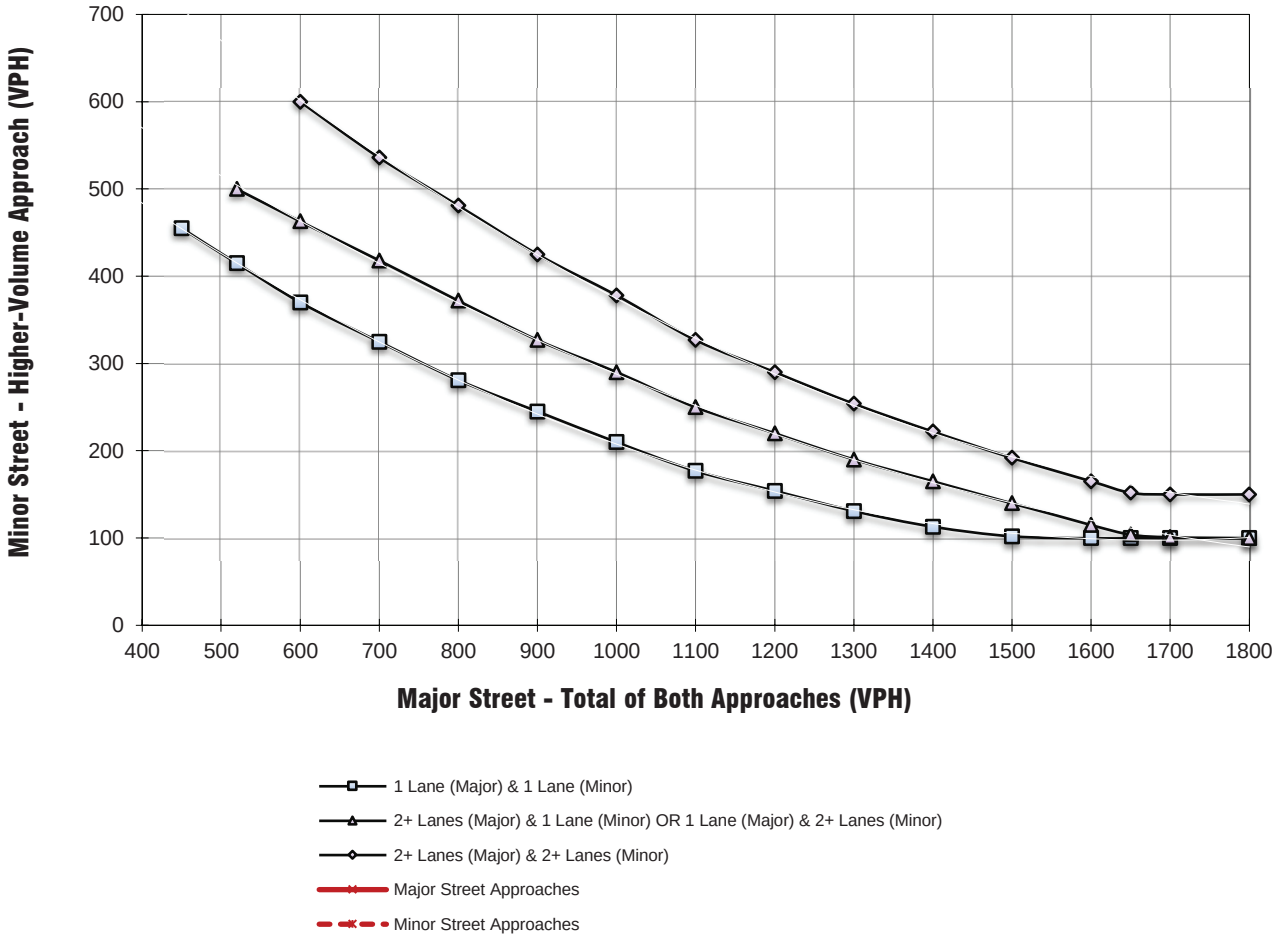
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **47**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **278**

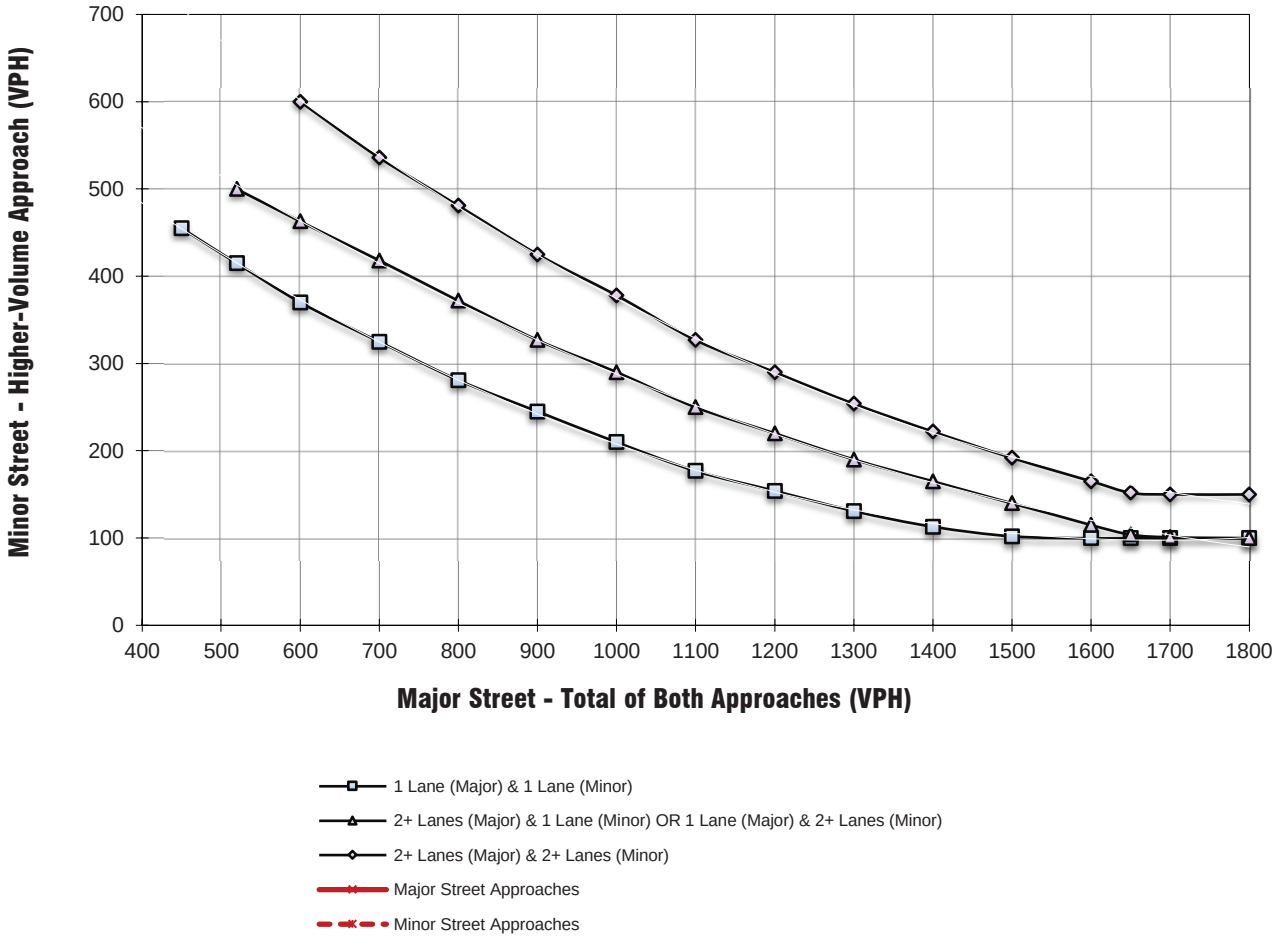
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **153**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **244**

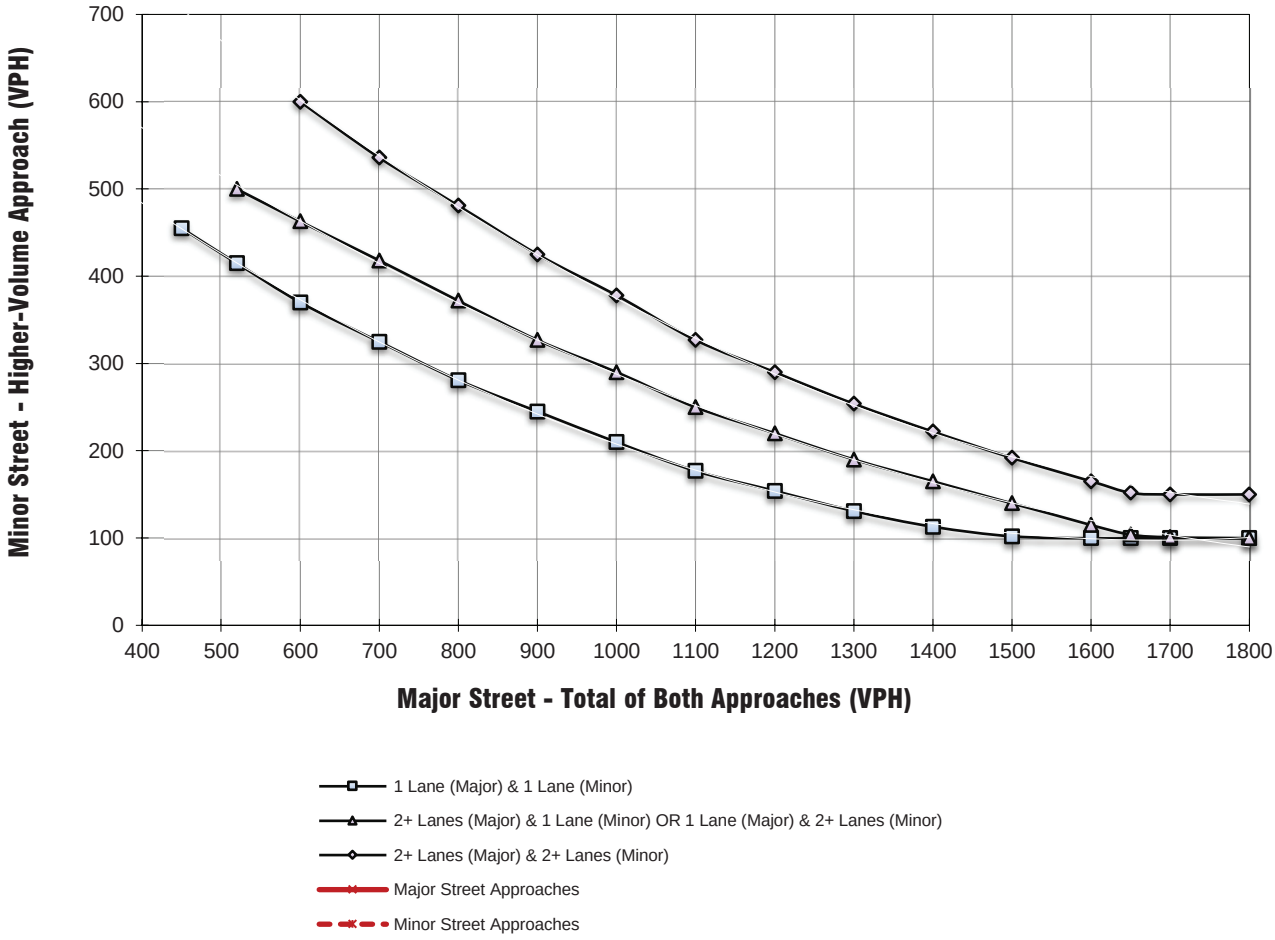
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **143**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **475**

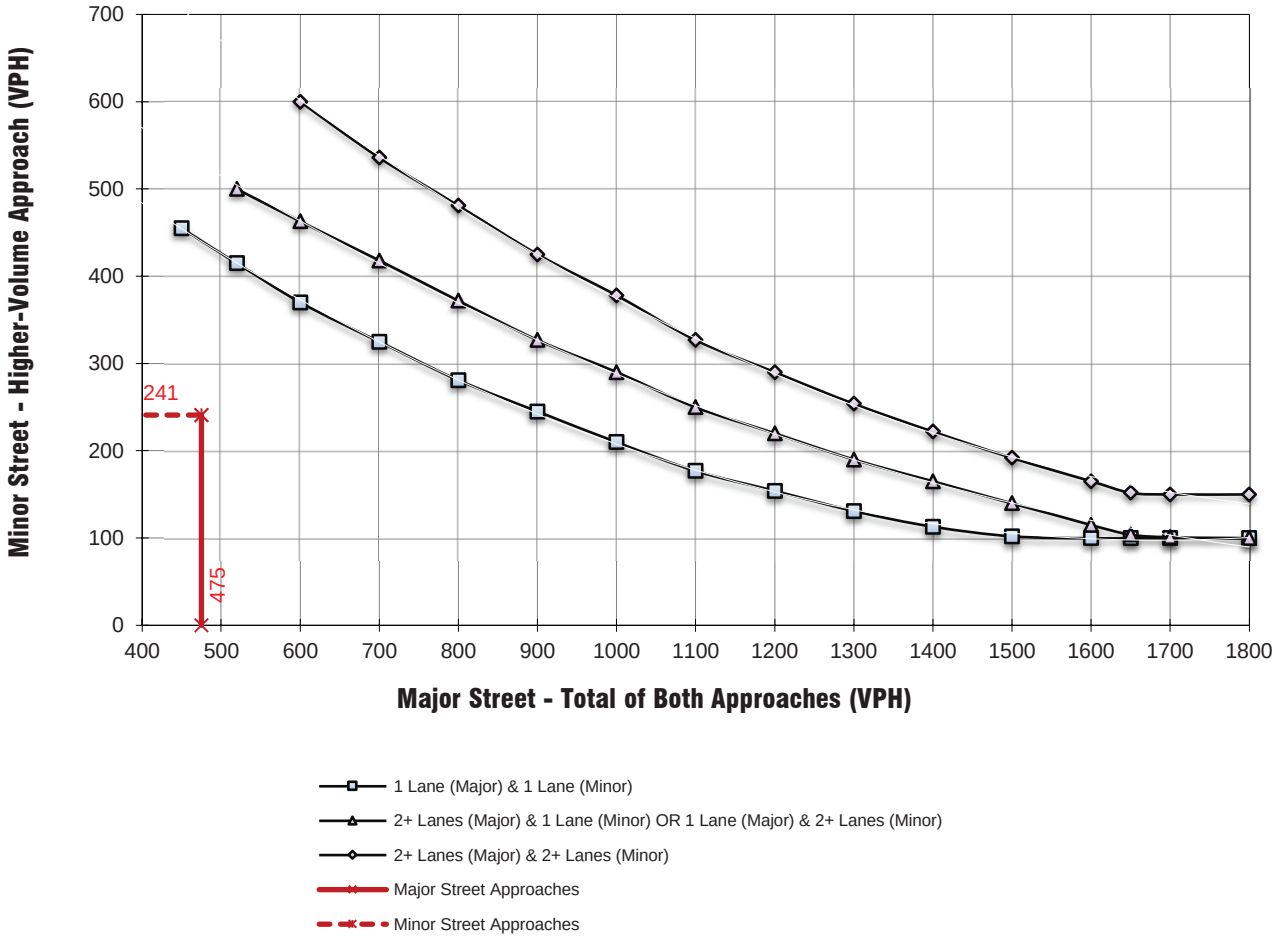
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **241**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **391**

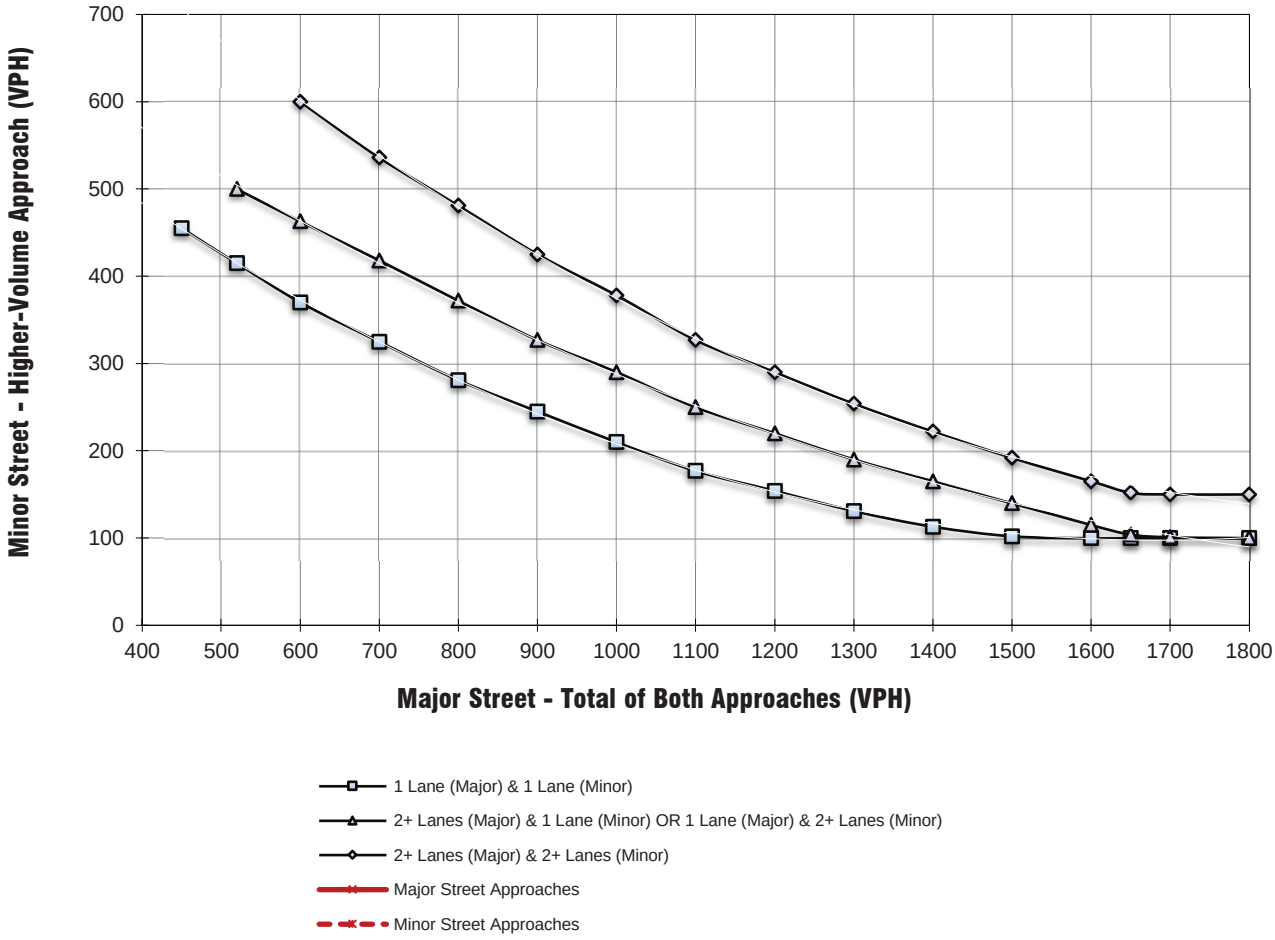
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **135**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAP CONDITIONS (AM Peak Hour)

Major Street Name = **Almond St.**

Total of Both Approaches (VPH) = **364**

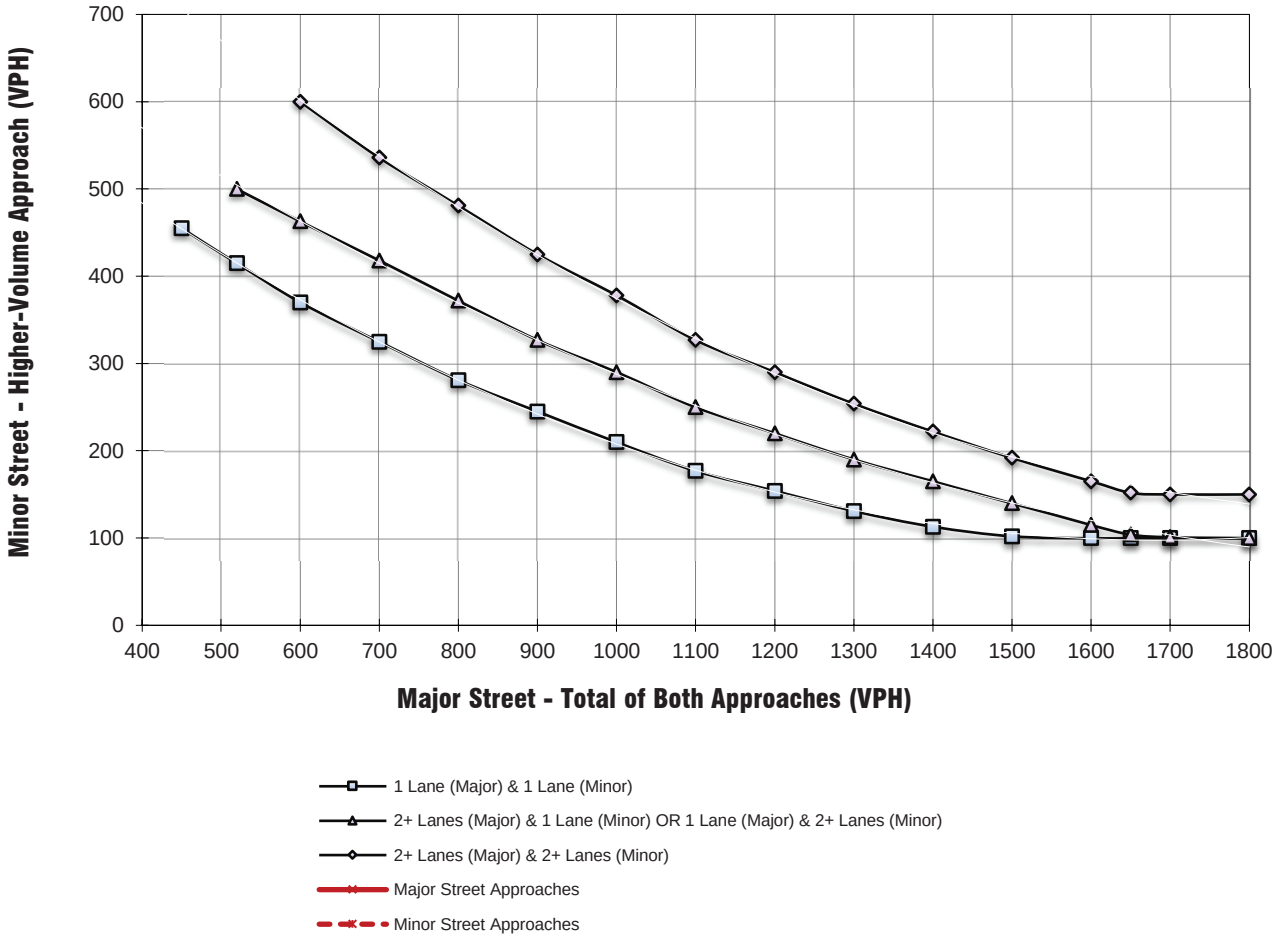
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **188**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **281**

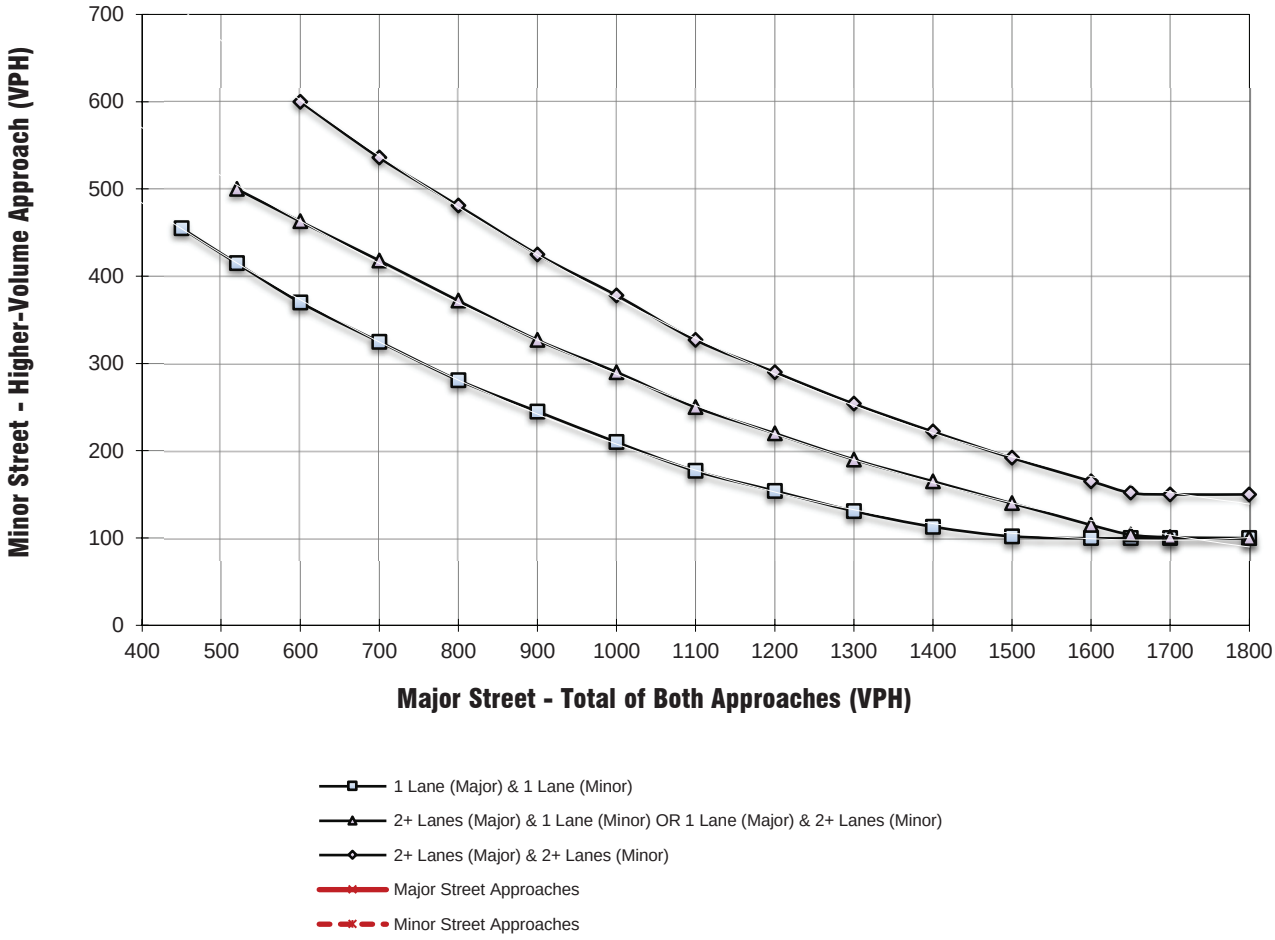
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **123**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

EAP (2025) CONDITIONS

Jurisdiction: City of Wildomar
Major Street: Cherry St.
Minor Street: N. Dwy.

Critical Approach Speed (Major): 35 mph
Critical Approach Speed (Minor): 30 mph

Major Street Approach Lanes = 1 lane
Minor Street Approach Lanes = 1 lane

Major Street Future ADT = 4,482 vpd
Minor Street Future ADT = 2,231 vpd

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT	
XX		
CONDITION A - Minimum Vehicular Volume	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Satisfied / Not Satisfied XX		
Number of lanes for moving traffic on each approa		
Major Street / Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 4,482 — *1* 2,231	*8,000* / *5,600*	*2,400* / *1,680*
2 + — *1*	*9,600* / *6,720*	*2,400* / *1,680*
2 + — *2 +*	*9,600* / *6,720*	*3,200* / *2,240*
1 — *2 +*	*8,000* / *5,600*	*3,200* / *2,240*
CONDITION B - Interruption of Continuous Traffic	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Satisfied / Not Satisfied XX		
Number of lanes for moving traffic on each approa		
Major Street / Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 4,482 — *1* 2,231	*12,000* / *8,400*	*1,200* * / *850*
2 + — *1*	*14,400* / *10,080*	*1,200* / *850*
2 + — *2 +*	*14,400* / *10,080*	*1,600* / *1,120*
1 — *2 +*	*12,000* / *8,400*	*1,600* / *1,120*
Combination of CONDITIONS A + B		
Satisfied / Not Satisfied XX	2 CONDITIONS	2 CONDITIONS
No one condition satisfied, but following condition fulfilled 80% of more .... A 56% / B 37%	80%	80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

EAP (2025) CONDITIONS

Jurisdiction: City of Wildomar
Major Street: Cherry St.
Minor Street: S. Dwy.

Critical Approach Speed (Major): 35 mph
Critical Approach Speed (Minor): 30 mph

Major Street Approach Lanes = 1 lane
Minor Street Approach Lanes = 1 lane

Major Street Future ADT = 7,912 vpd
Minor Street Future ADT = 2,216 vpd

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL		Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		*Vehicles Per Day on Major Street (Total of Both Approaches)*		*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approa					
Major Street	Minor Street	*Urban*	*Rural*	*Urban*	*Rural*
1 7,912	*1* 2,216	*8,000*	*5,600*	*2,400*	*1,680*
2 +	*1*	*9,600*	*6,720*	*2,400*	*1,680*
2 +	*2 +*	*9,600*	*6,720*	*3,200*	*2,240*
1	*2 +*	*8,000*	*5,600*	*3,200*	*2,240*
CONDITION B - Interruption of Continuous Traffic		*Vehicles Per Day on Major Street (Total of Both Approaches)*		*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approa					
Major Street	Minor Street	*Urban*	*Rural*	*Urban*	*Rural*
1 7,912	*1* 2,216	*12,000*	*8,400*	*1,200* *	*850*
2 +	*1*	*14,400*	*10,080*	*1,200*	*850*
2 +	*2 +*	*14,400*	*10,080*	*1,600*	*1,120*
1	*2 +*	*12,000*	*8,400*	*1,600*	*1,120*
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS		2 CONDITIONS	
No one condition satisfied, but following condition fulfilled 80% of more	A 92% B 66%	80%		80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX H

EXISTING PLUS AMBIENT PLUS PROJECT (EAP 2025) CONDITIONS
RAMP JUNCTION ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	4221	654
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4682	725
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.66	0.36

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.428
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1543
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.610	Outer Lanes Freeway Speed (SO), mi/h	69.2
Flow in Lanes 1 and 2 (v12), pc/h	3139	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	26.4
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.2

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3567	972
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3956	1078
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.71	0.54

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.407
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1626
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	60.9
Flow in Lanes 1 and 2 (v12), pc/h	2330	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	3408	Average Density (D), pc/mi/ln	29.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.1

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3070	570
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3405	632
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.48	0.32

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.420
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	982
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.646	Outer Lanes Freeway Speed (SO), mi/h	71.3
Flow in Lanes 1 and 2 (v12), pc/h	2423	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.6

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2500	648
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2773	719
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.36

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.318
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1129
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1644	Ramp Junction Speed (S), mi/h	59.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2363	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.2

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3555	721
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3943	800
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.56	0.40

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.435
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1179
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.625	Outer Lanes Freeway Speed (SO), mi/h	70.6
Flow in Lanes 1 and 2 (v12), pc/h	2764	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	26.0

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HCS7 Freeway Merge Report

Project Information			
Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2834	559
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3143	620
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.53	0.31

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.335
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1292
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1851	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2471	Average Density (D), pc/mi/ln	21.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.0

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3907	900
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4333	998
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.61	0.50

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.453
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1314
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.606	Outer Lanes Freeway Speed (SO), mi/h	70.1
Flow in Lanes 1 and 2 (v12), pc/h	3019	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	28.8

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	12/18/19
Agency	Trames Solutions, Inc.	Analysis Year	EAP (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3007	461
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3335	511
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.26

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1357
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	61.9
Flow in Lanes 1 and 2 (v12), pc/h	1978	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2489	Average Density (D), pc/mi/ln	21.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.2

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APPENDIX I

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT (EAPC 2025) CONDITIONS INTERSECTION ANALYSIS CALCULATION WORKSHEETS AND TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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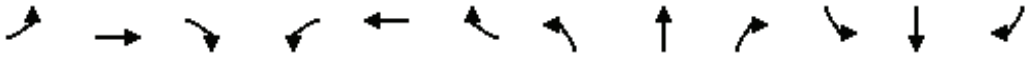


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	467	30	65	376	64	24	33	68	111	35	44
Future Volume (vph)	27	467	30	65	376	64	24	33	68	111	35	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	467	30	65	376	64	24	33	68	111	35	44
Future Vol, veh/h	27	467	30	65	376	64	24	33	68	111	35	44
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	570	37	79	459	78	29	40	83	135	43	54
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

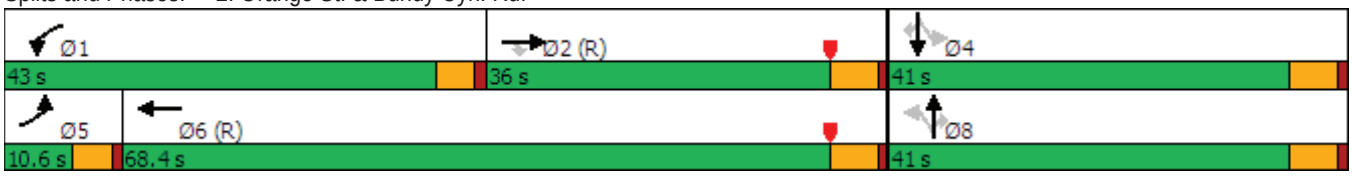
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	24.9	18.9	15.5	20.5
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	19%	15%	0%	0%	34%	0%	0%	58%
Vol Thru, %	26%	85%	100%	0%	66%	100%	0%	18%
Vol Right, %	54%	0%	0%	100%	0%	0%	100%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	183	311	30	190	251	64	190
LT Vol	24	27	0	0	65	0	0	111
Through Vol	33	156	311	0	125	251	0	35
RT Vol	68	0	0	30	0	0	64	44
Lane Flow Rate	152	223	380	37	232	306	78	232
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.35	0.46	0.776	0.067	0.489	0.629	0.145	0.538
Departure Headway (Hd)	8.258	7.434	7.357	6.634	7.585	7.408	6.685	8.358
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	434	483	490	537	474	486	534	431
Service Time	6.037	5.204	5.127	4.403	5.356	5.179	4.455	6.13
HCM Lane V/C Ratio	0.35	0.462	0.776	0.069	0.489	0.63	0.146	0.538
HCM Control Delay	15.5	16.4	31.4	9.9	17.5	22	10.6	20.5
HCM Lane LOS	C	C	D	A	C	C	B	C
HCM 95th-tile Q	1.5	2.4	6.9	0.2	2.6	4.3	0.5	3.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	581	24	395	486	93	9	58	458	214	47	7
Future Volume (vph)	25	581	24	395	486	93	9	58	458	214	47	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	10.6	36.0	36.0	43.0	68.4		41.0	41.0	41.0	41.0	41.0	41.0
Total Split (%)	8.8%	30.0%	30.0%	35.8%	57.0%		34.2%	34.2%	34.2%	34.2%	34.2%	34.2%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	581	24	395	486	93	9	58	458	214	47	7
Future Volume (veh/h)	25	581	24	395	486	93	9	58	458	214	47	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	638	26	434	534	102	10	64	503	235	52	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	1140	504	456	1643	312	34	185	469	55	0	469
Arrive On Green	0.02	0.32	0.32	0.43	0.92	0.92	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1781	3554	1573	1781	2976	566	0	620	1577	0	0	1577
Grp Volume(v), veh/h	27	638	26	434	318	318	74	0	503	287	0	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1573	1781	1777	1765	620	0	1577	0	0	1577
Q Serve(g_s), s	1.8	17.8	1.4	28.2	2.4	2.4	0.0	0.0	35.7	0.0	0.0	0.4
Cycle Q Clear(g_c), s	1.8	17.8	1.4	28.2	2.4	2.4	35.7	0.0	35.7	35.7	0.0	0.4
Prop In Lane	1.00		1.00	1.00		0.32	0.14		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	44	1140	504	456	981	974	219	0	469	55	0	469
V/C Ratio(X)	0.61	0.56	0.05	0.95	0.32	0.33	0.34	0.00	1.07	5.26	0.00	0.02
Avail Cap(c_a), veh/h	91	1140	504	571	981	974	219	0	469	55	0	469
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.9	33.7	28.1	33.6	2.2	2.2	33.2	0.0	42.2	60.0	0.0	29.8
Incr Delay (d2), s/veh	5.0	2.0	0.2	21.0	0.8	0.8	0.3	0.0	62.2	1956.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	7.9	0.5	12.8	0.9	0.9	1.6	0.0	21.7	31.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	35.7	28.3	54.7	3.0	3.0	33.5	0.0	104.3	2016.8	0.0	29.8
LnGrp LOS	E	D	C	D	A	A	C	A	F	F	A	C
Approach Vol, veh/h		691			1070			577			295	
Approach Delay, s/veh		36.5			24.0			95.3			1962.9	
Approach LOS		D			C			F			F	

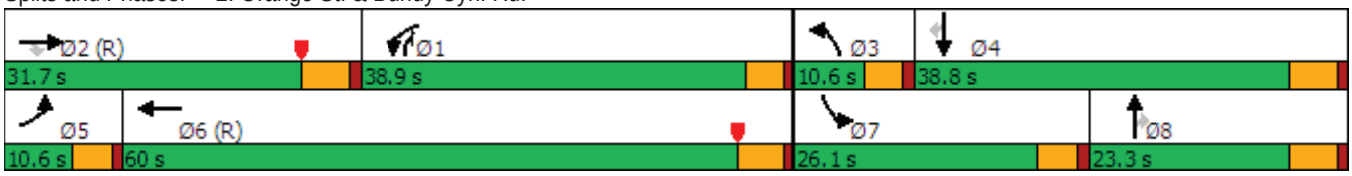
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	35.2	43.8		41.0	7.5	71.5		41.0				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	38.5	30.7		35.7	6.1	63.1		35.7				
Max Q Clear Time (g_c+I1), s	30.2	19.8		37.7	3.8	4.4		37.7				
Green Ext Time (p_c), s	0.5	2.2		0.0	0.0	2.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		260.1	
HCM 6th LOS		F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	581	24	395	486	93	9	58	458	214	47	7
Future Volume (vph)	25	581	24	395	486	93	9	58	458	214	47	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	100		100	100		100
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		9.5	23.3	9.5	9.5	23.3	23.3
Total Split (s)	10.6	31.7	31.7	38.9	60.0		10.6	23.3	38.9	26.1	38.8	38.8
Total Split (%)	8.8%	26.4%	26.4%	32.4%	50.0%		8.8%	19.4%	32.4%	21.8%	32.3%	32.3%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		3.5	4.3	3.5	3.5	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		4.5	5.3	4.5	4.5	5.3	5.3
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Min	None	None	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	581	24	395	486	93	9	58	458	214	47	7
Future Volume (veh/h)	25	581	24	395	486	93	9	58	458	214	47	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	638	26	434	534	102	10	64	503	235	52	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	782	345	615	1628	310	21	218	730	264	473	399
Arrive On Green	0.02	0.22	0.22	0.46	0.73	0.73	0.01	0.12	0.12	0.15	0.25	0.25
Sat Flow, veh/h	1781	3554	1567	1781	2976	566	1781	1870	1565	1781	1870	1576
Grp Volume(v), veh/h	27	638	26	434	318	318	10	64	503	235	52	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1567	1781	1777	1765	1781	1870	1565	1781	1870	1576
Q Serve(g_s), s	1.8	20.5	1.4	23.4	7.7	7.7	0.7	3.8	10.6	15.5	2.6	0.5
Cycle Q Clear(g_c), s	1.8	20.5	1.4	23.4	7.7	7.7	0.7	3.8	10.6	15.5	2.6	0.5
Prop In Lane	1.00		1.00	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	44	782	345	615	972	966	21	218	730	264	473	399
V/C Ratio(X)	0.61	0.82	0.08	0.71	0.33	0.33	0.48	0.29	0.69	0.89	0.11	0.02
Avail Cap(c_a), veh/h	91	782	345	615	972	966	91	281	782	321	522	440
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.9	44.5	28.8	27.6	8.4	8.5	58.9	48.5	9.2	50.2	34.4	33.7
Incr Delay (d2), s/veh	5.0	9.2	0.4	3.0	0.8	0.9	15.7	0.3	1.9	22.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	9.9	0.6	9.4	2.8	2.8	0.4	1.8	4.6	8.5	1.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	53.7	29.2	30.5	9.3	9.3	74.6	48.7	11.0	72.4	34.5	33.7
LnGrp LOS	E	D	C	C	A	A	E	D	B	E	C	C
Approach Vol, veh/h		691			1070			577			295	
Approach Delay, s/veh		53.1			17.9			16.3			64.7	
Approach LOS		D			B			B			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	46.7	31.7	5.9	35.7	7.5	71.0	22.3	19.3
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	4.5	5.3	4.5	5.3
Max Green Setting (Gmax), s	34.4	* 26	6.1	33.5	6.1	54.7	21.6	18.0
Max Q Clear Time (g_c+I1), s	25.4	22.5	2.7	4.6	3.8	9.7	17.5	12.6
Green Ext Time (p_c), s	0.5	1.2	0.0	0.1	0.0	2.6	0.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	32.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	690	562	487	749	0	0	0	0	495	7	270
Future Volume (vph)	0	690	562	487	749	0	0	0	0	495	7	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		46.0		36.0	82.0					38.0	38.0	
Total Split (%)		38.3%		30.0%	68.3%					31.7%	31.7%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	690	562	487	749	0	0	0	0	495	7	270
Future Volume (veh/h)	0	690	562	487	749	0	0	0	0	495	7	270
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	719	585	507	780	0				516	7	281
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	634	507	466	2271	0				485	10	421
Arrive On Green	0.00	0.45	0.45	0.52	1.00	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	1963	1496	1781	3647	0				1781	38	1544
Grp Volume(v), veh/h	0	683	621	507	780	0				516	0	288
Grp Sat Flow(s),veh/h/ln	0	1777	1588	1781	1777	0				1781	0	1582
Q Serve(g_s), s	0.0	40.7	40.7	31.4	0.0	0.0				32.7	0.0	19.4
Cycle Q Clear(g_c), s	0.0	40.7	40.7	31.4	0.0	0.0				32.7	0.0	19.4
Prop In Lane	0.00		0.94	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	603	539	466	2271	0				485	0	431
V/C Ratio(X)	0.00	1.13	1.15	1.09	0.34	0.00				1.06	0.00	0.67
Avail Cap(c_a), veh/h	0	603	539	466	2271	0				485	0	431
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.79	0.79	0.42	0.42	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	32.9	32.9	28.6	0.0	0.0				43.7	0.0	38.8
Incr Delay (d2), s/veh	0.0	75.8	85.1	54.1	0.2	0.0				58.6	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	28.2	26.6	16.5	0.1	0.0				22.2	0.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	108.7	118.0	82.7	0.2	0.0				102.3	0.0	42.0
LnGrp LOS	A	F	F	F	A	A				F	A	D
Approach Vol, veh/h		1304			1287						804	
Approach Delay, s/veh		113.1			32.7						80.7	
Approach LOS		F			C						F	

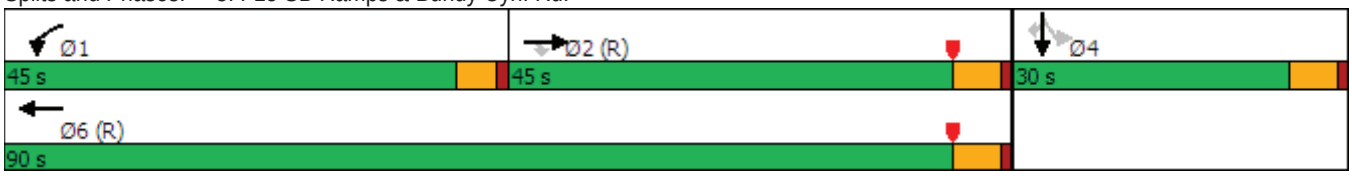
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.0	46.0		38.0		82.0						
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3						
Max Green Setting (Gmax), s	31.4	40.7		32.7		76.7						
Max Q Clear Time (g_c+I1), s	33.4	42.7		34.7		2.0						
Green Ext Time (p_c), s	0.0	0.0		0.0		3.9						

Intersection Summary			
HCM 6th Ctrl Delay		75.0	
HCM 6th LOS		E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	690	562	487	749	0	0	0	0	495	7	270
Future Volume (vph)	0	690	562	487	749	0	0	0	0	495	7	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	255		0	0		0	300		300
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)										46%		11%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Minimum Split (s)		45.0	45.0	35.0	45.0					25.0	25.0	25.0
Total Split (s)		45.0	45.0	45.0	90.0					30.0	30.0	30.0
Total Split (%)		37.5%	37.5%	37.5%	75.0%					25.0%	25.0%	25.0%
Yellow Time (s)		4.3	4.3	3.6	4.3					4.3	4.3	4.3
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		5.3	5.3	4.6	5.3					5.3	5.3	5.3
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	690	562	487	749	0	0	0	0	495	7	270
Future Volume (veh/h)	0	690	562	487	749	0	0	0	0	495	7	270
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	719	585	507	780	0				606	0	190
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1392	617	523	2571	0				670	0	296
Arrive On Green	0.00	0.52	0.52	0.59	1.00	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	3647	1575	1781	3647	0				3563	0	1572
Grp Volume(v), veh/h	0	719	585	507	780	0				606	0	190
Grp Sat Flow(s),veh/h/ln	0	1777	1575	1781	1777	0				1781	0	1572
Q Serve(g_s), s	0.0	15.9	42.2	32.7	0.0	0.0				20.0	0.0	13.4
Cycle Q Clear(g_c), s	0.0	15.9	42.2	32.7	0.0	0.0				20.0	0.0	13.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1392	617	523	2571	0				670	0	296
V/C Ratio(X)	0.00	0.52	0.95	0.97	0.30	0.00				0.90	0.00	0.64
Avail Cap(c_a), veh/h	0	1392	617	600	2571	0				733	0	324
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.67	0.67	0.76	0.76	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.3	27.6	24.3	0.0	0.0				47.6	0.0	45.0
Incr Delay (d2), s/veh	0.0	0.9	19.5	22.5	0.2	0.0				13.2	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	17.0	12.1	0.1	0.0				10.1	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.2	47.2	46.8	0.2	0.0				60.8	0.0	47.6
LnGrp LOS	A	C	D	D	A	A				E	A	D
Approach Vol, veh/h		1304			1287						796	
Approach Delay, s/veh		33.4			18.6						57.7	
Approach LOS		C			B						E	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	39.8	52.3		27.9		92.1
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3
Max Green Setting (Gmax), s	40.4	39.7		24.7		84.7
Max Q Clear Time (g_c+I1), s	34.7	44.2		22.0		2.0
Green Ext Time (p_c), s	0.5	0.0		0.6		3.9

Intersection Summary		
HCM 6th Ctrl Delay		33.5
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	949	0	0	936	535	300	0	332	0	0	0
Future Volume (vph)	237	949	0	0	936	535	300	0	332	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	25.0	89.0			64.0		31.0	31.0				
Total Split (%)	20.8%	74.2%			53.3%		25.8%	25.8%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	949	0	0	936	535	300	0	332	0	0	0
Future Volume (veh/h)	237	949	0	0	936	535	300	0	332	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	242	968	0	0	955	546	306	0	339			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	265	2479	0	0	1134	629	381	0	337			
Arrive On Green	0.30	1.00	0.00	0.00	0.52	0.52	0.21	0.00	0.21			
Sat Flow, veh/h	1781	3647	0	0	2293	1221	1781	0	1574			
Grp Volume(v), veh/h	242	968	0	0	766	735	306	0	339			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1644	1781	0	1574			
Q Serve(g_s), s	15.7	0.0	0.0	0.0	44.1	47.0	19.6	0.0	25.7			
Cycle Q Clear(g_c), s	15.7	0.0	0.0	0.0	44.1	47.0	19.6	0.0	25.7			
Prop In Lane	1.00		0.00	0.00		0.74	1.00		1.00			
Lane Grp Cap(c), veh/h	265	2479	0	0	916	847	381	0	337			
V/C Ratio(X)	0.91	0.39	0.00	0.00	0.84	0.87	0.80	0.00	1.01			
Avail Cap(c_a), veh/h	312	2479	0	0	916	847	381	0	337			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	41.4	0.0	0.0	0.0	24.8	25.5	44.7	0.0	47.2			
Incr Delay (d2), s/veh	3.5	0.0	0.0	0.0	9.0	11.6	10.8	0.0	50.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.0	0.0	0.0	0.0	19.9	20.1	9.8	0.0	14.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	0.0	0.0	0.0	33.7	37.1	55.6	0.0	97.6			
LnGrp LOS	D	A	A	A	C	D	E	A	F			
Approach Vol, veh/h		1210			1501			645				
Approach Delay, s/veh		9.0			35.4			77.7				
Approach LOS		A			D			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		89.0			21.8	67.2		31.0				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		83.7			21.0	58.7		25.7				
Max Q Clear Time (g_c+I1), s		2.0			17.7	49.0		27.7				
Green Ext Time (p_c), s		5.1			0.1	5.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			34.0									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	949	0	0	936	535	300	0	332	0	0	0
Future Volume (vph)	237	949	0	0	936	535	300	0	332	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		0	0		0	300		300	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Detector Phase	5	2			6	6	8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0	45.0	25.0	25.0				
Total Split (s)	30.0	82.0			52.0	52.0	38.0	38.0				
Total Split (%)	25.0%	68.3%			43.3%	43.3%	31.7%	31.7%				
Yellow Time (s)	3.0	4.3			4.3	4.3	4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3	5.3	5.3	5.3				
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Min			C-Min	C-Min	None	None				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 51 (43%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	949	0	0	936	535	300	0	332	0	0	0
Future Volume (veh/h)	237	949	0	0	936	535	300	0	332	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	242	968	0	0	955	546	306	0	339			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	273	2403	0	0	1739	772	420	0	371			
Arrive On Green	0.05	0.22	0.00	0.00	0.98	0.98	0.24	0.00	0.24			
Sat Flow, veh/h	1781	3647	0	0	3647	1577	1781	0	1575			
Grp Volume(v), veh/h	242	968	0	0	955	546	306	0	339			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1577	1781	0	1575			
Q Serve(g_s), s	16.2	27.9	0.0	0.0	1.5	2.9	19.0	0.0	25.2			
Cycle Q Clear(g_c), s	16.2	27.9	0.0	0.0	1.5	2.9	19.0	0.0	25.2			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	273	2403	0	0	1739	772	420	0	371			
V/C Ratio(X)	0.89	0.40	0.00	0.00	0.55	0.71	0.73	0.00	0.91			
Avail Cap(c_a), veh/h	386	2403	0	0	1739	772	485	0	429			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.73	0.73	0.00	0.00	0.75	0.75	1.00	0.00	1.00			
Uniform Delay (d), s/veh	55.9	25.9	0.0	0.0	0.7	0.7	42.3	0.0	44.7			
Incr Delay (d2), s/veh	9.8	0.4	0.0	0.0	0.9	4.1	3.6	0.0	20.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.5	13.4	0.0	0.0	0.5	1.2	8.8	0.0	11.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	26.3	0.0	0.0	1.6	4.8	45.9	0.0	65.3			
LnGrp LOS	E	C	A	A	A	A	D	A	E			
Approach Vol, veh/h		1210			1501			645				
Approach Delay, s/veh		34.2			2.8			56.1				
Approach LOS		C			A			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		86.4			22.4	64.0		33.6				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		76.7			26.0	46.7		32.7				
Max Q Clear Time (g_c+I1), s		29.9			18.2	4.9		27.2				
Green Ext Time (p_c), s		5.1			0.2	6.4		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

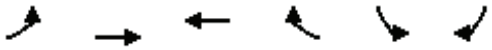
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	320	961	1142	111	105	329
Future Volume (vph)	320	961	1142	111	105	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				30	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	9.5
Total Split (s)	39.1	97.5	58.4	58.4	22.5	39.1
Total Split (%)	32.6%	81.3%	48.7%	48.7%	18.8%	32.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 5: Bundy Cyn. Rd. & Cherry St.

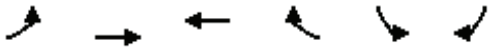




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	320	961	1142	111	105	329
Future Volume (veh/h)	320	961	1142	111	105	329
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	1012	1202	117	111	346
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	368	3957	1887	838	267	565
Arrive On Green	0.27	1.00	0.53	0.53	0.15	0.15
Sat Flow, veh/h	1781	5274	3647	1578	1781	1585
Grp Volume(v), veh/h	337	1012	1202	117	111	346
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1578	1781	1585
Q Serve(g_s), s	22.0	0.0	28.8	4.5	6.8	18.0
Cycle Q Clear(g_c), s	22.0	0.0	28.8	4.5	6.8	18.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	368	3957	1887	838	267	565
V/C Ratio(X)	0.92	0.26	0.64	0.14	0.42	0.61
Avail Cap(c_a), veh/h	514	3957	1887	838	267	565
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	19.9	14.2	46.2	31.8
Incr Delay (d2), s/veh	16.1	0.1	1.7	0.3	1.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.1	11.8	1.7	3.1	19.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.7	0.1	21.6	14.6	47.3	33.7
LnGrp LOS	E	A	C	B	D	C
Approach Vol, veh/h		1349	1319		457	
Approach Delay, s/veh		14.8	21.0		37.0	
Approach LOS		B	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		97.5		22.5	29.3	68.2
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		93.0		18.0	34.6	53.9
Max Q Clear Time (g_c+I1), s		2.0		20.0	24.0	30.8
Green Ext Time (p_c), s		9.0		0.0	0.8	9.8

Intersection Summary		
HCM 6th Ctrl Delay	20.6	
HCM 6th LOS	C	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	320	961	1142	111	105	329
Future Volume (vph)	320	961	1142	111	105	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	106.5

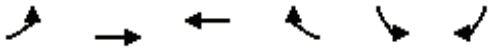
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	320	961	1142	111	105	329
Future Vol, veh/h	320	961	1142	111	105	329
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	337	1012	1202	117	111	346

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1324	0	-	0	2291	611
Stage 1	-	-	-	-	1207	-
Stage 2	-	-	-	-	1084	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	2.8
Pot Cap-1 Maneuver	518	-	-	-	~ 46	497
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	263	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	516	-	-	-	~ 16	492
Mov Cap-2 Maneuver	-	-	-	-	~ 63	-
Stage 1	-	-	-	-	~ 83	-
Stage 2	-	-	-	-	262	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	$ 710.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	516	-	-	-	186
HCM Lane V/C Ratio	0.653	-	-	-	2.456
HCM Control Delay (s)	24.1	-	-	-	-$ 710.8
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	4.7	-	-	-	38.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	320	961	1142	111	0	329
Future Volume (vph)	320	961	1142	111	0	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	320	961	1142	111	0	329
Future Vol, veh/h	320	961	1142	111	0	329
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	337	1012	1202	117	0	346

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1324	0	-	0	-	611
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	2.8
Pot Cap-1 Maneuver	518	-	-	-	0	497
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	516	-	-	-	-	492
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	27.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	516	-	-	-	492
HCM Lane V/C Ratio	0.653	-	-	-	0.704
HCM Control Delay (s)	24.1	-	-	-	27.9
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	4.7	-	-	-	5.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	833	27	27	1032	34	130	8	8	64	18	114
Future Volume (vph)	72	833	27	27	1032	34	130	8	8	64	18	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	150		285	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	60			90			90			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		377			612			347			1298	
Travel Time (s)		7.3			11.9			9.5			35.4	
Confl. Peds. (#/hr)	5					5				5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	23.3	23.3	9.5	22.5		22.5	22.5	
Total Split (s)	17.0	63.0		11.0	57.0	57.0	23.0	23.0		23.0	23.0	
Total Split (%)	14.2%	52.5%		9.2%	47.5%	47.5%	19.2%	19.2%		19.2%	19.2%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Sellers Rd. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	833	27	27	1032	34	130	8	8	64	18	114
Future Volume (veh/h)	72	833	27	27	1032	34	130	8	8	64	18	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	877	28	28	1086	36	137	8	8	67	19	120
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	2902	93	45	1926	855	165	80	80	275	34	214
Arrive On Green	0.05	0.57	0.57	0.05	1.00	1.00	0.09	0.09	0.09	0.15	0.15	0.15
Sat Flow, veh/h	1781	5082	162	1781	3554	1578	1781	858	858	1781	219	1386
Grp Volume(v), veh/h	76	587	318	28	1086	36	137	0	16	67	0	139
Grp Sat Flow(s),veh/h/ln	1781	1702	1840	1781	1777	1578	1781	0	1716	1781	0	1605
Q Serve(g_s), s	5.1	10.7	10.8	1.8	0.0	0.0	9.1	0.0	1.0	4.0	0.0	9.6
Cycle Q Clear(g_c), s	5.1	10.7	10.8	1.8	0.0	0.0	9.1	0.0	1.0	4.0	0.0	9.6
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.50	1.00		0.86
Lane Grp Cap(c), veh/h	97	1944	1051	45	1926	855	165	0	159	275	0	247
V/C Ratio(X)	0.78	0.30	0.30	0.62	0.56	0.04	0.83	0.00	0.10	0.24	0.00	0.56
Avail Cap(c_a), veh/h	186	1944	1051	96	1926	855	275	0	265	275	0	247
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.0	13.3	13.3	56.4	0.0	0.0	53.5	0.0	49.8	44.6	0.0	47.0
Incr Delay (d2), s/veh	5.2	0.4	0.7	11.6	1.0	0.1	10.0	0.0	0.3	2.1	0.0	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.1	4.5	1.0	0.3	0.0	4.6	0.0	0.5	1.9	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.2	13.7	14.1	68.0	1.0	0.1	63.5	0.0	50.1	46.7	0.0	55.9
LnGrp LOS	E	B	B	E	A	A	E	A	D	D	A	E
Approach Vol, veh/h		981			1150			153			206	
Approach Delay, s/veh		17.5			2.6			62.1			52.9	
Approach LOS		B			A			E			D	

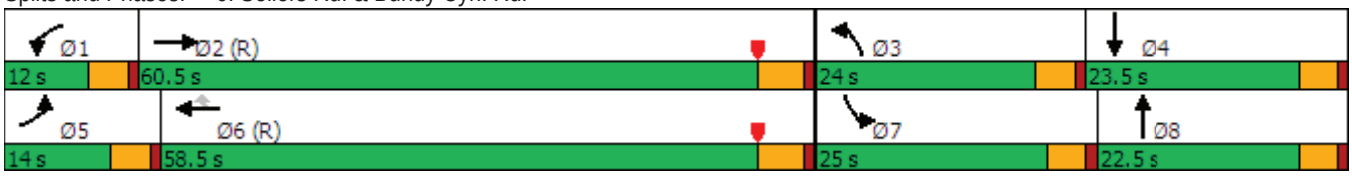
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	73.8	15.6	23.0	11.0	70.3	23.0	15.6
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5
Max Green Setting (Gmax), s	6.5	57.7	18.5	18.5	12.5	51.7	18.5	18.5
Max Q Clear Time (g_c+I1), s	3.8	12.8	11.1	11.6	7.1	2.0	6.0	3.0
Green Ext Time (p_c), s	0.0	4.2	0.2	0.3	0.0	6.1	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	745	27	40	1019	34	143	8	8	151	18	114
Future Volume (vph)	55	745	27	40	1019	34	143	8	8	151	18	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	150		285	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	60			90			90			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		377			612			347			1298	
Travel Time (s)		7.3			11.9			9.5			35.4	
Confl. Peds. (#/hr)	5					5				5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	23.3	23.3	9.5	22.5		22.5	22.5	
Total Split (s)	14.0	60.5		12.0	58.5	58.5	24.0	22.5		25.0	23.5	
Total Split (%)	11.7%	50.4%		10.0%	48.8%	48.8%	20.0%	18.8%		20.8%	19.6%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Sellers Rd. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	745	27	40	1019	34	143	8	8	151	18	114
Future Volume (veh/h)	55	745	27	40	1019	34	143	8	8	151	18	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	58	784	28	42	1073	36	151	8	8	159	19	120
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	2796	100	56	1926	855	180	76	76	304	35	219
Arrive On Green	0.04	0.55	0.55	0.06	1.00	1.00	0.10	0.09	0.09	0.17	0.16	0.16
Sat Flow, veh/h	1781	5061	180	1781	3554	1578	1781	858	858	1781	219	1386
Grp Volume(v), veh/h	58	527	285	42	1073	36	151	0	16	159	0	139
Grp Sat Flow(s),veh/h/ln	1781	1702	1837	1781	1777	1578	1781	0	1716	1781	0	1605
Q Serve(g_s), s	3.9	9.8	9.9	2.8	0.0	0.0	10.0	0.0	1.0	9.8	0.0	9.6
Cycle Q Clear(g_c), s	3.9	9.8	9.9	2.8	0.0	0.0	10.0	0.0	1.0	9.8	0.0	9.6
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.50	1.00		0.86
Lane Grp Cap(c), veh/h	75	1881	1015	56	1926	855	180	0	152	304	0	254
V/C Ratio(X)	0.78	0.28	0.28	0.75	0.56	0.04	0.84	0.00	0.11	0.52	0.00	0.55
Avail Cap(c_a), veh/h	141	1881	1015	111	1926	855	289	0	257	304	0	254
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.9	14.2	14.2	55.8	0.0	0.0	53.0	0.0	50.3	45.3	0.0	46.5
Incr Delay (d2), s/veh	6.3	0.4	0.7	16.0	1.0	0.1	11.2	0.0	0.3	6.3	0.0	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.8	4.2	1.5	0.3	0.0	5.1	0.0	0.5	4.9	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	14.6	14.9	71.8	1.0	0.1	64.2	0.0	50.6	51.6	0.0	54.7
LnGrp LOS	E	B	B	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h		870			1151			167			298	
Approach Delay, s/veh		17.9			3.6			62.9			53.1	
Approach LOS		B			A			E			D	

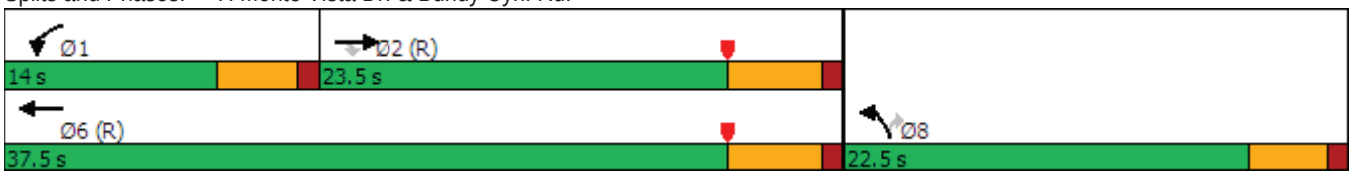
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	71.6	16.6	23.5	9.5	70.3	25.0	15.1
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5
Max Green Setting (Gmax), s	7.5	55.2	19.5	19.0	9.5	53.2	20.5	18.0
Max Q Clear Time (g_c+I1), s	4.8	11.9	12.0	11.6	5.9	2.0	11.8	3.0
Green Ext Time (p_c), s	0.0	3.6	0.2	0.3	0.0	6.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	629	276	262	937	155	129
Future Volume (vph)	629	276	262	937	155	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	23.5	23.5	14.0	37.5	22.5	22.5
Total Split (%)	39.2%	39.2%	23.3%	62.5%	37.5%	37.5%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.

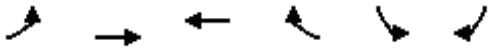




Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	629	276	262	937	155	129
Future Volume (veh/h)	629	276	262	937	155	129
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	691	303	288	1030	170	142
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1549	477	282	1907	1037	476
Arrive On Green	0.10	0.10	0.16	0.54	0.30	0.30
Sat Flow, veh/h	5274	1572	1781	3647	3456	1585
Grp Volume(v), veh/h	691	303	288	1030	170	142
Grp Sat Flow(s),veh/h/ln	1702	1572	1781	1777	1728	1585
Q Serve(g_s), s	7.6	11.1	9.5	11.3	2.2	4.1
Cycle Q Clear(g_c), s	7.6	11.1	9.5	11.3	2.2	4.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1549	477	282	1907	1037	476
V/C Ratio(X)	0.45	0.64	1.02	0.54	0.16	0.30
Avail Cap(c_a), veh/h	1549	477	282	1907	1037	476
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	23.8	25.3	9.1	15.5	16.1
Incr Delay (d2), s/veh	0.9	6.0	59.1	1.1	0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	5.2	8.2	3.5	0.7	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.1	29.8	84.4	10.2	15.8	17.8
LnGrp LOS	C	C	F	B	B	B
Approach Vol, veh/h	994			1318	312	
Approach Delay, s/veh	25.2			26.4	16.7	
Approach LOS	C			C	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.0	23.5				37.5	22.5
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	9.5	18.2				32.2	18.0
Max Q Clear Time (g_c+I1), s	11.5	13.1				13.3	6.1
Green Ext Time (p_c), s	0.0	1.9				4.6	0.4

Intersection Summary			
HCM 6th Ctrl Delay		24.8	
HCM 6th LOS		C	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	59	700	1084	8	12	115
Future Volume (vph)	59	700	1084	8	12	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

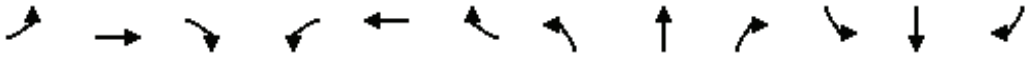
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	59	700	1084	8	12	115
Future Vol, veh/h	59	700	1084	8	12	115
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	753	1166	9	13	124

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1180	0	-	0	1608	598
Stage 1	-	-	-	-	1176	-
Stage 2	-	-	-	-	432	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	588	-	-	-	120	445
Stage 1	-	-	-	-	250	-
Stage 2	-	-	-	-	587	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	585	-	-	-	106	441
Mov Cap-2 Maneuver	-	-	-	-	182	-
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	584	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	585	-	-	-	389
HCM Lane V/C Ratio	0.108	-	-	-	0.351
HCM Control Delay (s)	11.9	-	-	-	19.2
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	2	77	2	9	67	158	221	4	37	141	297
Future Volume (vph)	238	2	77	2	9	67	158	221	4	37	141	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	54.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	238	2	77	2	9	67	158	221	4	37	141	297
Future Vol, veh/h	238	2	77	2	9	67	158	221	4	37	141	297
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	287	2	93	2	11	81	190	266	5	45	170	358
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	33.5	14	49	79.6
HCM LOS	D	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	75%	3%	8%
Vol Thru, %	58%	1%	12%	30%
Vol Right, %	1%	24%	86%	63%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	383	317	78	475
LT Vol	158	238	2	37
Through Vol	221	2	9	141
RT Vol	4	77	67	297
Lane Flow Rate	461	382	94	572
Geometry Grp	1	1	1	1
Degree of Util (X)	0.912	0.786	0.216	1.054
Departure Headway (Hd)	7.371	7.694	8.644	6.63
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	494	474	418	544
Service Time	5.371	5.694	6.644	4.718
HCM Lane V/C Ratio	0.933	0.806	0.225	1.051
HCM Control Delay	49	33.5	14	79.6
HCM Lane LOS	E	D	B	F
HCM 95th-tile Q	10.5	7	0.8	16.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	2	77	2	9	67	158	221	4	37	141	297
Future Volume (vph)	238	2	77	2	9	67	158	221	4	37	141	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	0		0	100		0	0		100
Storage Lanes	1		0	0		0	1		0	0		1
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

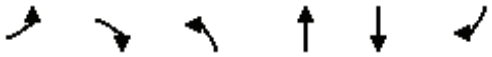
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	238	2	77	2	9	67	158	221	4	37	141	297
Future Vol, veh/h	238	2	77	2	9	67	158	221	4	37	141	297
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	287	2	93	2	11	81	190	266	5	45	170	358
Number of Lanes	1	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	21.6	13.3	17.8	18.9
HCM LOS	C	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	3%	21%	0%
Vol Thru, %	0%	98%	0%	3%	12%	79%	0%
Vol Right, %	0%	2%	0%	97%	86%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	158	225	238	79	78	178	297
LT Vol	158	0	238	0	2	37	0
Through Vol	0	221	0	2	9	141	0
RT Vol	0	4	0	77	67	0	297
Lane Flow Rate	190	271	287	95	94	214	358
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.417	0.555	0.651	0.184	0.21	0.44	0.652
Departure Headway (Hd)	7.892	7.366	8.177	6.965	8.05	7.383	6.558
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	488	442	515	445	487	551
Service Time	5.648	5.121	5.929	4.717	6.123	5.136	4.31
HCM Lane V/C Ratio	0.418	0.555	0.649	0.184	0.211	0.439	0.65
HCM Control Delay	16.2	19	25	11.3	13.3	15.8	20.8
HCM Lane LOS	C	C	C	B	B	C	C
HCM 95th-tile Q	2	3.3	4.5	0.7	0.8	2.2	4.7



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	177	187	77	99	21
Future Volume (vph)	18	177	187	77	99	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

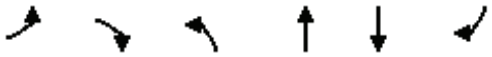
Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	177	187	77	99	21
Future Vol, veh/h	18	177	187	77	99	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	192	203	84	108	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	620	130	136	0	-	0
Stage 1	125	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	452	920	1448	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	381	911	1441	-	-	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	610	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	5.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1441	-	807	-	-
HCM Lane V/C Ratio	0.141	-	0.263	-	-
HCM Control Delay (s)	7.9	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	132	187	122	86	21
Future Volume (vph)	63	132	187	122	86	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

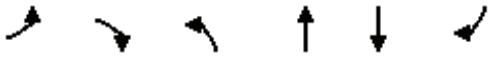
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	132	187	122	86	21
Future Vol, veh/h	63	132	187	122	86	21
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	143	203	133	93	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	654	115	121	0	-	0
Stage 1	110	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	431	937	1467	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	363	928	1460	-	-	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	4.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1460	-	617	-	-
HCM Lane V/C Ratio	0.139	-	0.344	-	-
HCM Control Delay (s)	7.9	0	13.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.5	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	175	187	245	258	18
Future Volume (vph)	19	175	187	245	258	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

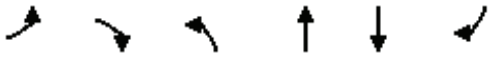
Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	175	187	245	258	18
Future Vol, veh/h	19	175	187	245	258	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	190	203	266	280	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	972	300	305	0	-	0
Stage 1	295	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	280	740	1256	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	232	733	1250	-	-	-
Mov Cap-2 Maneuver	232	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	502	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	3.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1250	-	605	-	-
HCM Lane V/C Ratio	0.163	-	0.349	-	-
HCM Control Delay (s)	8.4	-	14.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	1.6	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	130	187	245	200	18
Future Volume (vph)	64	130	187	245	200	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

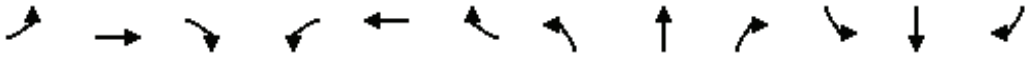
Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	64	130	187	245	200	18
Future Vol, veh/h	64	130	187	245	200	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	141	203	266	217	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	909	237	242	0	-	0
Stage 1	232	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	305	802	1324	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	256	794	1318	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	502	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.8	3.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1318	-	469	-	-
HCM Lane V/C Ratio	0.154	-	0.45	-	-
HCM Control Delay (s)	8.2	-	18.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	89	77	25	92	3	58	3	4	4	4	3
Future Volume (vph)	1	89	77	25	92	3	58	3	4	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

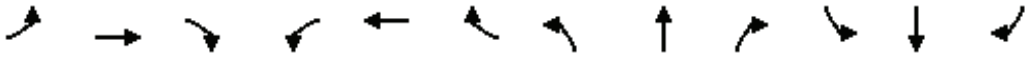
Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	89	77	25	92	3	58	3	4	4	4	3
Future Vol, veh/h	1	89	77	25	92	3	58	3	4	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	103	90	29	107	3	67	3	5	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	193	0	0	321	318	148	321	362	109
Stage 1	-	-	-	-	-	-	150	150	-	167	167	-
Stage 2	-	-	-	-	-	-	171	168	-	154	195	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1380	-	-	632	598	899	632	565	945
Stage 1	-	-	-	-	-	-	853	773	-	835	760	-
Stage 2	-	-	-	-	-	-	831	759	-	848	739	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1480	-	-	1380	-	-	615	584	899	615	552	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	615	584	-	615	552	-
Stage 1	-	-	-	-	-	-	852	772	-	834	743	-
Stage 2	-	-	-	-	-	-	805	742	-	839	738	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	11.5	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	626	1480	-	-	1380	-	-	650
HCM Lane V/C Ratio	0.121	0.001	-	-	0.021	-	-	0.02
HCM Control Delay (s)	11.5	7.4	0	-	7.7	0	-	10.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	89	77	25	92	3	58	3	71	4	4	3
Future Volume (vph)	1	89	77	25	92	3	58	3	71	4	4	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

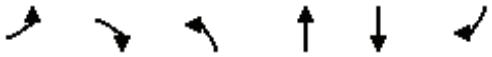
Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	89	77	25	92	3	58	3	71	4	4	3
Future Vol, veh/h	1	89	77	25	92	3	58	3	71	4	4	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	103	90	29	107	3	67	3	83	5	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	193	0	0	321	318	148	360	362	109
Stage 1	-	-	-	-	-	-	150	150	-	167	167	-
Stage 2	-	-	-	-	-	-	171	168	-	193	195	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1380	-	-	632	598	899	596	565	945
Stage 1	-	-	-	-	-	-	853	773	-	835	760	-
Stage 2	-	-	-	-	-	-	831	759	-	809	739	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1480	-	-	1380	-	-	615	584	899	529	552	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	615	584	-	529	552	-
Stage 1	-	-	-	-	-	-	852	772	-	834	743	-
Stage 2	-	-	-	-	-	-	805	742	-	731	738	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	11.1	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	740	1480	-	-	1380	-	-	612
HCM Lane V/C Ratio	0.207	0.001	-	-	0.021	-	-	0.021
HCM Control Delay (s)	11.1	7.4	0	-	7.7	0	-	11
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	75	73	42	73	19
Future Volume (vph)	20	75	73	42	73	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

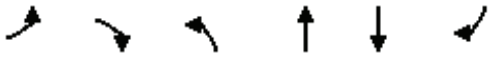
Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	75	73	42	73	19
Future Vol, veh/h	20	75	73	42	73	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	88	86	49	86	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	318	97	108	0	-	0
Stage 1	97	-	-	-	-	-
Stage 2	221	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	675	959	1483	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	635	959	1483	-	-	-
Mov Cap-2 Maneuver	635	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	816	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	4.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1483	-	866	-	-
HCM Lane V/C Ratio	0.058	-	0.129	-	-
HCM Control Delay (s)	7.6	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	125	73	25	73	19
Future Volume (vph)	37	125	73	25	73	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

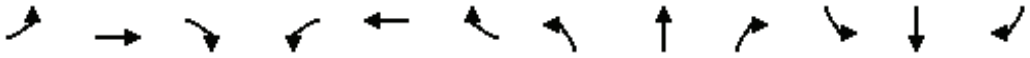
Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	125	73	25	73	19
Future Vol, veh/h	37	125	73	25	73	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	147	86	29	86	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	298	97	108	0	-	0
Stage 1	97	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	693	959	1483	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	652	959	1483	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	833	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	5.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1483	-	866	-	-
HCM Lane V/C Ratio	0.058	-	0.22	-	-
HCM Control Delay (s)	7.6	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	37	107	34	87	1	130	10	22	1	21	19
Future Volume (vph)	12	37	107	34	87	1	130	10	22	1	21	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

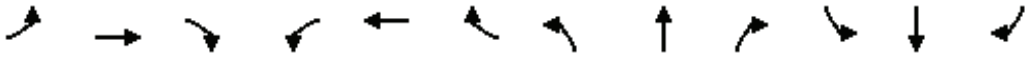
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	37	107	34	87	1	130	10	22	1	21	19
Future Vol, veh/h	12	37	107	34	87	1	130	10	22	1	21	19
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	44	126	40	102	1	153	12	26	1	25	22
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.8	9.7	9.6	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	80%	8%	28%	0%	2%
Vol Thru, %	6%	24%	72%	0%	51%
Vol Right, %	14%	69%	0%	100%	46%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	162	156	121	1	41
LT Vol	130	12	34	0	1
Through Vol	10	37	87	0	21
RT Vol	22	107	0	1	19
Lane Flow Rate	191	184	142	1	48
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.257	0.226	0.215	0.001	0.063
Departure Headway (Hd)	4.859	4.424	5.425	4.578	4.701
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	738	809	661	779	757
Service Time	2.905	2.467	3.171	2.324	2.76
HCM Lane V/C Ratio	0.259	0.227	0.215	0.001	0.063
HCM Control Delay	9.6	8.8	9.7	7.3	8.1
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	1	0.9	0.8	0	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	103	91	155	136	1	89	21	159	1	23	1
Future Volume (vph)	1	103	91	155	136	1	89	21	159	1	23	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

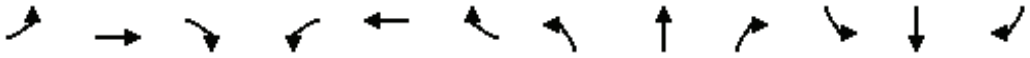
Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	103	91	155	136	1	89	21	159	1	23	1
Future Vol, veh/h	1	103	91	155	136	1	89	21	159	1	23	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	112	99	168	148	1	97	23	173	1	25	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	149	0	0	211	0	0	612	599	112	747	698	149
Stage 1	-	-	-	-	-	-	114	114	-	485	485	-
Stage 2	-	-	-	-	-	-	498	485	-	262	213	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1432	-	-	1360	-	-	405	415	941	329	364	898
Stage 1	-	-	-	-	-	-	891	801	-	563	552	-
Stage 2	-	-	-	-	-	-	554	552	-	743	726	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1432	-	-	1360	-	-	341	359	941	229	314	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	359	-	229	314	-
Stage 1	-	-	-	-	-	-	890	800	-	562	477	-
Stage 2	-	-	-	-	-	-	454	477	-	589	725	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	4.3	18.7	17.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	551	1432	-	-	1360	-	-	318
HCM Lane V/C Ratio	0.531	0.001	-	-	0.124	-	-	0.085
HCM Control Delay (s)	18.7	7.5	0	-	8	0	-	17.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	3.1	0	-	-	0.4	-	-	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	76	15	8	61	129	18	111	6	115	170	3
Future Volume (vph)	11	76	15	8	61	129	18	111	6	115	170	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

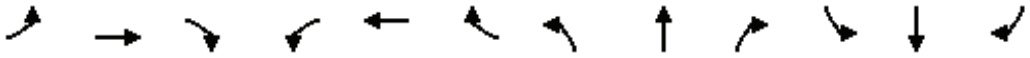
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	76	15	8	61	129	18	111	6	115	170	3
Future Vol, veh/h	11	76	15	8	61	129	18	111	6	115	170	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	82	16	9	66	139	19	119	6	124	183	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.5	10	9.7	12
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	11%	4%	40%
Vol Thru, %	82%	75%	31%	59%
Vol Right, %	4%	15%	65%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	135	102	198	288
LT Vol	18	11	8	115
Through Vol	111	76	61	170
RT Vol	6	15	129	3
Lane Flow Rate	145	110	213	310
Geometry Grp	1	1	1	1
Degree of Util (X)	0.211	0.164	0.292	0.437
Departure Headway (Hd)	5.239	5.394	4.935	5.085
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	685	666	730	712
Service Time	3.266	3.425	2.95	3.097
HCM Lane V/C Ratio	0.212	0.165	0.292	0.435
HCM Control Delay	9.7	9.5	10	12
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.8	0.6	1.2	2.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	542	7	6	637	88	10	6	16	87	1	27
Future Volume (vph)	17	542	7	6	637	88	10	6	16	87	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		50	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		289			1348			206			1314	
Travel Time (s)		5.6			26.3			5.6			35.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	542	7	6	637	88	10	6	16	87	1	27
Future Vol, veh/h	17	542	7	6	637	88	10	6	16	87	1	27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	602	8	7	708	98	11	7	18	97	1	30
Number of Lanes	0	2	1	0	2	1	0	1	0	0	1	0

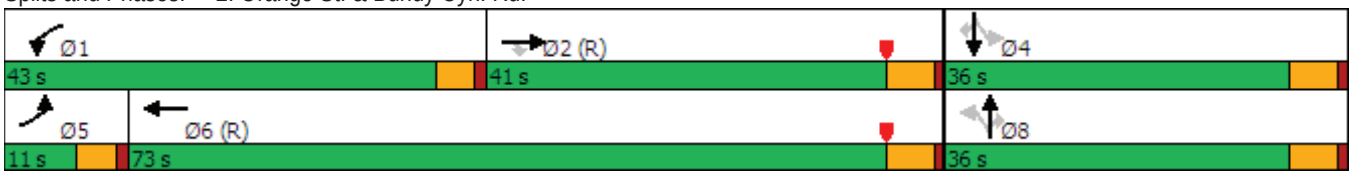
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	18.7	21.3	11.2	13.7
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	31%	9%	0%	0%	3%	0%	0%	76%
Vol Thru, %	19%	91%	100%	0%	97%	100%	0%	1%
Vol Right, %	50%	0%	0%	100%	0%	0%	100%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	198	361	7	218	425	88	115
LT Vol	10	17	0	0	6	0	0	87
Through Vol	6	181	361	0	212	425	0	1
RT Vol	16	0	0	7	0	0	88	27
Lane Flow Rate	36	220	401	8	243	472	98	128
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.077	0.383	0.695	0.012	0.408	0.793	0.145	0.279
Departure Headway (Hd)	7.797	6.279	6.235	5.525	6.061	6.047	5.337	7.864
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	457	571	578	644	592	595	669	455
Service Time	5.591	4.043	3.999	3.289	3.82	3.806	3.096	5.644
HCM Lane V/C Ratio	0.079	0.385	0.694	0.012	0.41	0.793	0.146	0.281
HCM Control Delay	11.2	12.9	22.1	8.4	13	28.2	9	13.7
HCM Lane LOS	B	B	C	A	B	D	A	B
HCM 95th-tile Q	0.2	1.8	5.5	0	2	7.7	0.5	1.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	600	25	317	713	174	16	42	311	142	31	20
Future Volume (vph)	23	600	25	317	713	174	16	42	311	142	31	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	0		100	0		100
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		23.3	23.3	23.3	23.3	23.3	23.3
Total Split (s)	11.0	41.0	41.0	43.0	73.0		36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	9.2%	34.2%	34.2%	35.8%	60.8%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		4.3	4.3	4.3	4.3	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3			5.3	5.3		5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	C-Max	C-Max	None	C-Max		Min	Min	Min	Min	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	600	25	317	713	174	16	42	311	142	31	20
Future Volume (veh/h)	23	600	25	317	713	174	16	42	311	142	31	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	612	26	323	728	178	16	43	317	145	32	20
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	1507	668	346	1686	412	38	83	403	55	0	403
Arrive On Green	0.02	0.42	0.42	0.39	1.00	1.00	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1781	3554	1576	1781	2828	691	0	325	1576	0	0	1576
Grp Volume(v), veh/h	23	612	26	323	457	449	59	0	317	177	0	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1576	1781	1777	1742	325	0	1576	0	0	1576
Q Serve(g_s), s	1.5	14.4	1.2	20.9	0.0	0.0	0.0	0.0	22.5	0.0	0.0	1.1
Cycle Q Clear(g_c), s	1.5	14.4	1.2	20.9	0.0	0.0	30.7	0.0	22.5	30.7	0.0	1.1
Prop In Lane	1.00		1.00	1.00		0.40	0.27		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	40	1507	668	346	1059	1039	121	0	403	55	0	403
V/C Ratio(X)	0.58	0.41	0.04	0.93	0.43	0.43	0.49	0.00	0.79	3.24	0.00	0.05
Avail Cap(c_a), veh/h	96	1507	668	571	1059	1039	121	0	403	55	0	403
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.85	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.1	24.0	20.2	36.0	0.0	0.0	37.0	0.0	41.6	60.0	0.0	33.7
Incr Delay (d2), s/veh	4.9	0.8	0.1	9.5	1.1	1.1	1.1	0.0	9.1	1053.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.1	0.4	8.1	0.3	0.3	1.4	0.0	9.6	17.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	24.8	20.3	45.5	1.1	1.1	38.1	0.0	50.7	1113.6	0.0	33.7
LnGrp LOS	E	C	C	D	A	A	D	A	D	F	A	C
Approach Vol, veh/h		661			1229			376			197	
Approach Delay, s/veh		26.0			12.8			48.7			1004.0	
Approach LOS		C			B			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.8	56.2		36.0	7.2	76.8		36.0				
Change Period (Y+Rc), s	4.5	5.3		5.3	4.5	5.3		5.3				
Max Green Setting (Gmax), s	38.5	35.7		30.7	6.5	67.7		30.7				
Max Q Clear Time (g_c+I1), s	22.9	16.4		32.7	3.5	2.0		32.7				
Green Ext Time (p_c), s	0.4	2.6		0.0	0.0	4.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		101.1	
HCM 6th LOS		F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	600	25	317	713	174	16	42	311	142	31	20
Future Volume (vph)	23	600	25	317	713	174	16	42	311	142	31	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		50	200		0	100		100	100		100
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	120			60			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1348			443			1323			557	
Travel Time (s)		26.3			8.6			25.8			10.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2						8			4
Detector Phase	5	2	2	1	6		3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.3	23.3	9.5	23.3		9.5	23.3	9.5	9.5	23.3	23.3
Total Split (s)	10.3	36.1	36.1	38.1	63.9		9.8	23.3	38.1	22.5	36.0	36.0
Total Split (%)	8.6%	30.1%	30.1%	31.8%	53.3%		8.2%	19.4%	31.8%	18.8%	30.0%	30.0%
Yellow Time (s)	3.5	4.3	4.3	3.5	4.3		3.5	4.3	3.5	3.5	4.3	4.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.3	5.3	4.5	5.3		4.5	5.3	4.5	4.5	5.3	5.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Min	None	None	Min	Min

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Orange St. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	600	25	317	713	174	16	42	311	142	31	20
Future Volume (veh/h)	23	600	25	317	713	174	16	42	311	142	31	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	612	26	323	728	178	16	43	317	145	32	20
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	1405	623	345	1603	392	31	281	543	173	430	362
Arrive On Green	0.02	0.40	0.40	0.39	1.00	1.00	0.02	0.15	0.15	0.10	0.23	0.23
Sat Flow, veh/h	1781	3554	1575	1781	2828	691	1781	1870	1569	1781	1870	1575
Grp Volume(v), veh/h	23	612	26	323	457	449	16	43	317	145	32	20
Grp Sat Flow(s),veh/h/ln	1781	1777	1575	1781	1777	1742	1781	1870	1569	1781	1870	1575
Q Serve(g_s), s	1.5	15.1	1.2	20.9	0.0	0.0	1.1	2.4	18.0	9.6	1.6	1.2
Cycle Q Clear(g_c), s	1.5	15.1	1.2	20.9	0.0	0.0	1.1	2.4	18.0	9.6	1.6	1.2
Prop In Lane	1.00		1.00	1.00		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	40	1405	623	345	1007	988	31	281	543	173	430	362
V/C Ratio(X)	0.58	0.44	0.04	0.94	0.45	0.45	0.52	0.15	0.58	0.84	0.07	0.06
Avail Cap(c_a), veh/h	86	1405	623	499	1007	988	79	281	543	267	479	403
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	26.5	22.3	36.0	0.0	0.0	58.5	44.4	32.4	53.2	36.2	36.0
Incr Delay (d2), s/veh	4.9	1.0	0.1	15.1	1.3	1.3	13.0	0.1	1.1	12.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.5	0.5	8.6	0.4	0.4	0.6	1.1	7.6	4.9	0.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	27.5	22.4	51.2	1.3	1.3	71.5	44.5	33.5	66.0	36.2	36.0
LnGrp LOS	E	C	C	D	A	A	E	D	C	E	D	D
Approach Vol, veh/h		661			1229			376			197	
Approach Delay, s/veh		28.5			14.4			36.3			58.1	
Approach LOS		C			B			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.8	52.8	6.6	32.9	7.2	73.3	16.2	23.3
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	4.5	5.3	4.5	5.3
Max Green Setting (Gmax), s	33.6	30.8	5.3	30.7	5.8	58.6	18.0	18.0
Max Q Clear Time (g_c+I1), s	22.9	17.1	3.1	3.6	3.5	2.0	11.6	20.0
Green Ext Time (p_c), s	0.4	2.4	0.0	0.1	0.0	4.0	0.2	0.0

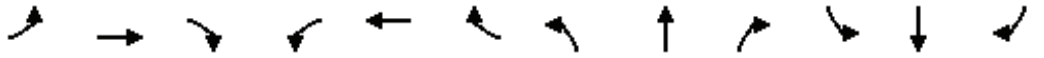
Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	738	313	357	1037	0	0	0	0	676	2	224
Future Volume (vph)	0	738	313	357	1037	0	0	0	0	676	2	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	250		0	0		0	300		0
Storage Lanes	0		0	1		0	0		0	1		0
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)												
Turn Type		NA		Prot	NA					Perm	NA	
Protected Phases		2		1	6						4	
Permitted Phases										4		
Detector Phase		2		1	6					4	4	
Switch Phase												
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	
Minimum Split (s)		45.0		35.0	45.0					25.0	25.0	
Total Split (s)		45.0		35.0	80.0					40.0	40.0	
Total Split (%)		37.5%		29.2%	66.7%					33.3%	33.3%	
Yellow Time (s)		4.3		3.6	4.3					4.3	4.3	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	
Total Lost Time (s)		5.3		4.6	5.3					5.3	5.3	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Min		None	C-Min					None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	738	313	357	1037	0	0	0	0	676	2	224
Future Volume (veh/h)	0	738	313	357	1037	0	0	0	0	676	2	224
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	785	333	380	1103	0				719	2	238
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	874	370	399	2212	0				515	4	453
Arrive On Green	0.00	0.36	0.36	0.45	1.00	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	2520	1028	1781	3647	0				1781	13	1566
Grp Volume(v), veh/h	0	575	543	380	1103	0				719	0	240
Grp Sat Flow(s),veh/h/ln	0	1777	1677	1781	1777	0				1781	0	1579
Q Serve(g_s), s	0.0	36.7	36.8	24.6	0.0	0.0				34.7	0.0	15.3
Cycle Q Clear(g_c), s	0.0	36.7	36.8	24.6	0.0	0.0				34.7	0.0	15.3
Prop In Lane	0.00		0.61	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	640	604	399	2212	0				515	0	457
V/C Ratio(X)	0.00	0.90	0.90	0.95	0.50	0.00				1.40	0.00	0.53
Avail Cap(c_a), veh/h	0	640	604	451	2212	0				515	0	457
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.90	0.90	0.24	0.24	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	36.3	36.4	32.5	0.0	0.0				42.6	0.0	35.8
Incr Delay (d2), s/veh	0.0	16.4	17.4	10.3	0.2	0.0				189.7	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	18.4	17.6	9.2	0.1	0.0				42.2	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	52.7	53.8	42.8	0.2	0.0				232.4	0.0	36.3
LnGrp LOS	A	D	D	D	A	A				F	A	D
Approach Vol, veh/h		1118			1483						959	
Approach Delay, s/veh		53.2			11.1						183.3	
Approach LOS		D			B						F	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	31.5	48.5		40.0		80.0
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3
Max Green Setting (Gmax), s	30.4	39.7		34.7		74.7
Max Q Clear Time (g_c+I1), s	26.6	38.8		36.7		2.0
Green Ext Time (p_c), s	0.3	0.5		0.0		6.2

Intersection Summary			
HCM 6th Ctrl Delay		70.7	
HCM 6th LOS		E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	738	313	357	1037	0	0	0	0	676	2	224
Future Volume (vph)	0	738	313	357	1037	0	0	0	0	676	2	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	255		0	0		0	300		300
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	90			90			90			140		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		443			611			779			793	
Travel Time (s)		8.6			11.9			17.7			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)										48%		10%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Minimum Split (s)		45.0	45.0	35.0	45.0					25.0	25.0	25.0
Total Split (s)		45.0	45.0	36.0	81.0					39.0	39.0	39.0
Total Split (%)		37.5%	37.5%	30.0%	67.5%					32.5%	32.5%	32.5%
Yellow Time (s)		4.3	4.3	3.6	4.3					4.3	4.3	4.3
All-Red Time (s)		1.0	1.0	1.0	1.0					1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		5.3	5.3	4.6	5.3					5.3	5.3	5.3
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Min	C-Min	None	C-Min					None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: I-15 SB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	738	313	357	1037	0	0	0	0	676	2	224
Future Volume (veh/h)	0	738	313	357	1037	0	0	0	0	676	2	224
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	785	333	380	1103	0				794	0	159
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1439	638	400	2373	0				869	0	384
Arrive On Green	0.00	0.81	0.81	0.45	1.00	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	3647	1575	1781	3647	0				3563	0	1575
Grp Volume(v), veh/h	0	785	333	380	1103	0				794	0	159
Grp Sat Flow(s),veh/h/ln	0	1777	1575	1781	1777	0				1781	0	1575
Q Serve(g_s), s	0.0	9.0	8.3	24.6	0.0	0.0				26.0	0.0	10.2
Cycle Q Clear(g_c), s	0.0	9.0	8.3	24.6	0.0	0.0				26.0	0.0	10.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1439	638	400	2373	0				869	0	384
V/C Ratio(X)	0.00	0.55	0.52	0.95	0.46	0.00				0.91	0.00	0.41
Avail Cap(c_a), veh/h	0	1439	638	466	2373	0				1000	0	442
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.86	0.86	0.63	0.63	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.6	7.6	32.5	0.0	0.0				44.1	0.0	38.1
Incr Delay (d2), s/veh	0.0	1.3	2.6	19.4	0.4	0.0				10.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	2.4	10.2	0.1	0.0				12.7	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.9	10.2	51.8	0.4	0.0				54.8	0.0	38.4
LnGrp LOS	A	A	B	D	A	A				D	A	D
Approach Vol, veh/h		1118			1483						953	
Approach Delay, s/veh		9.3			13.6						52.0	
Approach LOS		A			B						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.5	53.9		34.6		85.4						
Change Period (Y+Rc), s	4.6	5.3		5.3		5.3						
Max Green Setting (Gmax), s	31.4	39.7		33.7		75.7						
Max Q Clear Time (g_c+I1), s	26.6	11.0		28.0		2.0						
Green Ext Time (p_c), s	0.3	4.4		1.3		6.2						

Intersection Summary												
HCM 6th Ctrl Delay			22.5									
HCM 6th LOS			C									

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	1259	0	0	917	469	477	3	554	0	0	0
Future Volume (vph)	154	1259	0	0	917	469	477	3	554	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	0		0	300		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0		5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0		25.0	25.0				
Total Split (s)	25.0	77.0			52.0		43.0	43.0				
Total Split (%)	20.8%	64.2%			43.3%		35.8%	35.8%				
Yellow Time (s)	3.0	4.3			4.3		4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3		5.3	5.3				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Min			C-Min		None	None				

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	1259	0	0	917	469	477	3	554	0	0	0
Future Volume (veh/h)	154	1259	0	0	917	469	477	3	554	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	159	1298	0	0	945	484	492	3	571			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	184	2123	0	0	1053	529	560	3	493			
Arrive On Green	0.21	1.00	0.00	0.00	0.46	0.46	0.31	0.31	0.31			
Sat Flow, veh/h	1781	3647	0	0	2379	1148	1781	8	1571			
Grp Volume(v), veh/h	159	1298	0	0	730	699	492	0	574			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1656	1781	0	1579			
Q Serve(g_s), s	10.3	0.0	0.0	0.0	45.2	47.2	31.4	0.0	37.7			
Cycle Q Clear(g_c), s	10.3	0.0	0.0	0.0	45.2	47.2	31.4	0.0	37.7			
Prop In Lane	1.00		0.00	0.00		0.69	1.00		0.99			
Lane Grp Cap(c), veh/h	184	2123	0	0	819	763	560	0	496			
V/C Ratio(X)	0.86	0.61	0.00	0.00	0.89	0.92	0.88	0.00	1.16			
Avail Cap(c_a), veh/h	312	2123	0	0	819	763	560	0	496			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	46.8	0.0	0.0	0.0	29.6	30.2	39.0	0.0	41.2			
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.0	14.1	17.5	14.4	0.0	91.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.1	0.0	0.0	0.0	21.7	21.7	15.8	0.0	27.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	0.1	0.0	0.0	43.7	47.6	53.4	0.0	132.6			
LnGrp LOS	D	A	A	A	D	D	D	A	F			
Approach Vol, veh/h		1457			1429			1066				
Approach Delay, s/veh		5.3			45.6			96.0				
Approach LOS		A			D			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.0			16.4	60.6		43.0				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		71.7			21.0	46.7		37.7				
Max Q Clear Time (g_c+I1), s		2.0			12.3	49.2		39.7				
Green Ext Time (p_c), s		8.0			0.1	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.3									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	1259	0	0	917	469	477	3	554	0	0	0
Future Volume (vph)	154	1259	0	0	917	469	477	3	554	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		0	0		0	300		0	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	90			90			90			90		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		611			271			602			698	
Travel Time (s)		11.9			5.3			13.7			15.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)												
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Detector Phase	5	2			6	6	8	8				
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0	5.0				
Minimum Split (s)	25.0	45.0			45.0	45.0	25.0	25.0				
Total Split (s)	25.0	70.0			45.0	45.0	50.0	50.0				
Total Split (%)	20.8%	58.3%			37.5%	37.5%	41.7%	41.7%				
Yellow Time (s)	3.0	4.3			4.3	4.3	4.3	4.3				
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Total Lost Time (s)	4.0	5.3			5.3	5.3	5.3	5.3				
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Min			C-Min	C-Min	None	None				

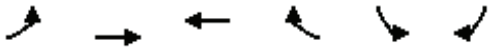
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-15 NB Ramps & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	1259	0	0	917	469	477	3	554	0	0	0
Future Volume (veh/h)	154	1259	0	0	917	469	477	3	554	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	159	1298	0	0	945	484	492	3	571			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	184	1916	0	0	1430	634	664	3	585			
Arrive On Green	0.21	1.00	0.00	0.00	0.13	0.13	0.37	0.37	0.37			
Sat Flow, veh/h	1781	3647	0	0	3647	1575	1781	8	1572			
Grp Volume(v), veh/h	159	1298	0	0	945	484	492	0	574			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1575	1781	0	1580			
Q Serve(g_s), s	10.3	0.0	0.0	0.0	30.3	35.6	28.7	0.0	43.0			
Cycle Q Clear(g_c), s	10.3	0.0	0.0	0.0	30.3	35.6	28.7	0.0	43.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.99			
Lane Grp Cap(c), veh/h	184	1916	0	0	1430	634	664	0	589			
V/C Ratio(X)	0.86	0.68	0.00	0.00	0.66	0.76	0.74	0.00	0.98			
Avail Cap(c_a), veh/h	312	1916	0	0	1430	634	664	0	589			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.68	0.68	0.00	0.00	0.80	0.80	1.00	0.00	1.00			
Uniform Delay (d), s/veh	46.8	0.0	0.0	0.0	44.2	46.5	32.6	0.0	37.1			
Incr Delay (d2), s/veh	3.9	1.3	0.0	0.0	1.9	6.9	3.9	0.0	30.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.3	0.4	0.0	0.0	14.8	16.2	13.0	0.0	21.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	1.3	0.0	0.0	46.2	53.4	36.6	0.0	67.8			
LnGrp LOS	D	A	A	A	D	D	D	A	E			
Approach Vol, veh/h		1457			1429			1066				
Approach Delay, s/veh		6.7			48.6			53.4				
Approach LOS		A			D			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.0			16.4	53.6		50.0				
Change Period (Y+Rc), s		5.3			4.0	5.3		5.3				
Max Green Setting (Gmax), s		64.7			21.0	39.7		44.7				
Max Q Clear Time (g_c+I1), s		2.0			12.3	37.6		45.0				
Green Ext Time (p_c), s		8.0			0.1	1.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			34.5									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	322	1491	1094	125	97	294
Future Volume (vph)	322	1491	1094	125	97	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	66.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	322	1491	1094	125	97	294
Future Vol, veh/h	322	1491	1094	125	97	294
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	332	1537	1128	129	100	303

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1262	0	-	0	2417	574
Stage 1	-	-	-	-	1133	-
Stage 2	-	-	-	-	1284	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	547	-	-	-	~ 39	462
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	204	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	544	-	-	-	~ 15	458
Mov Cap-2 Maneuver	-	-	-	-	~ 68	-
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	203	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	$ 567.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	544	-	-	-	189
HCM Lane V/C Ratio	0.61	-	-	-	2.133
HCM Control Delay (s)	21.4	-	-	-	$ 567.4
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	4.1	-	-	-	31.6

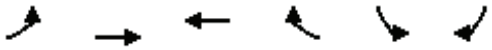
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	322	1491	1094	125	97	294
Future Volume (vph)	322	1491	1094	125	97	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	100	0
Storage Lanes	1			0	1	1
Taper Length (ft)	50				30	
Right Turn on Red				Yes		Yes
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Turn Type	Prot	NA	NA	Perm	Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	9.5
Total Split (s)	40.0	97.0	57.0	57.0	23.0	40.0
Total Split (%)	33.3%	80.8%	47.5%	47.5%	19.2%	33.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		Lead
Lead-Lag Optimize?	Yes		Yes	Yes		Yes
Recall Mode	None	C-Max	C-Max	C-Max	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Bundy Cyn. Rd. & Cherry St.

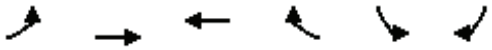




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	322	1491	1094	125	97	294
Future Volume (veh/h)	322	1491	1094	125	97	294
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	332	1537	1128	129	100	303
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	358	3936	1892	840	275	563
Arrive On Green	0.40	1.00	0.53	0.53	0.15	0.15
Sat Flow, veh/h	1781	5274	3647	1578	1781	1585
Grp Volume(v), veh/h	332	1537	1128	129	100	303
Grp Sat Flow(s),veh/h/ln	1781	1702	1777	1578	1781	1585
Q Serve(g_s), s	21.3	0.0	26.1	5.0	6.0	18.3
Cycle Q Clear(g_c), s	21.3	0.0	26.1	5.0	6.0	18.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	358	3936	1892	840	275	563
V/C Ratio(X)	0.93	0.39	0.60	0.15	0.36	0.54
Avail Cap(c_a), veh/h	527	3936	1892	840	275	563
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	19.2	14.3	45.5	30.8
Incr Delay (d2), s/veh	13.1	0.2	1.4	0.4	0.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.1	10.7	1.8	2.7	16.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.1	0.2	20.6	14.7	46.3	31.9
LnGrp LOS	D	A	C	B	D	C
Approach Vol, veh/h		1869	1257		403	
Approach Delay, s/veh		8.7	20.0		35.4	
Approach LOS		A	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		97.0		23.0	28.6	68.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		92.5		18.5	35.5	52.5
Max Q Clear Time (g_c+I1), s		2.0		20.3	23.3	28.1
Green Ext Time (p_c), s		18.2		0.0	0.8	9.4

Intersection Summary						
HCM 6th Ctrl Delay			15.8			
HCM 6th LOS			B			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	322	1491	1094	125	0	294
Future Volume (vph)	322	1491	1094	125	0	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100	0	0
Storage Lanes	1			0	0	1
Taper Length (ft)	50				90	
Link Speed (mph)		35	35		30	
Link Distance (ft)		271	254		299	
Travel Time (s)		5.3	4.9		6.8	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	322	1491	1094	125	0	294
Future Vol, veh/h	322	1491	1094	125	0	294
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	332	1537	1128	129	0	303

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1262	0	-	0	-	574
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	547	-	-	-	0	462
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	544	-	-	-	-	458
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	26.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	544	-	-	-	458
HCM Lane V/C Ratio	0.61	-	-	-	0.662
HCM Control Delay (s)	21.4	-	-	-	26.9
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	4.1	-	-	-	4.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	1390	26	26	959	65	130	8	8	54	17	77
Future Volume (vph)	142	1390	26	26	959	65	130	8	8	54	17	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	150		285	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	60			90			90			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		377			612			347			1298	
Travel Time (s)		7.3			11.9			9.5			35.4	
Confl. Peds. (#/hr)	5					5				5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	23.3	23.3	9.5	22.5		22.5	22.5	
Total Split (s)	23.0	64.4		10.6	52.0	52.0	22.0	22.5		22.5	23.0	
Total Split (%)	19.2%	53.7%		8.8%	43.3%	43.3%	18.3%	18.8%		18.8%	19.2%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Sellers Rd. & Bundy Cyn. Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	1390	26	26	959	65	130	8	8	54	17	77
Future Volume (veh/h)	142	1390	26	26	959	65	130	8	8	54	17	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	1463	27	27	1009	68	137	8	8	57	18	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	2951	54	44	1768	784	165	83	83	267	45	204
Arrive On Green	0.10	0.57	0.57	0.05	0.99	0.99	0.09	0.10	0.10	0.15	0.15	0.15
Sat Flow, veh/h	1781	5162	95	1781	3554	1577	1781	858	858	1781	294	1323
Grp Volume(v), veh/h	149	965	525	27	1009	68	137	0	16	57	0	99
Grp Sat Flow(s),veh/h/ln	1781	1702	1853	1781	1777	1577	1781	0	1716	1781	0	1617
Q Serve(g_s), s	9.9	20.3	20.3	1.8	0.4	0.0	9.1	0.0	1.0	3.4	0.0	6.6
Cycle Q Clear(g_c), s	9.9	20.3	20.3	1.8	0.4	0.0	9.1	0.0	1.0	3.4	0.0	6.6
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.50	1.00		0.82
Lane Grp Cap(c), veh/h	176	1946	1059	44	1768	784	165	0	166	267	0	249
V/C Ratio(X)	0.84	0.50	0.50	0.61	0.57	0.09	0.83	0.00	0.10	0.21	0.00	0.40
Avail Cap(c_a), veh/h	275	1946	1059	91	1768	784	260	0	257	267	0	249
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.2	15.4	15.4	56.5	0.2	0.2	53.5	0.0	49.4	44.8	0.0	45.7
Incr Delay (d2), s/veh	7.9	0.9	1.7	12.0	1.2	0.2	11.9	0.0	0.2	1.8	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	7.8	8.7	0.9	0.4	0.1	4.6	0.0	0.5	1.6	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	16.3	17.0	68.5	1.4	0.4	65.4	0.0	49.6	46.6	0.0	50.4
LnGrp LOS	E	B	B	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h		1639			1104			153			156	
Approach Delay, s/veh		20.6			3.0			63.8			49.0	
Approach LOS		C			A			E			D	

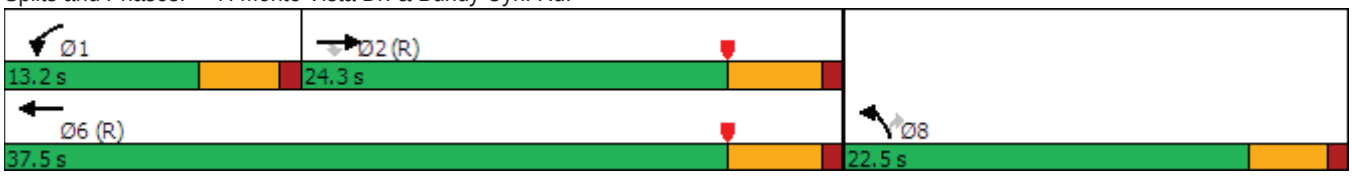
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	73.9	15.6	23.0	16.4	65.0	22.5	16.1
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5
Max Green Setting (Gmax), s	6.1	59.1	17.5	18.5	18.5	46.7	18.0	18.0
Max Q Clear Time (g_c+I1), s	3.8	22.3	11.1	8.6	11.9	2.4	5.4	3.0
Green Ext Time (p_c), s	0.0	8.2	0.2	0.2	0.1	5.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1173	279	150	733	317	235
Future Volume (vph)	1173	279	150	733	317	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		200	200		100	0
Storage Lanes		1	1		2	1
Taper Length (ft)			120		90	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			40	55	
Link Distance (ft)	612			588	284	
Travel Time (s)	11.9			10.0	3.5	
Confl. Peds. (#/hr)		5	5		5	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.3	23.3	9.5	22.5	22.5	22.5
Total Split (s)	24.3	24.3	13.2	37.5	22.5	22.5
Total Split (%)	40.5%	40.5%	22.0%	62.5%	37.5%	37.5%
Yellow Time (s)	4.3	4.3	3.5	4.3	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	4.5	5.3	4.5	4.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: Monte Vista Dr. & Bundy Cyn. Rd.





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1173	279	150	733	317	235
Future Volume (veh/h)	1173	279	150	733	317	235
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1289	307	165	805	348	258
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1764	544	207	1907	1037	476
Arrive On Green	0.35	0.35	0.12	0.54	0.30	0.30
Sat Flow, veh/h	5274	1574	1781	3647	3456	1585
Grp Volume(v), veh/h	1289	307	165	805	348	258
Grp Sat Flow(s),veh/h/ln	1702	1574	1781	1777	1728	1585
Q Serve(g_s), s	13.3	9.5	5.4	8.1	4.7	8.2
Cycle Q Clear(g_c), s	13.3	9.5	5.4	8.1	4.7	8.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1764	544	207	1907	1037	476
V/C Ratio(X)	0.73	0.56	0.80	0.42	0.34	0.54
Avail Cap(c_a), veh/h	1764	544	258	1907	1037	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	16.0	25.8	8.3	16.3	17.6
Incr Delay (d2), s/veh	2.2	3.5	10.3	0.7	0.9	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	3.5	2.7	2.5	1.6	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.4	19.4	36.2	9.0	17.2	22.0
LnGrp LOS	B	B	D	A	B	C
Approach Vol, veh/h	1596			970	606	
Approach Delay, s/veh	19.4			13.6	19.2	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.5	26.0				37.5	22.5
Change Period (Y+Rc), s	4.5	5.3				5.3	4.5
Max Green Setting (Gmax), s	8.7	19.0				32.2	18.0
Max Q Clear Time (g_c+I1), s	7.4	15.3				10.1	10.2
Green Ext Time (p_c), s	0.0	2.4				3.5	0.8

Intersection Summary			
HCM 6th Ctrl Delay		17.6	
HCM 6th LOS		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1308	26	36	949	65	140	8	8	137	17	77
Future Volume (vph)	127	1308	26	36	949	65	140	8	8	137	17	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120		0	150		285	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	60			90			90			60		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		377			612			347			1298	
Travel Time (s)		7.3			11.9			9.5			35.4	
Confl. Peds. (#/hr)	5					5				5		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Detector Phase	5	2		1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	23.3	23.3	9.5	22.5		22.5	22.5	
Total Split (s)	21.1	63.2		11.3	53.4	53.4	23.0	22.5		23.0	22.5	
Total Split (%)	17.6%	52.7%		9.4%	44.5%	44.5%	19.2%	18.8%		19.2%	18.8%	
Yellow Time (s)	3.5	4.3		3.5	4.3	4.3	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.3		4.5	5.3	5.3	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: Sellers Rd. & Bundy Cyn. Rd.

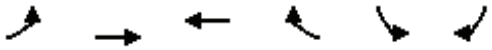




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	1308	26	36	949	65	140	8	8	137	17	77
Future Volume (veh/h)	127	1308	26	36	949	65	140	8	8	137	17	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	1377	27	38	999	68	147	8	8	144	18	81
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	2911	57	53	1793	796	176	81	81	275	44	198
Arrive On Green	0.09	0.56	0.56	0.06	1.00	1.00	0.10	0.09	0.09	0.15	0.15	0.15
Sat Flow, veh/h	1781	5155	101	1781	3554	1577	1781	858	858	1781	294	1323
Grp Volume(v), veh/h	134	909	495	38	999	68	147	0	16	144	0	99
Grp Sat Flow(s),veh/h/ln	1781	1702	1852	1781	1777	1577	1781	0	1716	1781	0	1617
Q Serve(g_s), s	8.9	19.0	19.0	2.5	0.0	0.0	9.7	0.0	1.0	8.9	0.0	6.7
Cycle Q Clear(g_c), s	8.9	19.0	19.0	2.5	0.0	0.0	9.7	0.0	1.0	8.9	0.0	6.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.50	1.00		0.82
Lane Grp Cap(c), veh/h	161	1923	1046	53	1793	796	176	0	162	275	0	242
V/C Ratio(X)	0.83	0.47	0.47	0.71	0.56	0.09	0.84	0.00	0.10	0.52	0.00	0.41
Avail Cap(c_a), veh/h	246	1923	1046	101	1793	796	275	0	257	275	0	242
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.7	15.5	15.5	55.9	0.0	0.0	53.1	0.0	49.7	46.7	0.0	46.2
Incr Delay (d2), s/veh	8.1	0.8	1.5	14.9	1.2	0.2	12.2	0.0	0.3	7.0	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	7.3	8.1	1.3	0.3	0.0	5.0	0.0	0.5	4.5	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.8	16.3	17.0	70.8	1.2	0.2	65.3	0.0	49.9	53.7	0.0	51.2
LnGrp LOS	E	B	B	E	A	A	E	A	D	D	A	D
Approach Vol, veh/h		1538			1105			163			243	
Approach Delay, s/veh		20.5			3.5			63.8			52.7	
Approach LOS		C			A			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	73.1	16.3	22.5	15.3	65.8	23.0	15.8
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5
Max Green Setting (Gmax), s	6.8	57.9	18.5	18.0	16.6	48.1	18.5	18.0
Max Q Clear Time (g_c+I1), s	4.5	21.0	11.7	8.7	10.9	2.0	10.9	3.0
Green Ext Time (p_c), s	0.0	7.5	0.2	0.2	0.1	5.5	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	105	1303	816	19	9	68
Future Volume (vph)	105	1303	816	19	9	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	120			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	120				90	
Link Speed (mph)		40	40		25	
Link Distance (ft)		588	428		597	
Travel Time (s)		10.0	7.3		16.3	
Confl. Peds. (#/hr)	5			5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

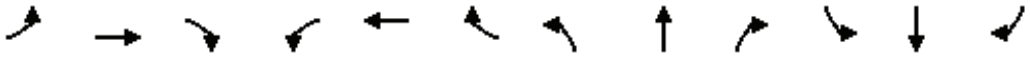
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	1303	816	19	9	68
Future Vol, veh/h	105	1303	816	19	9	68
Conflicting Peds, #/hr	5	0	0	5	5	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	120	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	1416	887	21	10	74

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	913	0	-	0	1702	464
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	799	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	742	-	-	-	106	545
Stage 1	-	-	-	-	347	-
Stage 2	-	-	-	-	375	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	738	-	-	-	89	540
Mov Cap-2 Maneuver	-	-	-	-	189	-
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	373	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	738	-	-	-	444
HCM Lane V/C Ratio	0.155	-	-	-	0.189
HCM Control Delay (s)	10.8	-	-	-	15
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	0.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	7	18	1	4	57	11	206	2	69	217	95
Future Volume (vph)	110	7	18	1	4	57	11	206	2	69	217	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	7	18	1	4	57	11	206	2	69	217	95
Future Vol, veh/h	110	7	18	1	4	57	11	206	2	69	217	95
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	118	8	19	1	4	61	12	222	2	74	233	102
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.4	8.8	10.6	13.1
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	81%	2%	18%
Vol Thru, %	94%	5%	6%	57%
Vol Right, %	1%	13%	92%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	135	62	381
LT Vol	11	110	1	69
Through Vol	206	7	4	217
RT Vol	2	18	57	95
Lane Flow Rate	235	145	67	410
Geometry Grp	1	1	1	1
Degree of Util (X)	0.333	0.23	0.097	0.532
Departure Headway (Hd)	5.095	5.711	5.249	4.678
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	711	631	685	758
Service Time	3.095	3.726	3.267	2.777
HCM Lane V/C Ratio	0.331	0.23	0.098	0.541
HCM Control Delay	10.6	10.4	8.8	13.1
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.5	0.9	0.3	3.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	7	18	1	4	57	11	206	2	69	217	95
Future Volume (vph)	110	7	18	1	4	57	11	206	2	69	217	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	0		0	100		0	0		100
Storage Lanes	1		0	0		0	1		0	0		1
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		626			301			322			1323	
Travel Time (s)		12.2			8.2			6.3			25.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

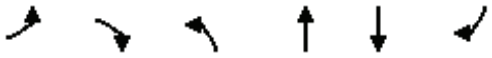
Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	7	18	1	4	57	11	206	2	69	217	95
Future Vol, veh/h	110	7	18	1	4	57	11	206	2	69	217	95
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	118	8	19	1	4	61	12	222	2	74	233	102
Number of Lanes	1	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	11	9.7	11.5	12.3
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	2%	24%	0%
Vol Thru, %	0%	99%	0%	28%	6%	76%	0%
Vol Right, %	0%	1%	0%	72%	92%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	208	110	25	62	286	95
LT Vol	11	0	110	0	1	69	0
Through Vol	0	206	0	7	4	217	0
RT Vol	0	2	0	18	57	0	95
Lane Flow Rate	12	224	118	27	67	308	102
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.02	0.355	0.224	0.043	0.11	0.484	0.137
Departure Headway (Hd)	6.226	5.713	6.829	5.813	5.963	5.666	4.837
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	576	631	526	616	601	640	746
Service Time	3.951	3.439	4.563	3.546	4.001	3.366	2.537
HCM Lane V/C Ratio	0.021	0.355	0.224	0.044	0.111	0.481	0.137
HCM Control Delay	9.1	11.6	11.5	8.8	9.7	13.6	8.3
HCM Lane LOS	A	B	B	A	A	B	A
HCM 95th-tile Q	0.1	1.6	0.9	0.1	0.4	2.6	0.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	167	173	116	70	19
Future Volume (vph)	17	167	173	116	70	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

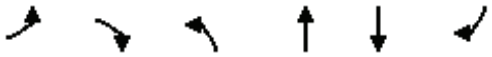
Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	167	173	116	70	19
Future Vol, veh/h	17	167	173	116	70	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	182	188	126	76	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	599	97	102	0	-	0
Stage 1	92	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	465	959	1490	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	398	950	1483	-	-	-
Mov Cap-2 Maneuver	398	-	-	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	4.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1483	-	842	-	-
HCM Lane V/C Ratio	0.127	-	0.238	-	-
HCM Control Delay (s)	7.8	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.9	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	121	173	162	65	19
Future Volume (vph)	63	121	173	162	65	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			240	763	
Travel Time (s)	6.8			5.5	17.3	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

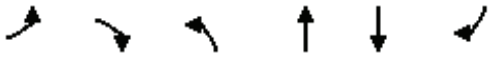
Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	121	173	162	65	19
Future Vol, veh/h	63	121	173	162	65	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	132	188	176	71	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	644	92	97	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	437	965	1496	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	574	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	372	956	1489	-	-	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	571	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1489	-	622	-	-
HCM Lane V/C Ratio	0.126	-	0.322	-	-
HCM Control Delay (s)	7.8	0	13.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.4	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	169	173	273	221	16
Future Volume (vph)	16	169	173	273	221	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

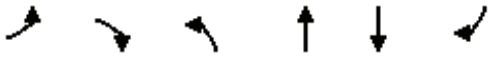
Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	169	173	273	221	16
Future Vol, veh/h	16	169	173	273	221	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	184	188	297	240	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	932	259	262	0	-	0
Stage 1	254	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	296	780	1302	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	250	773	1296	-	-	-
Mov Cap-2 Maneuver	250	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	3.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1296	-	655	-	-
HCM Lane V/C Ratio	0.145	-	0.307	-	-
HCM Control Delay (s)	8.2	-	12.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	1.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	123	173	273	170	16
Future Volume (vph)	62	123	173	273	170	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	90		90			
Link Speed (mph)	30			30	30	
Link Distance (ft)	219			299	240	
Travel Time (s)	5.0			6.8	5.5	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

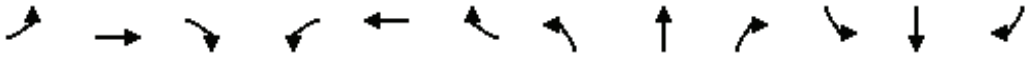
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	123	173	273	170	16
Future Vol, veh/h	62	123	173	273	170	16
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	134	188	297	185	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	877	204	207	0	-	0
Stage 1	199	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	319	837	1364	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	272	829	1358	-	-	-
Mov Cap-2 Maneuver	272	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.3	3.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1358	-	492	-	-
HCM Lane V/C Ratio	0.138	-	0.409	-	-
HCM Control Delay (s)	8.1	-	17.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.5	-	2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	52	66	16	47	1	130	5	27	1	3	1
Future Volume (vph)	1	52	66	16	47	1	130	5	27	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

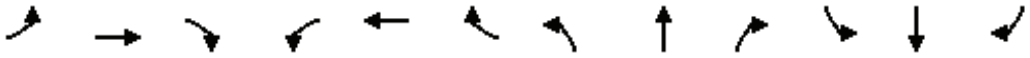
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	52	66	16	47	1	130	5	27	1	3	1
Future Vol, veh/h	1	52	66	16	47	1	130	5	27	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	59	75	18	53	1	148	6	31	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	134	0	0	191	189	97	207	226	54
Stage 1	-	-	-	-	-	-	99	99	-	90	90	-
Stage 2	-	-	-	-	-	-	92	90	-	117	136	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1451	-	-	769	706	959	751	673	1013
Stage 1	-	-	-	-	-	-	907	813	-	917	820	-
Stage 2	-	-	-	-	-	-	915	820	-	888	784	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1451	-	-	757	696	959	715	664	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	757	696	-	715	664	-
Stage 1	-	-	-	-	-	-	906	812	-	916	809	-
Stage 2	-	-	-	-	-	-	898	809	-	853	783	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	11	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	782	1551	-	-	1451	-	-	724
HCM Lane V/C Ratio	0.235	0.001	-	-	0.013	-	-	0.008
HCM Control Delay (s)	11	7.3	0	-	7.5	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	52	66	16	47	1	130	5	87	1	3	1
Future Volume (vph)	1	52	66	16	47	1	130	5	87	1	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		731			648			763			309	
Travel Time (s)		19.9			17.7			17.3			7.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

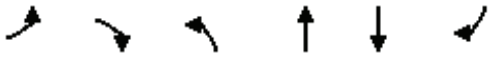
Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	52	66	16	47	1	130	5	87	1	3	1
Future Vol, veh/h	1	52	66	16	47	1	130	5	87	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	59	75	18	53	1	148	6	99	1	3	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	134	0	0	191	189	97	241	226	54
Stage 1	-	-	-	-	-	-	99	99	-	90	90	-
Stage 2	-	-	-	-	-	-	92	90	-	151	136	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1451	-	-	769	706	959	713	673	1013
Stage 1	-	-	-	-	-	-	907	813	-	917	820	-
Stage 2	-	-	-	-	-	-	915	820	-	851	784	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1451	-	-	757	696	959	629	664	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	757	696	-	629	664	-
Stage 1	-	-	-	-	-	-	906	812	-	916	809	-
Stage 2	-	-	-	-	-	-	898	809	-	757	783	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	11.3	10.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	823	1551	-	-	1451	-	-	705
HCM Lane V/C Ratio	0.307	0.001	-	-	0.013	-	-	0.008
HCM Control Delay (s)	11.3	7.3	0	-	7.5	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	50	47	87	51	8
Future Volume (vph)	6	50	47	87	51	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

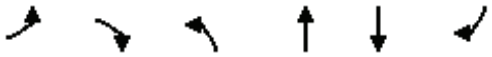
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	50	47	87	51	8
Future Vol, veh/h	6	50	47	87	51	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	63	59	109	64	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	296	69	74	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	695	994	1526	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	667	994	1526	-	-	-
Mov Cap-2 Maneuver	667	-	-	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1526	-	944	-	-
HCM Lane V/C Ratio	0.038	-	0.074	-	-
HCM Control Delay (s)	7.5	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	95	47	72	51	8
Future Volume (vph)	21	95	47	72	51	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	648			1298	431	
Travel Time (s)	17.7			35.4	11.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

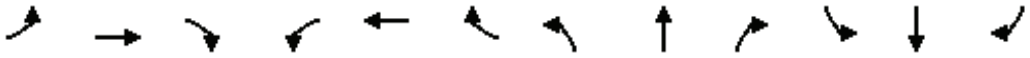
Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	95	47	72	51	8
Future Vol, veh/h	21	95	47	72	51	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	119	59	90	64	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	277	69	74	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	208	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	713	994	1526	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	684	994	1526	-	-	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	827	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	2.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1526	-	919	-	-
HCM Lane V/C Ratio	0.038	-	0.158	-	-
HCM Control Delay (s)	7.5	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	63	93	28	46	1	89	22	41	1	12	9
Future Volume (vph)	14	63	93	28	46	1	89	22	41	1	12	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		1291			669			448			292	
Travel Time (s)		22.0			11.4			12.2			8.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

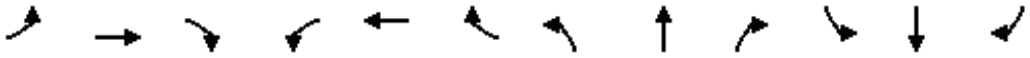
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	63	93	28	46	1	89	22	41	1	12	9
Future Vol, veh/h	14	63	93	28	46	1	89	22	41	1	12	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	68	100	30	49	1	96	24	44	1	13	10
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	8.5	8.7	8.7	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	59%	8%	38%	0%	5%
Vol Thru, %	14%	37%	62%	0%	55%
Vol Right, %	27%	55%	0%	100%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	152	170	74	1	22
LT Vol	89	14	28	0	1
Through Vol	22	63	46	0	12
RT Vol	41	93	0	1	9
Lane Flow Rate	163	183	80	1	24
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.206	0.217	0.117	0.001	0.03
Departure Headway (Hd)	4.529	4.27	5.313	4.419	4.506
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	793	841	676	810	794
Service Time	2.551	2.292	3.04	2.145	2.536
HCM Lane V/C Ratio	0.206	0.218	0.118	0.001	0.03
HCM Control Delay	8.7	8.5	8.7	7.1	7.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.8	0.8	0.4	0	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	163	67	74	100	1	87	35	61	1	37	1
Future Volume (vph)	1	163	67	74	100	1	87	35	61	1	37	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	90			90			90			90		
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		496			1291			1349			223	
Travel Time (s)		8.5			22.0			36.8			6.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

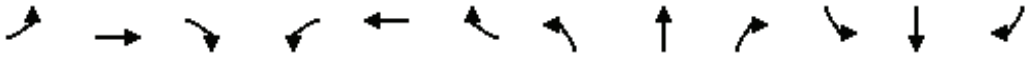
Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	163	67	74	100	1	87	35	61	1	37	1
Future Vol, veh/h	1	163	67	74	100	1	87	35	61	1	37	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	175	72	80	108	1	94	38	66	1	40	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	247	0	0	466	446	175	534	518	109
Stage 1	-	-	-	-	-	-	177	177	-	269	269	-
Stage 2	-	-	-	-	-	-	289	269	-	265	249	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1481	-	-	1319	-	-	507	507	868	457	462	945
Stage 1	-	-	-	-	-	-	825	753	-	737	687	-
Stage 2	-	-	-	-	-	-	719	687	-	740	701	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1481	-	-	1319	-	-	447	474	868	377	432	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	447	474	-	377	432	-
Stage 1	-	-	-	-	-	-	824	752	-	736	642	-
Stage 2	-	-	-	-	-	-	630	642	-	649	700	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	3.3	15.4	14.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	540	1481	-	-	1319	-	-	436
HCM Lane V/C Ratio	0.364	0.001	-	-	0.06	-	-	0.096
HCM Control Delay (s)	15.4	7.4	0	-	7.9	0	-	14.1
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	78	9	1	101	111	16	79	8	74	91	8
Future Volume (vph)	2	78	9	1	101	111	16	79	8	74	91	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		400			740			1314			1349	
Travel Time (s)		9.1			16.8			35.8			36.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	78	9	1	101	111	16	79	8	74	91	8
Future Vol, veh/h	2	78	9	1	101	111	16	79	8	74	91	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	89	10	1	115	126	18	90	9	84	103	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	9.6	9	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	2%	0%	43%
Vol Thru, %	77%	88%	47%	53%
Vol Right, %	8%	10%	52%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	89	213	173
LT Vol	16	2	1	74
Through Vol	79	78	101	91
RT Vol	8	9	111	8
Lane Flow Rate	117	101	242	197
Geometry Grp	1	1	1	1
Degree of Util (X)	0.162	0.139	0.305	0.27
Departure Headway (Hd)	4.975	4.949	4.529	4.94
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	715	719	789	721
Service Time	3.048	3.018	2.584	3.006
HCM Lane V/C Ratio	0.164	0.14	0.307	0.273
HCM Control Delay	9	8.8	9.6	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.5	1.3	1.1

Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1029**

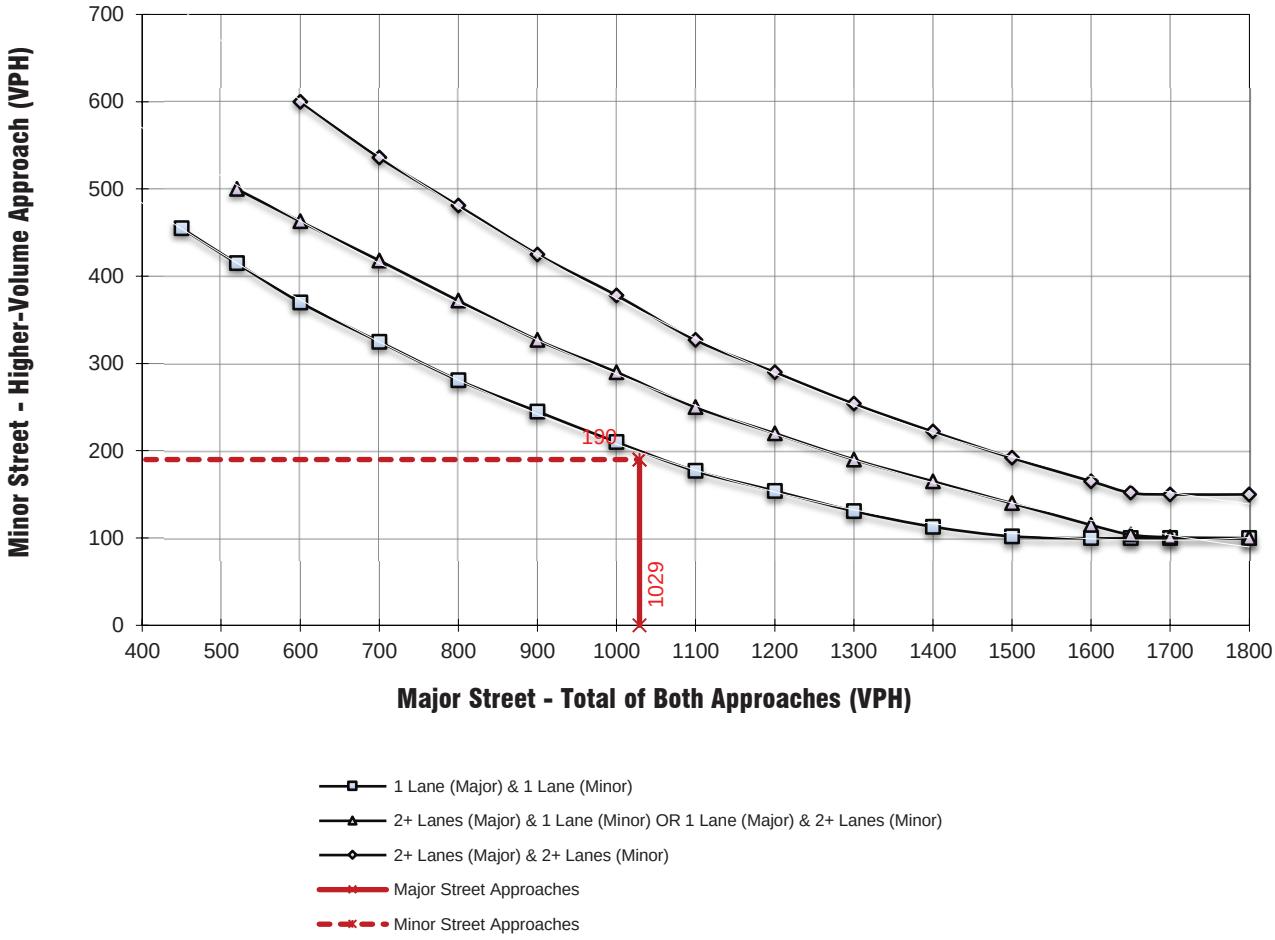
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **190**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1297**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **115**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED

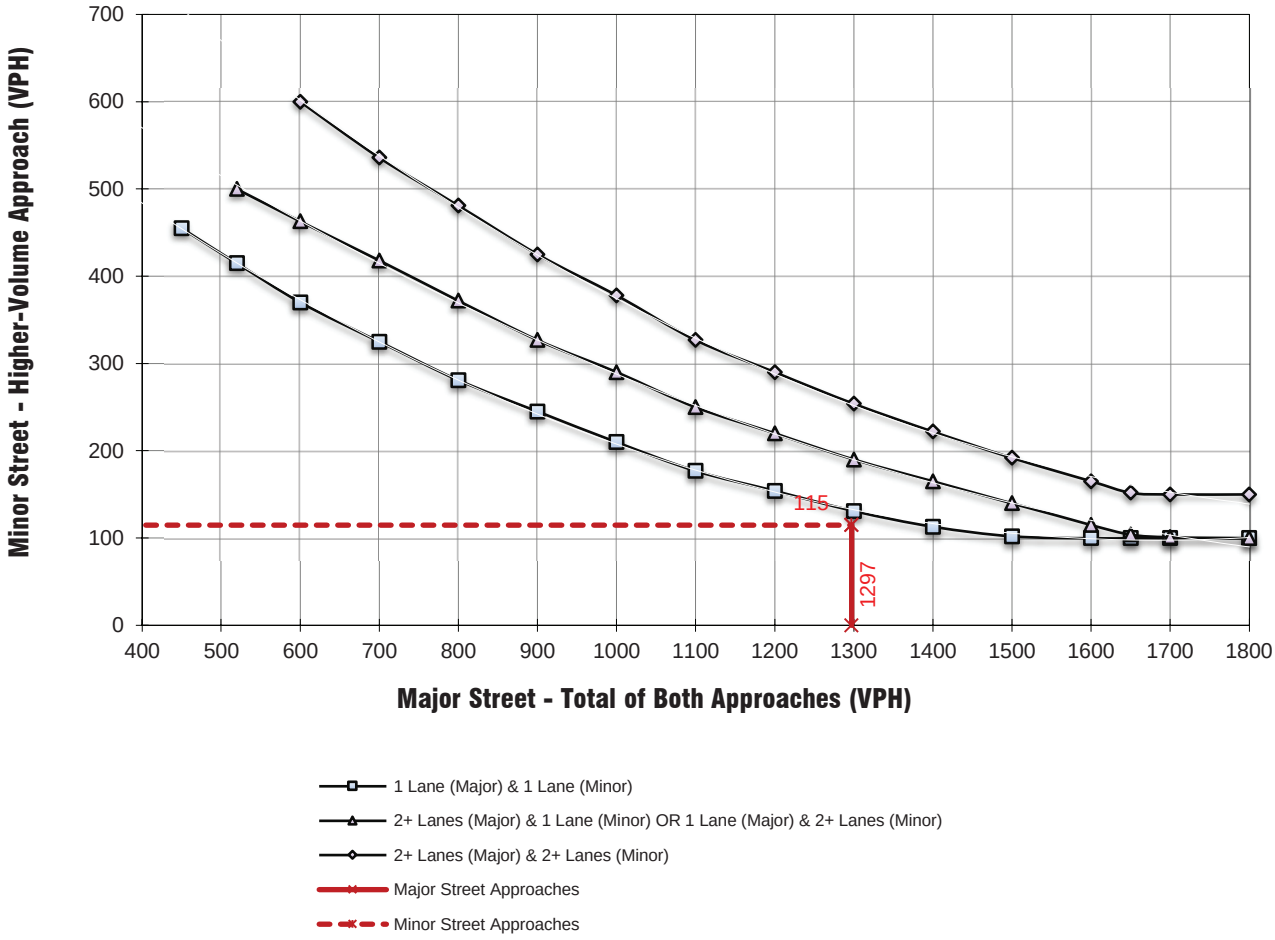


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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **1851**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **127**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL

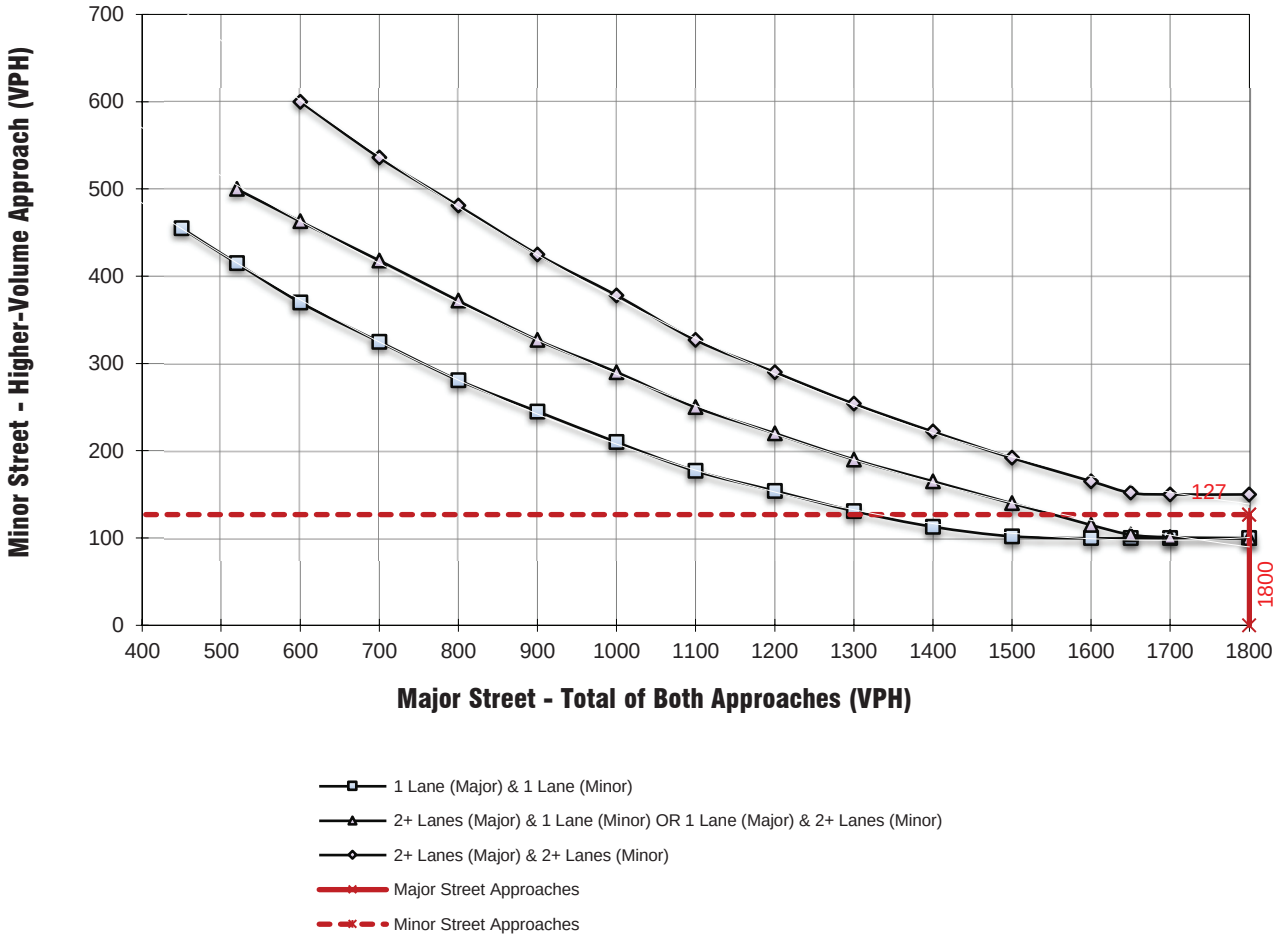

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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Bundy Cyn. Rd.**

Total of Both Approaches (VPH) = **2243**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Cyn. Ranch Rd.**

High Volume Approach (VPH) = **77**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED

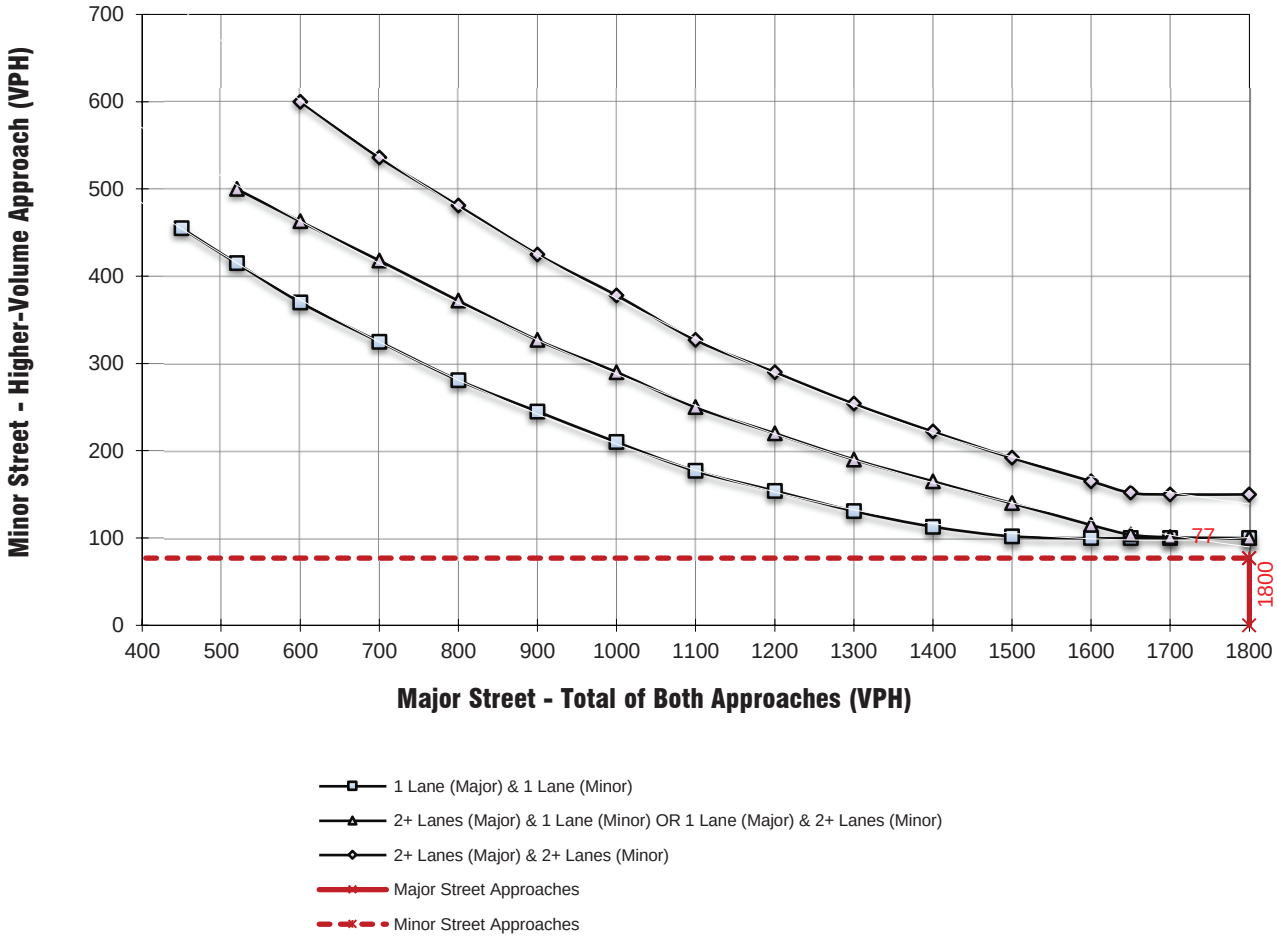

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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **287**

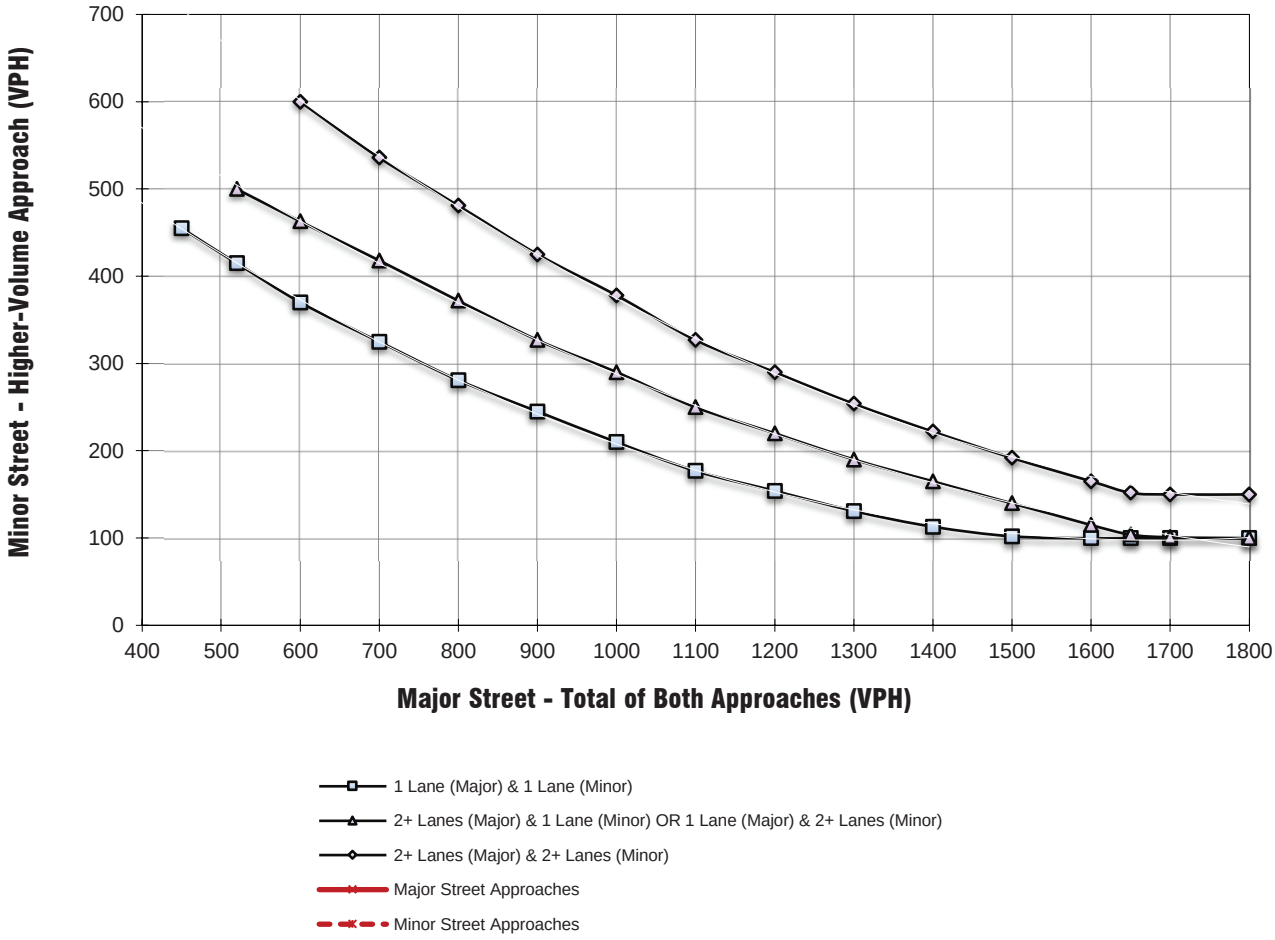
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **65**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **183**

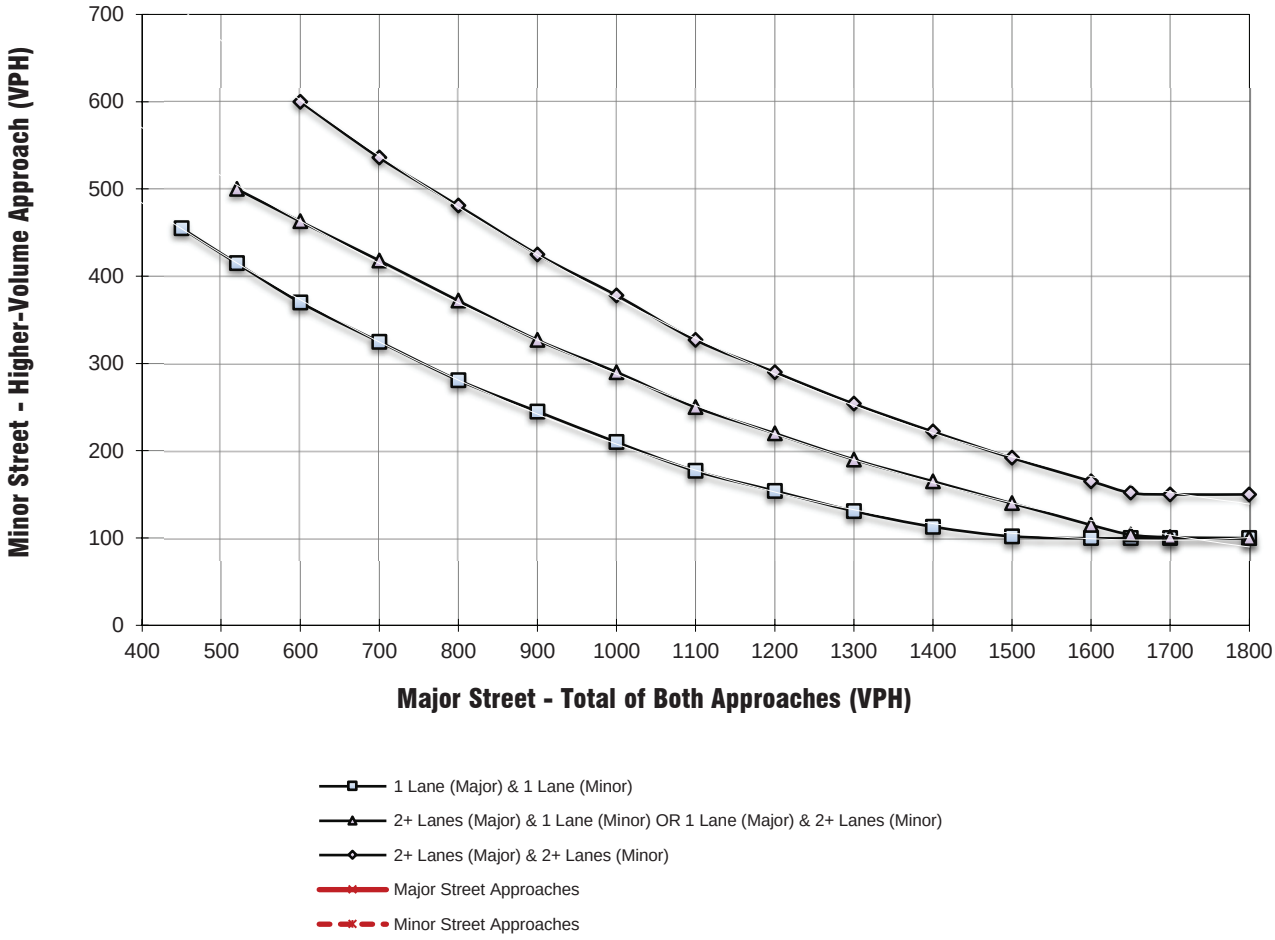
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Cherry St.**

High Volume Approach (VPH) = **162**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **207**

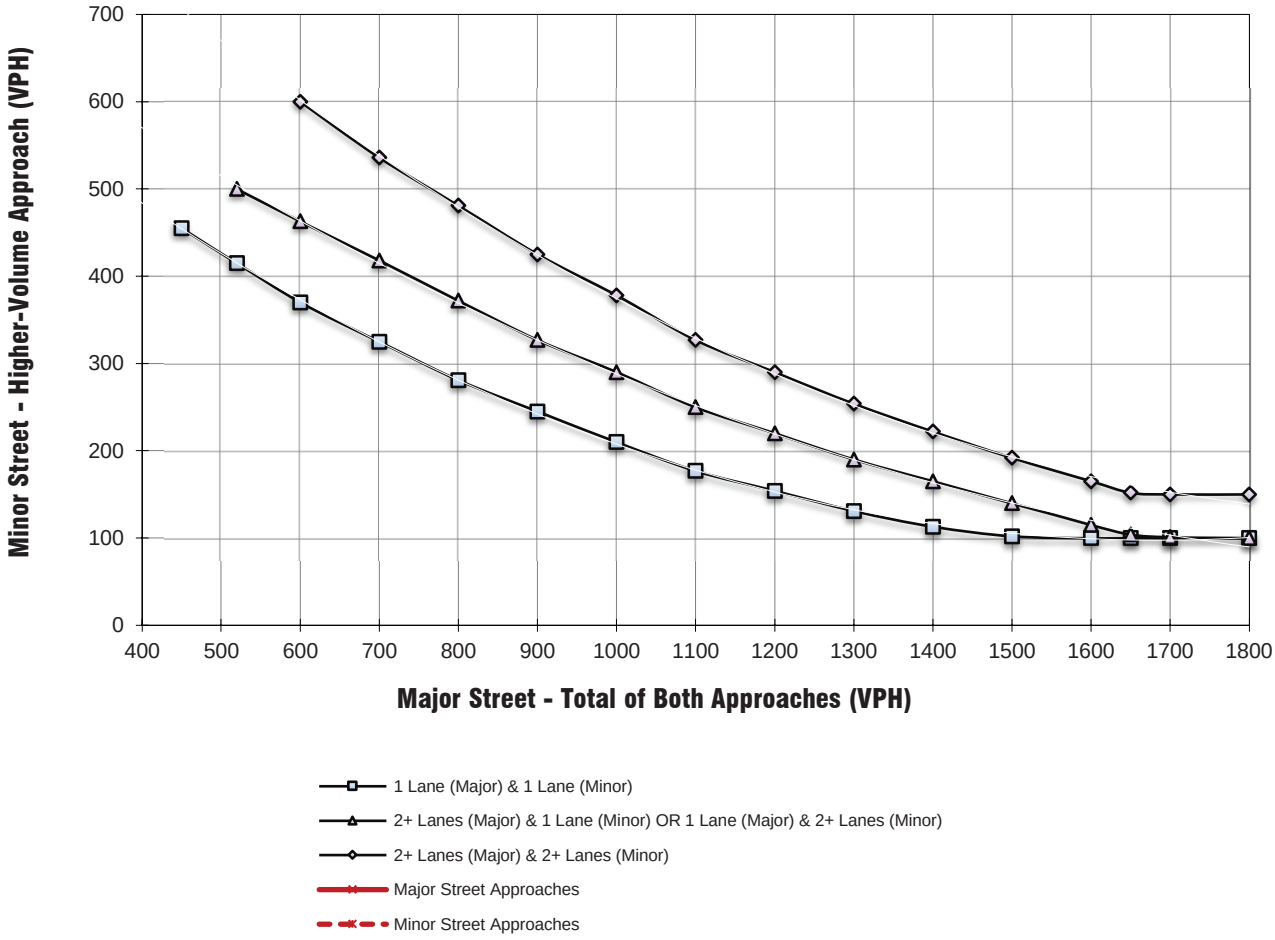
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **95**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Sellers Rd.**

Total of Both Approaches (VPH) = **193**

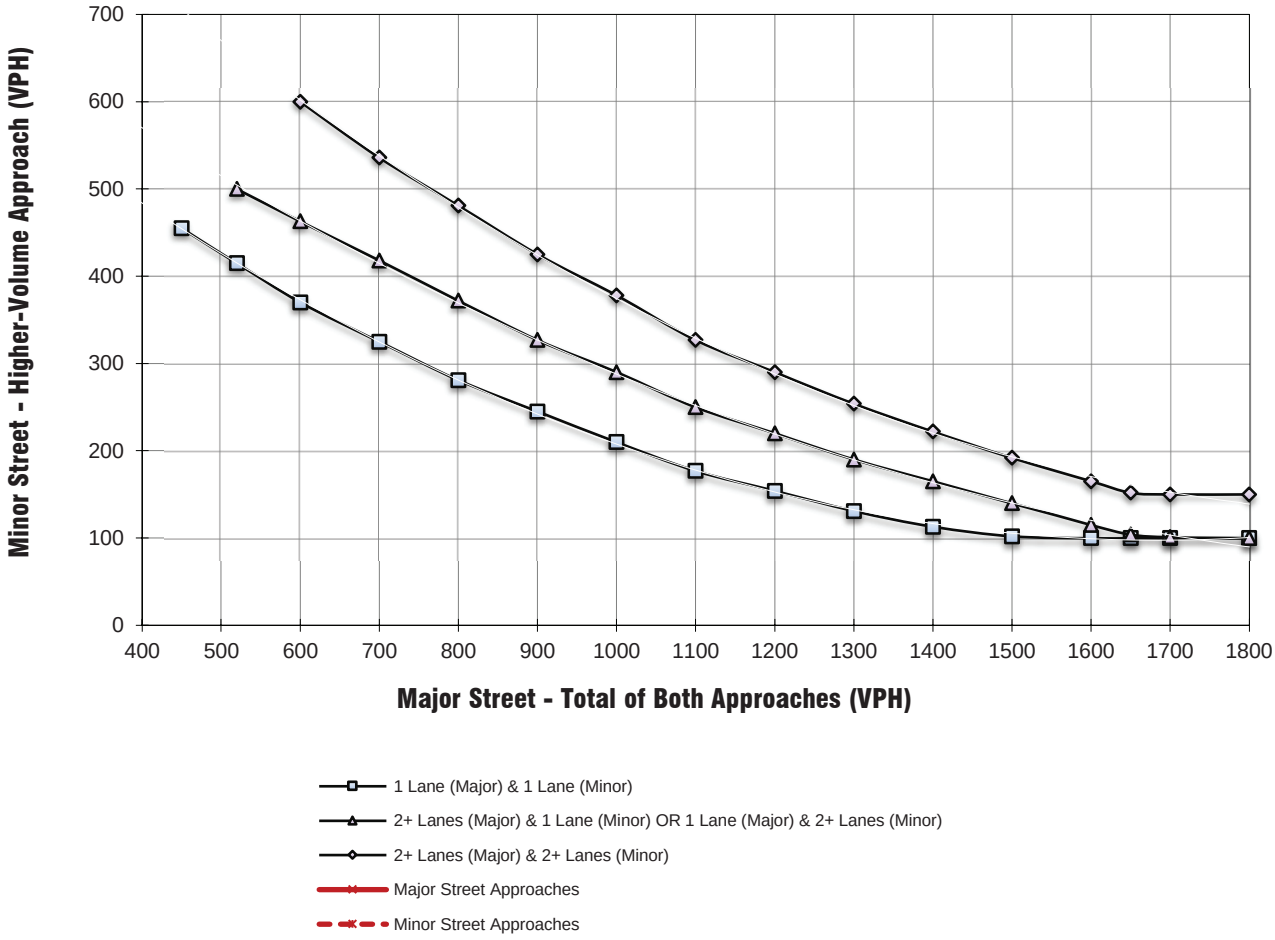
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **56**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **278**

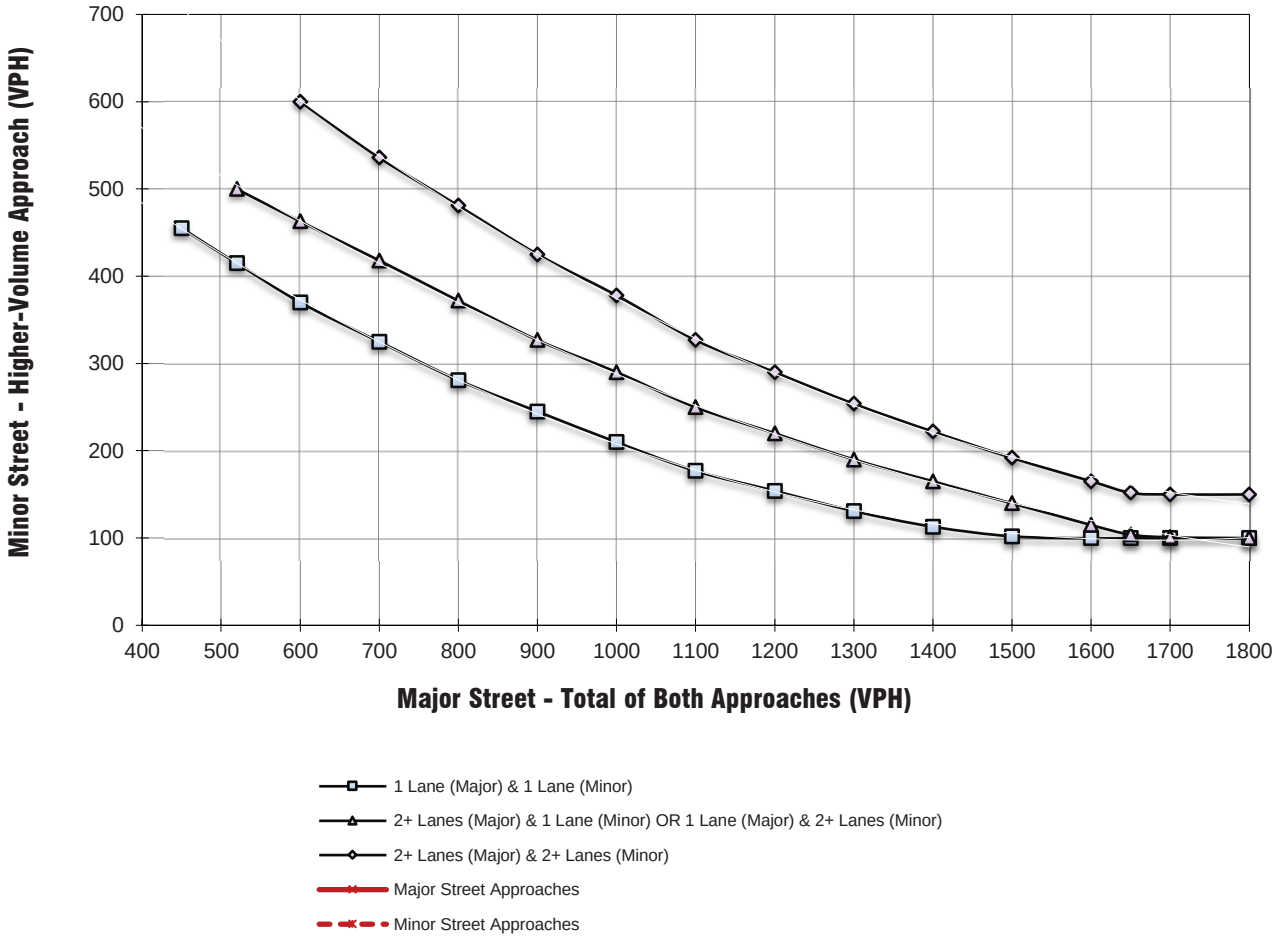
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **162**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **245**

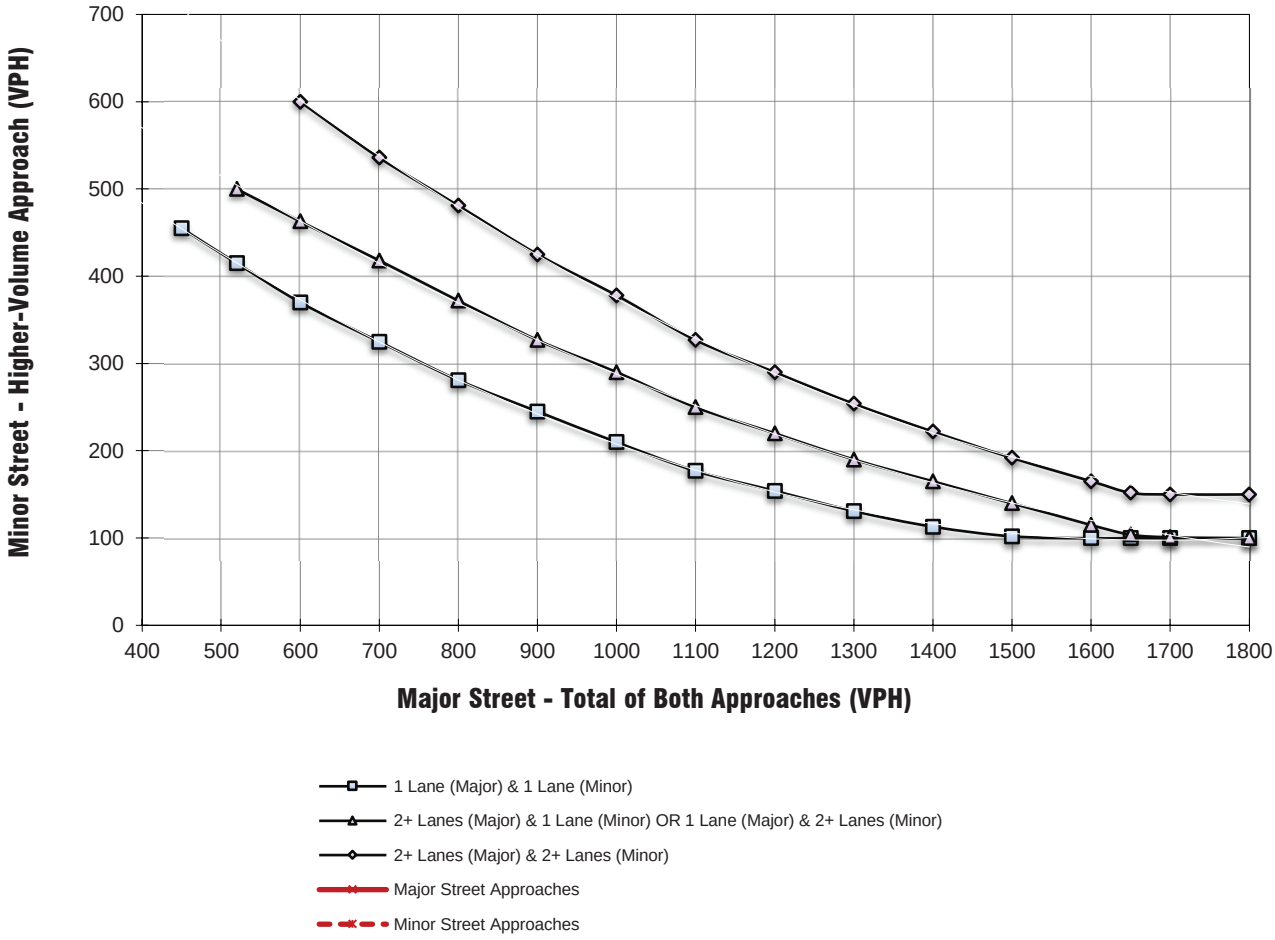
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Orange St.**

High Volume Approach (VPH) = **152**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **487**

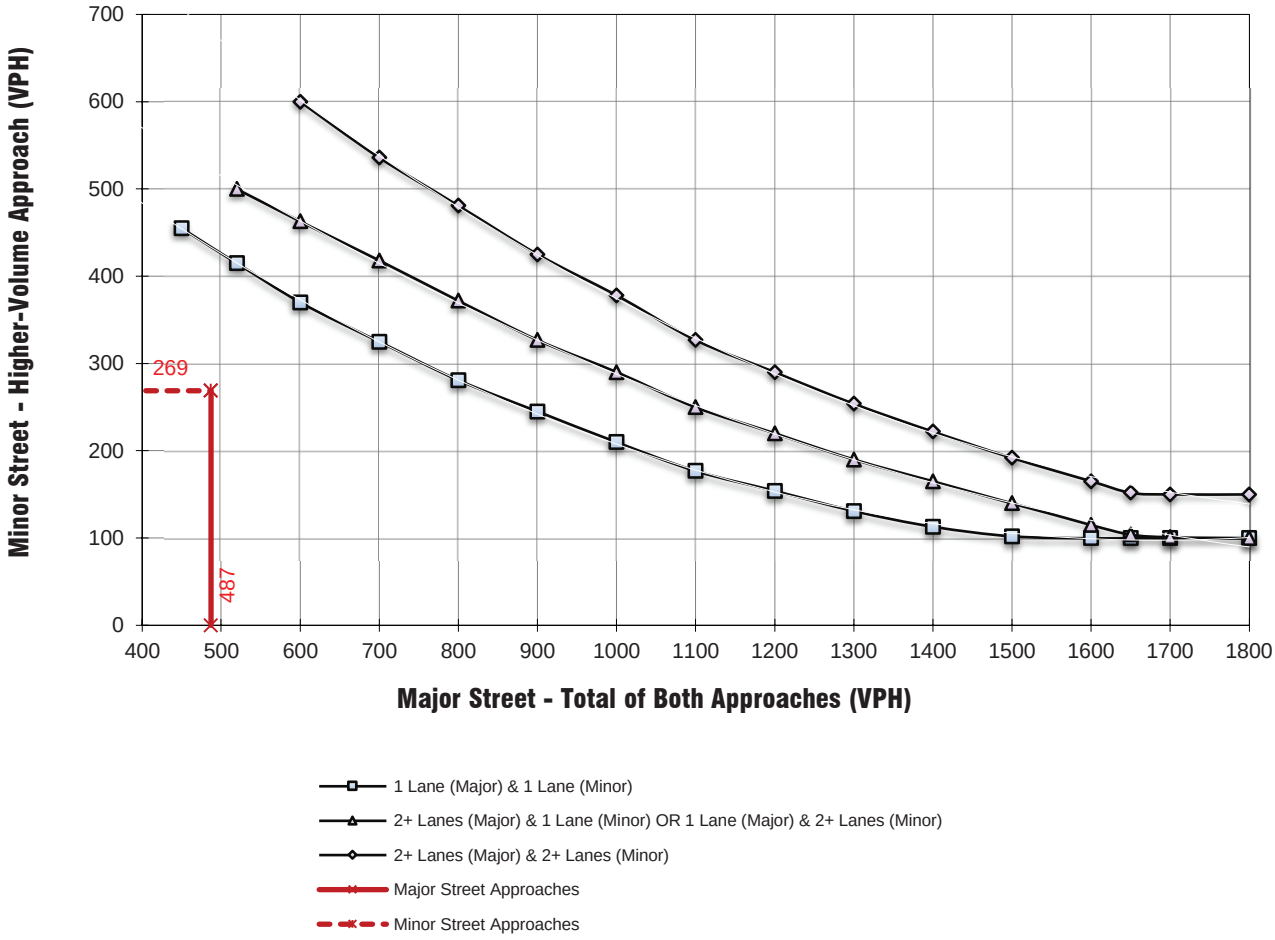
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **269**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Lemon St.**

Total of Both Approaches (VPH) = **406**

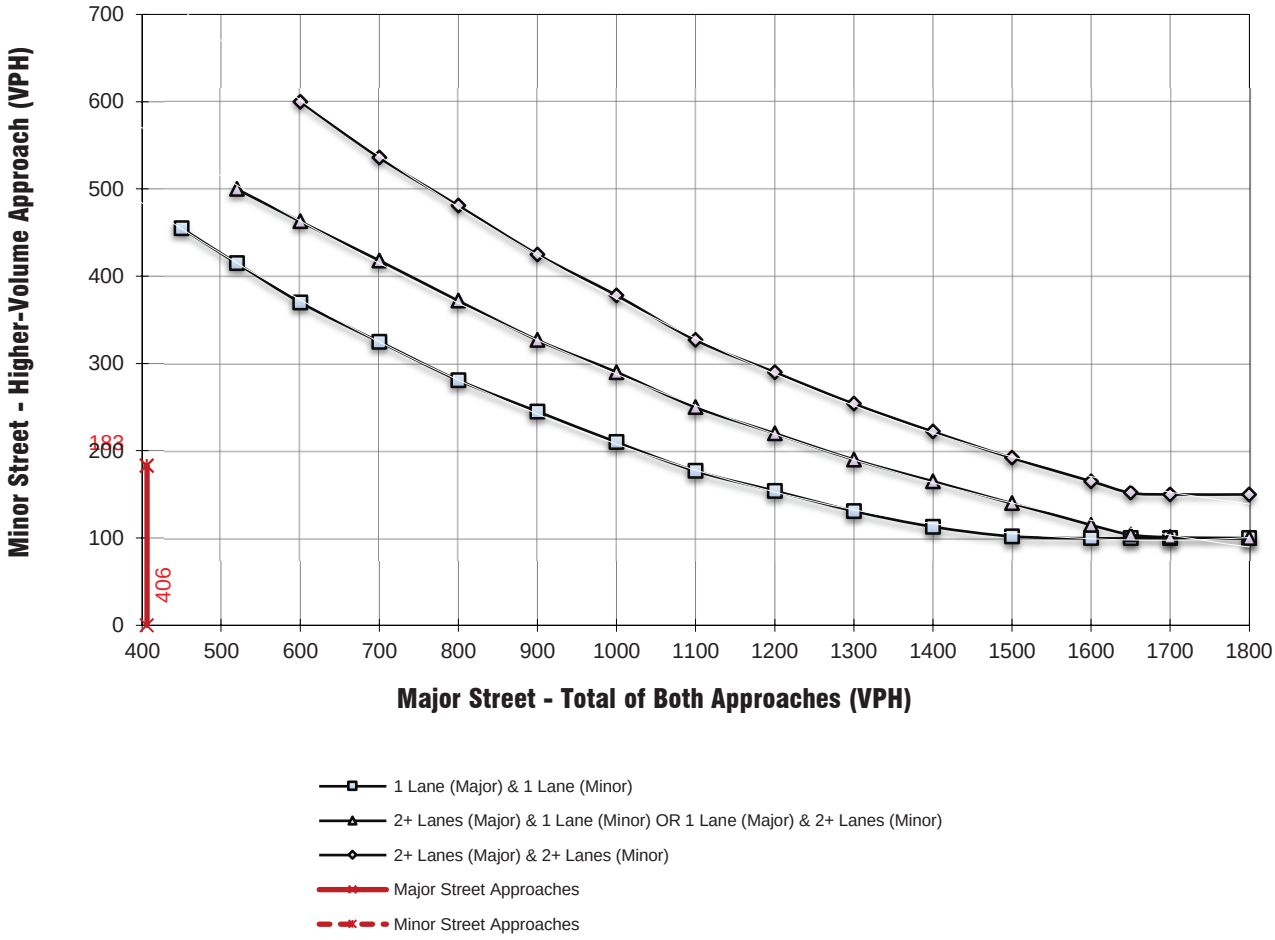
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **183**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
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Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (AM Peak Hour)

Major Street Name = **Almond St.**

Total of Both Approaches (VPH) = **423**

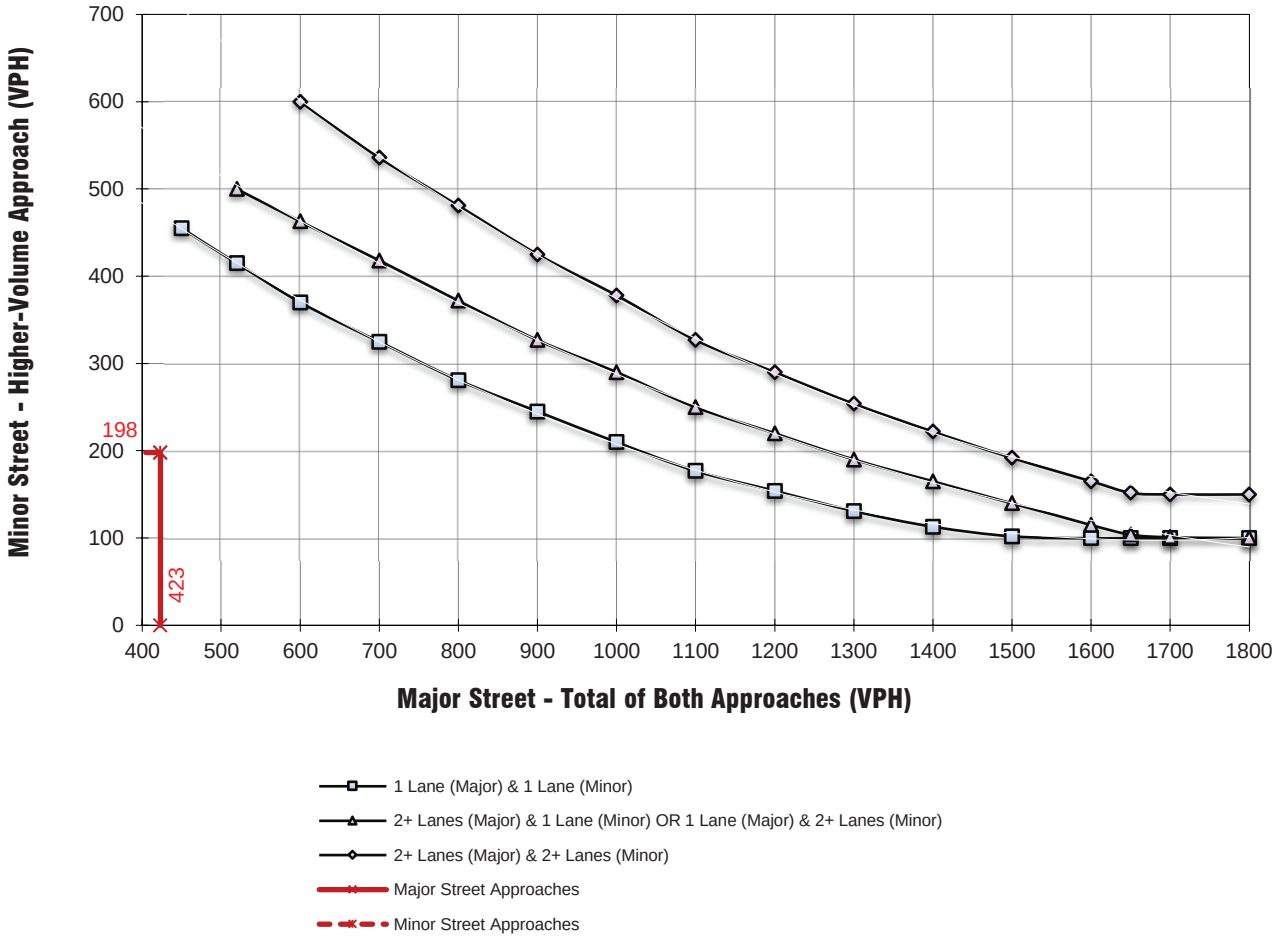
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Waite St.**

High Volume Approach (VPH) = **198**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-3. Warrant 3, Peak Hour

EAPC CONDITIONS (PM Peak Hour)

Major Street Name = **Waite St.**

Total of Both Approaches (VPH) = **302**

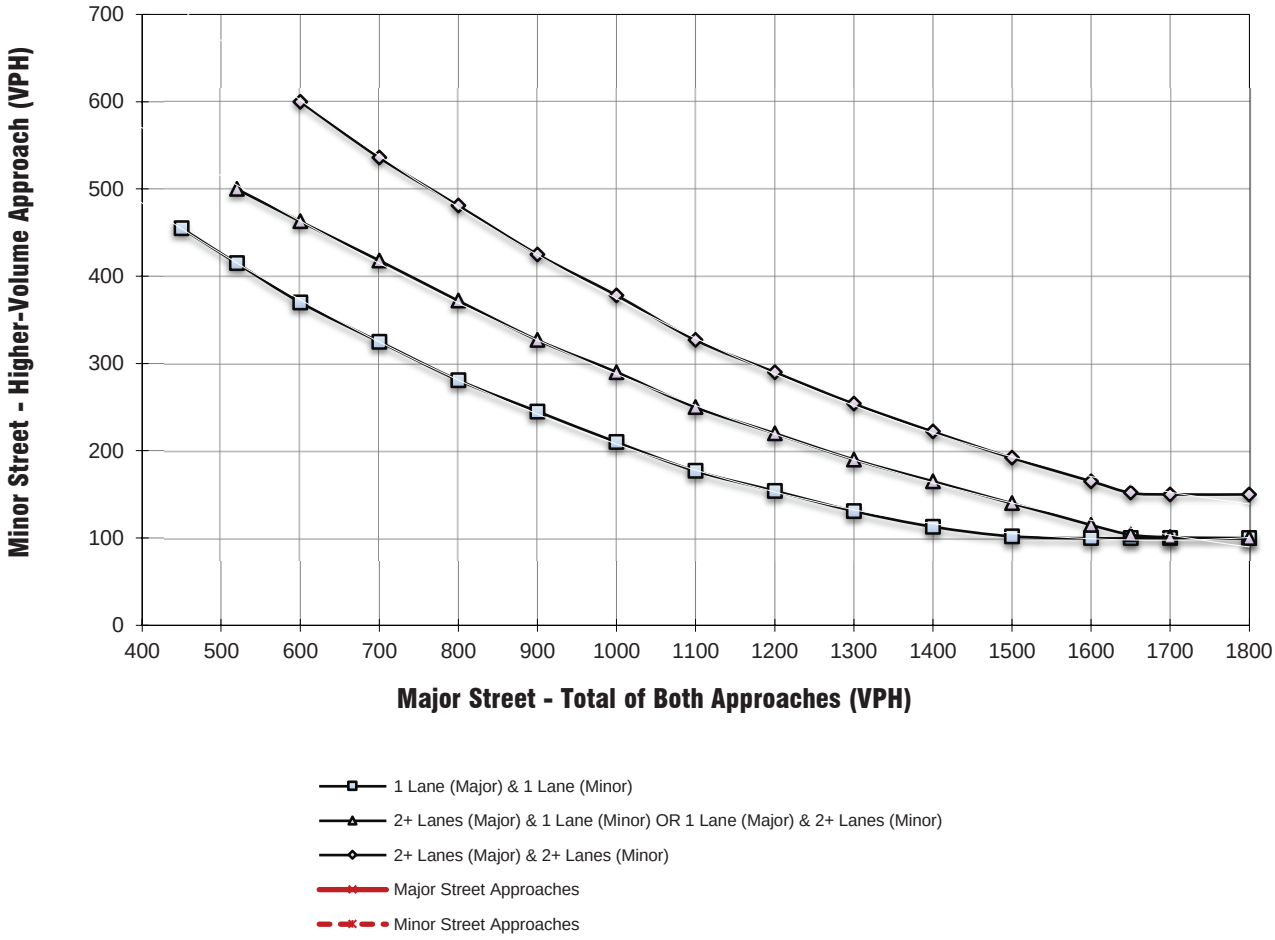
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Almond St.**

High Volume Approach (VPH) = **173**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

EAPC (2025) CONDITIONS

Jurisdiction: City of Wildomar
Major Street: Cherry St. — Critical Approach Speed (Major): 35 mph
Minor Street: N. Dwy. — Critical Approach Speed (Minor): 30 mph

Major Street Approach Lanes = 1 lane — Minor Street Approach Lanes = 1 lane

Major Street Future ADT = 4,653 vpd — Minor Street Future ADT = 2,231 vpd

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL		Minimum Requirements EADT	
XX			
CONDITION A - Minimum Vehicular Volume			
Satisfied	Not Satisfied XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Number of lanes for moving traffic on each approa			
Major Street	Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 4,653	*1* 2,231	*8,000* / *5,600*	*2,400* / *1,680*
2 +	*1*	*9,600* / *6,720*	*2,400* / *1,680*
2 +	*2 +*	*9,600* / *6,720*	*3,200* / *2,240*
1	*2 +*	*8,000* / *5,600*	*3,200* / *2,240*
CONDITION B - Interruption of Continuous Traffic			
Satisfied	Not Satisfied XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Number of lanes for moving traffic on each approa			
Major Street	Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 4,653	*1* 2,231	*12,000* / *8,400*	*1,200* * / *850*
2 +	*1*	*14,400* / *10,080*	*1,200* / *850*
2 +	*2 +*	*14,400* / *10,080*	*1,600* / *1,120*
1	*2 +*	*12,000* / *8,400*	*1,600* / *1,120*
Combination of CONDITIONS A + B			
Satisfied	Not Satisfied XX	2 CONDITIONS 80%	2 CONDITIONS 80%
No one condition satisfied, but following condition fulfilled 80% of more .... A 58% B 39%			

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

EAPC (2025) CONDITIONS

Jurisdiction: City of Wildomar
Major Street: Cherry St. — Critical Approach Speed (Major): 35 mph
Minor Street: S. Dwy. — Critical Approach Speed (Minor): 30 mph

Major Street Approach Lanes = 1 lane — Minor Street Approach Lanes = 1 lane

Major Street Future ADT = 8,083 vpd — Minor Street Future ADT = 2,216 vpd

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT	
XX		
CONDITION A - Minimum Vehicular Volume		
Satisfied / Not Satisfied: XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Number of lanes for moving traffic on each approa		
Major Street / Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 8,083 / *1* 2,216	*8,000* * / *5,600*	*2,400* / *1,680*
2 + / *1*	*9,600* / *6,720*	*2,400* / *1,680*
2 + / *2 +*	*9,600* / *6,720*	*3,200* / *2,240*
1 / *2 +*	*8,000* / *5,600*	*3,200* / *2,240*
CONDITION B - Interruption of Continuous Traffic		
Satisfied / Not Satisfied: XX	*Vehicles Per Day on Major Street (Total of Both Approaches)*	*Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)*
Number of lanes for moving traffic on each approa		
Major Street / Minor Street	*Urban* / *Rural*	*Urban* / *Rural*
1 8,083 / *1* 2,216	*12,000* / *8,400*	*1,200* * / *850*
2 + / *1*	*14,400* / *10,080*	*1,200* / *850*
2 + / *2 +*	*14,400* / *10,080*	*1,600* / *1,120*
1 / *2 +*	*12,000* / *8,400*	*1,600* / *1,120*
Combination of CONDITIONS A + B		
Satisfied / Not Satisfied: XX	2 CONDITIONS	2 CONDITIONS
No one condition satisfied, but following condition fulfilled 80% of more .... A: 92% B: 67%	80%	80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX J

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT QUEUEING ANALYSIS WORKSHEETS

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Intersection: 3: I-15 SB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	LTR	R
Maximum Queue (ft)	178	328	230	344	415	85	185	214	135
Average Queue (ft)	153	86	155	262	119	52	182	181	81
95th Queue (ft)	193	159	235	294	179	66	186	236	170
Link Distance (ft)	324	324			551	551		716	
Upstream Blk Time (%)		4							
Queuing Penalty (veh)		28							
Storage Bay Dist (ft)			150	255			300		300
Storage Blk Time (%)		0	22	18					
Queuing Penalty (veh)		0	80	71					

Intersection: 4: I-15 NB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	L	TR
Maximum Queue (ft)	164	85	38	175	171	119	316	124
Average Queue (ft)	105	41	17	174	171	110	230	107
95th Queue (ft)	201	44	17	176	171	126	371	135
Link Distance (ft)		551	551	171	171	171		518
Upstream Blk Time (%)				23	13			
Queuing Penalty (veh)				117	66			
Storage Bay Dist (ft)	255						300	
Storage Blk Time (%)							3	
Queuing Penalty (veh)							11	

Intersection: 5: Bundy Cyn. Rd. & Cherry St.

Movement	EB	EB	EB	EB	WB	WB	WB	B23	B23	SB	SB
Directions Served	L	T	T	T	T	T	R	T	T	L	R
Maximum Queue (ft)	140	214	30	74	293	264	53	300	342	130	227
Average Queue (ft)	129	100	30	53	279	264	53	262	279	93	222
95th Queue (ft)	147	264	31	88	302	264	53	325	383	153	229
Link Distance (ft)		171	171	171	192	192	192	315	315		218
Upstream Blk Time (%)		13			65	49		0	7		6
Queuing Penalty (veh)		55			292	219		1	32		27
Storage Bay Dist (ft)	100									100	
Storage Blk Time (%)	34										37
Queuing Penalty (veh)	115										41

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	93	29	31	226	31	264	356	28	111	29	74	96
Average Queue (ft)	82	28	30	150	31	246	347	26	82	15	51	51
95th Queue (ft)	101	29	31	275	31	275	361	29	130	39	54	51
Link Distance (ft)		315	315	315		538	538	538		289		1218
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	120				150				150		100	
Storage Blk Time (%)						16						1
Queuing Penalty (veh)						4						1

Intersection: 10: Cherry St. & N. Dwy.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	52	55
Average Queue (ft)	31	0
95th Queue (ft)	31	0
Link Distance (ft)	271	183
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Cherry St. & S. Dwy.

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	78	54
Average Queue (ft)	65	27
95th Queue (ft)	86	70
Link Distance (ft)	184	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1154

Intersection: 3: I-15 SB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	LTR	R
Maximum Queue (ft)	194	198	79	268	288	290	270	320	196
Average Queue (ft)	150	133	24	224	167	163	229	272	96
95th Queue (ft)	233	232	59	275	313	324	282	316	212
Link Distance (ft)	324	324			551	551		716	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			150	255			300		300
Storage Blk Time (%)		5		8	4			4	
Queuing Penalty (veh)		17		42	15			19	

Intersection: 4: I-15 NB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	L	TR
Maximum Queue (ft)	166	344	323	181	144	68	333	475
Average Queue (ft)	122	279	284	162	122	30	321	379
95th Queue (ft)	188	418	373	208	196	94	405	594
Link Distance (ft)		551	551	171	171	171		518
Upstream Blk Time (%)				11	7			26
Queuing Penalty (veh)				51	33			0
Storage Bay Dist (ft)	255						300	
Storage Blk Time (%)		10					7	36
Queuing Penalty (veh)		16					43	176

Intersection: 5: Bundy Cyn. Rd. & Cherry St.

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	T	R	L	R
Maximum Queue (ft)	148	216	107	113	195	215	37	129	204
Average Queue (ft)	145	181	14	47	141	181	27	100	167
95th Queue (ft)	151	278	49	98	247	246	52	148	239
Link Distance (ft)		171	171	171	192	192	192		218
Upstream Blk Time (%)		28	0		3	13			19
Queuing Penalty (veh)		176	0		11	51			80
Storage Bay Dist (ft)	100							100	
Storage Blk Time (%)	52							4	34
Queuing Penalty (veh)	264							12	34

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	134	136	116	151	28	243	249	40	125	27	50	52
Average Queue (ft)	106	88	97	140	17	205	228	20	106	14	41	42
95th Queue (ft)	161	167	121	165	49	305	273	59	152	47	61	59
Link Distance (ft)		315	315	315		538	538	538		289		1218
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	120				150				150		100	
Storage Blk Time (%)	18					15			2			
Queuing Penalty (veh)	89					4			0			

Intersection: 10: Cherry St. & N. Dwy.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	54	70
Average Queue (ft)	50	40
95th Queue (ft)	63	122
Link Distance (ft)	271	183
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Cherry St. & S. Dwy.

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	110	69	10	100
Average Queue (ft)	86	36	5	46
95th Queue (ft)	188	93	24	156
Link Distance (ft)	184		218	183
Upstream Blk Time (%)	11			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		100		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		1		

Zone Summary

Zone wide Queuing Penalty: 1042

Intersection: 3: I-15 SB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	LTR	R
Maximum Queue (ft)	176	147	182	337	345	63	198	283	228
Average Queue (ft)	122	105	122	276	181	54	185	269	190
95th Queue (ft)	180	175	222	321	410	69	207	292	254
Link Distance (ft)	324	324			551	551		716	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			150	255			300		300
Storage Blk Time (%)		1	5	24				0	
Queuing Penalty (veh)		7	18	93				1	

Intersection: 4: I-15 NB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	L	TR
Maximum Queue (ft)	196	162	140	174	57	49	276	288
Average Queue (ft)	184	144	70	173	36	40	201	210
95th Queue (ft)	204	173	186	175	70	54	325	335
Link Distance (ft)		551	551	171	171	171		518
Upstream Blk Time (%)				25				
Queuing Penalty (veh)				128				
Storage Bay Dist (ft)	255						300	
Storage Blk Time (%)								1
Queuing Penalty (veh)								2

Intersection: 5: Bundy Cyn. Rd. & Cherry St.

Movement	EB	EB	EB	WB	SB
Directions Served	L	T	T	T	R
Maximum Queue (ft)	149	239	171	122	226
Average Queue (ft)	149	220	85	87	226
95th Queue (ft)	150	251	226	145	226
Link Distance (ft)		171	171	192	218
Upstream Blk Time (%)		43	1		34
Queuing Penalty (veh)		186	2		122
Storage Bay Dist (ft)	100				
Storage Blk Time (%)	67	4			
Queuing Penalty (veh)	227	13			

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	L	TR	L	TR
Maximum Queue (ft)	51	70	114	156	20	235	316	128	29	154	173
Average Queue (ft)	40	35	102	148	10	229	222	111	15	60	51
95th Queue (ft)	58	93	122	161	27	238	288	139	39	81	90
Link Distance (ft)		315	315	315		538	538		289		1218
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	120				150			150		100	
Storage Blk Time (%)						11				17	
Queuing Penalty (veh)						5				24	

Intersection: 10: Cherry St. & N. Dwy.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	56	31
Average Queue (ft)	53	15
95th Queue (ft)	59	41
Link Distance (ft)	271	183
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Cherry St. & S. Dwy.

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	158	31	69
Average Queue (ft)	51	30	63
95th Queue (ft)	83	32	73
Link Distance (ft)	184		183
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 798

Intersection: 3: I-15 SB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	LTR	R
Maximum Queue (ft)	171	161	37	270	269	234	247	320	243
Average Queue (ft)	118	126	22	214	205	178	208	302	216
95th Queue (ft)	165	187	57	291	313	286	234	403	284
Link Distance (ft)	324	324			551	551		716	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			150	255			300		300
Storage Blk Time (%)		6		10	3			10	0
Queuing Penalty (veh)		21		54	10			49	2

Intersection: 4: I-15 NB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	L	TR
Maximum Queue (ft)	119	304	518	187	179	100	312	290
Average Queue (ft)	101	254	382	163	129	82	291	235
95th Queue (ft)	157	384	656	220	201	187	332	329
Link Distance (ft)		551	551	171	171	171		518
Upstream Blk Time (%)			3	21	8	0		
Queuing Penalty (veh)			19	98	36	2		
Storage Bay Dist (ft)	255						300	
Storage Blk Time (%)		20					3	1
Queuing Penalty (veh)		32					19	3

Intersection: 5: Bundy Cyn. Rd. & Cherry St.

Movement	EB	EB	EB	EB	WB	WB	WB	B23	SB
Directions Served	L	T	T	T	T	T	R	T	R
Maximum Queue (ft)	150	206	81	14	27	57	11	12	146
Average Queue (ft)	147	145	0	7	20	29	6	6	146
95th Queue (ft)	147	289	0	28	55	111	21	23	275
Link Distance (ft)		171	171	171	192	192	192	315	218
Upstream Blk Time (%)		23	0						41
Queuing Penalty (veh)		145	1						129
Storage Bay Dist (ft)	100								
Storage Blk Time (%)	56								
Queuing Penalty (veh)	289								

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	143	135	128	190	59	278	329	29	163	42	118	29
Average Queue (ft)	106	84	109	146	48	225	259	21	140	31	99	20
95th Queue (ft)	181	150	135	205	72	335	387	40	180	63	154	40
Link Distance (ft)		315	315	315		538	538	538		289		1218
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	120				150				150		100	
Storage Blk Time (%)	7	3				12			3		17	
Queuing Penalty (veh)	30	3				5			0		17	

Intersection: 10: Cherry St. & N. Dwy.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	55	97
Average Queue (ft)	43	27
95th Queue (ft)	63	70
Link Distance (ft)	271	183
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Cherry St. & S. Dwy.

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	88	57
Average Queue (ft)	60	55
95th Queue (ft)	107	58
Link Distance (ft)	184	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 725

Intersection: 3: I-15 SB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	LTR	R
Maximum Queue (ft)	152	105	143	263	120	63	393	472	349
Average Queue (ft)	133	84	111	247	108	42	338	376	329
95th Queue (ft)	164	119	164	250	111	77	393	429	363
Link Distance (ft)	324	324			551	551		716	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			150	255			300		300
Storage Blk Time (%)			1	9			17	39	1
Queuing Penalty (veh)			2	35			91	154	10

Intersection: 4: I-15 NB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	L	TR
Maximum Queue (ft)	252	128	164	176	183	93	232	242
Average Queue (ft)	214	109	145	175	171	73	171	153
95th Queue (ft)	277	139	177	176	190	106	213	158
Link Distance (ft)		551	551	171	171	171		518
Upstream Blk Time (%)				28	11			
Queuing Penalty (veh)				143	55			
Storage Bay Dist (ft)	255						300	
Storage Blk Time (%)	7							
Queuing Penalty (veh)	35							

Intersection: 5: Bundy Cyn. Rd. & Cherry St.

Movement	EB	EB	EB	WB	WB	SB
Directions Served	T	T	T	T	T	R
Maximum Queue (ft)	203	144	78	184	115	228
Average Queue (ft)	139	72	0	140	83	193
95th Queue (ft)	245	190	0	213	135	251
Link Distance (ft)	171	171	171	192	192	218
Upstream Blk Time (%)	13			1		41
Queuing Penalty (veh)	56			4		147
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	EB	EB	EB	EB	B23	B23	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	TR	T	T	L	T	T	R	L	TR
Maximum Queue (ft)	180	386	74	140	276	186	50	202	327	27	144	31
Average Queue (ft)	179	386	64	139	218	93	30	171	307	14	108	16
95th Queue (ft)	180	386	81	140	248	247	31	222	340	36	167	41
Link Distance (ft)		315	315	315	192	192		538	538	538		289
Upstream Blk Time (%)		91			57	1						
Queuing Penalty (veh)		410			257	3						
Storage Bay Dist (ft)	120						150				150	
Storage Blk Time (%)	92							5			2	
Queuing Penalty (veh)	241							2			0	

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (ft)	113	160
Average Queue (ft)	104	128
95th Queue (ft)	113	181
Link Distance (ft)		1218
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)	10	3
Queuing Penalty (veh)	14	5

Intersection: 10: Cherry St. & N. Dwy.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	50	31
Average Queue (ft)	40	16
95th Queue (ft)	56	42
Link Distance (ft)	271	183
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Cherry St. & S. Dwy.

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	181	112	94
Average Queue (ft)	65	56	47
95th Queue (ft)	121	149	124
Link Distance (ft)	184		183
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		100	
Storage Blk Time (%)		3	
Queuing Penalty (veh)		7	

Zone Summary

Zone wide Queuing Penalty: 738

Intersection: 3: I-15 SB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	LTR	R
Maximum Queue (ft)	178	105	14	320	287	284	340	296	150
Average Queue (ft)	103	104	12	172	275	283	228	234	139
95th Queue (ft)	226	105	14	236	296	284	412	336	157
Link Distance (ft)	324	324			551	551		716	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			150	255			300		300
Storage Blk Time (%)				8	13		6	1	
Queuing Penalty (veh)				44	51		34	6	

Intersection: 4: I-15 NB Ramps & Bundy Cyn. Rd.

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	L	TR
Maximum Queue (ft)	175	338	356	171	171	180	305	268
Average Queue (ft)	163	323	339	171	136	168	283	245
95th Queue (ft)	183	348	367	171	193	188	320	254
Link Distance (ft)		551	551	171	171	171		518
Upstream Blk Time (%)				10	8	8		
Queuing Penalty (veh)				48	40	36		
Storage Bay Dist (ft)	255						300	
Storage Blk Time (%)		13					6	
Queuing Penalty (veh)		20					35	

Intersection: 5: Bundy Cyn. Rd. & Cherry St.

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	R	R
Maximum Queue (ft)	202	160	54	157	115	205
Average Queue (ft)	101	80	27	93	0	181
95th Queue (ft)	267	212	72	199	0	186
Link Distance (ft)	171	171	192	192	192	218
Upstream Blk Time (%)	24	0				0
Queuing Penalty (veh)	150	2				1
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	EB	EB	EB	EB	B23	B23	WB	WB	WB	WB	NB	SB
Directions Served	L	T	T	TR	T	T	L	T	T	R	L	L
Maximum Queue (ft)	180	386	314	205	276	192	53	314	550	30	116	84
Average Queue (ft)	180	386	304	193	272	96	21	227	538	14	113	79
95th Queue (ft)	180	386	321	212	278	255	32	370	558	37	118	86
Link Distance (ft)		315	315	315	192	192		538	538	538		
Upstream Blk Time (%)		88	0		55	1			10			
Queuing Penalty (veh)		547	0		345	6			39			
Storage Bay Dist (ft)	120						150				150	100
Storage Blk Time (%)	89	1						16				0
Queuing Penalty (veh)	407	3						6				0

Intersection: 6: Bundy Cyn. Rd. & Sellers Rd.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	116
Average Queue (ft)	66
95th Queue (ft)	77
Link Distance (ft)	1218
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	9
Queuing Penalty (veh)	13

Intersection: 10: Cherry St. & N. Dwy.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	53	31
Average Queue (ft)	52	16
95th Queue (ft)	53	41
Link Distance (ft)	271	183
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Cherry St. & S. Dwy.

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	72	29	51	28
Average Queue (ft)	51	0	41	0
95th Queue (ft)	85	0	58	0
Link Distance (ft)	184		218	183
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 468

APPENDIX K

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT RAMP JUNCTION ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	4351	784
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4826	870
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.68	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.441
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1586
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.599	Outer Lanes Freeway Speed (SO), mi/h	69.0
Flow in Lanes 1 and 2 (v12), pc/h	3240	Ramp Junction Speed (S), mi/h	58.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	27.3
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	30.0

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3567	1066
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3956	1182
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.73	0.59

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.420
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1626
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	55.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	60.9
Flow in Lanes 1 and 2 (v12), pc/h	2330	Ramp Junction Speed (S), mi/h	57.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	3512	Average Density (D), pc/mi/ln	30.0
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.9

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3142	642
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3485	712
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.36

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.427
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	998
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	55.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.640	Outer Lanes Freeway Speed (SO), mi/h	71.3
Flow in Lanes 1 and 2 (v12), pc/h	2487	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.2

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2500	785
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	2773	871
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.44

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.325
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1129
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1644	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2515	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.3

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3746	912
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4155	1012
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.59	0.51

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.454
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1226
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.610	Outer Lanes Freeway Speed (SO), mi/h	70.4
Flow in Lanes 1 and 2 (v12), pc/h	2929	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	27.4

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HCS7 Freeway Merge Report

Project Information			
Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 SB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2834	681
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3143	755
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.55	0.38

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.342
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1292
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.589	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1851	Ramp Junction Speed (S), mi/h	58.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	2606	Average Density (D), pc/mi/ln	22.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	23.0

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HCS7 Freeway Diverge Report

Project Information

Analyst		Date	1/4/2024
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB Off-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1500	160
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	4049	1042
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	4491	1156
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.64	0.58

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.467
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1351
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	0.595	Outer Lanes Freeway Speed (SO), mi/h	69.9
Flow in Lanes 1 and 2 (v12), pc/h	3140	Ramp Junction Speed (S), mi/h	58.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	25.7
Level of Service (LOS)	D	Density in Ramp Influence Area (DR), pc/mi/ln	29.8

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HCS7 Freeway Merge Report

Project Information

Analyst		Date	12/18/19
Agency	Trames Solutions, Inc.	Analysis Year	EAPC (2025)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Cherry Outpost Traffic Study; I-15 NB On-Ramp @ Bundy	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	1500	555
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	3007	637
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.980	0.980
Flow Rate (vi),pc/h	3335	707
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.57	0.35

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.334
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1357
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.593	Outer Lanes Freeway Speed (SO), mi/h	61.9
Flow in Lanes 1 and 2 (v12), pc/h	1978	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2685	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.7

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April 2025 | Response to Comments
State Clearinghouse No. 2024120689

CHERRY OUTPOST COMMERCIAL CENTER

City of Wildomar

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PLACEWORKS

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1. Introduction

1.1 BACKGROUND

This document includes a compilation of the public comments received on the Cherry Outpost Commercial Center Project Initial Study and Mitigated Negative Declaration (collectively, MND; State Clearinghouse No. 2024120689) and the City of Wildomar's (City's) responses to those comments.

Under the California Environmental Quality Act (CEQA), a lead agency is not required to prepare formal responses to comments on an MND. However, CEQA requires a lead agency to have adequate information on the record explaining why the comments do not affect the conclusion of the MND and that there are no potentially significant environmental effects. In the spirit of public disclosure and engagement, the City, as the lead agency, has responded to all written comments submitted on the MND during the 30-day public review period, which began December 18, 2024, and ended January 27, 2025.

1.2 DOCUMENT FORMAT

Section 1, ***Introduction.*** This section describes CEQA requirements and the content of this document.

Section 2, ***Response to Comments.*** This section provides a list of agencies and persons commenting on the MND, copies of comment letters received during the public review period, and individual responses to written comments. To facilitate review of the responses, each comment letter has been reproduced and assigned a letter. Individual comments within each letter have been numbered, and the letter is followed by responses with references to the corresponding comment number.

Appendix A, ***Mitigation Monitoring and Reporting Program.*** The Mitigation Monitoring and Reporting Program (MMRP) document lists all the mitigation measures required for implementation of the project, the phase in which the measures would be implemented, and the enforcement agency responsible for compliance. The monitoring program provides (1) a mechanism for giving the lead agency staff and decision makers feedback on the effectiveness of their actions; (2) a learning opportunity for improved mitigation measures on future projects; and (3) a means of identifying corrective actions, if necessary, before irreversible environmental damage occurs.

1.3 CEQA REQUIREMENTS REGARDING COMMENTS AND RESPONSES

CEQA Guidelines, Section 15204(b), outlines parameters for submitting comments on negative declarations, and reminds persons and public agencies that the focus of review and comment of MNDs should be on the proposed findings that the project will not have a significant effect on the environment. If the commenter believes that the project may have a significant effect, they should: (1) Identify the specific effect, (2) Explain why they believe the effect would occur, and (3) Explain why they believe the effect would be significant.

1. Introduction

CEQA Guidelines, Section 15204(c), further advises, "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to Section 15064, an effect shall not be considered significant in the absence of substantial evidence."

Section 15204(d) also states, "Each responsible agency and trustee agency shall focus its comments on environmental information germane to that agency's statutory responsibility." Section 15204 (e) states, "This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."

Finally, CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. When responding to comments, lead agencies need only respond to potentially significant environmental issues and do not need to provide all information requested by reviewers, as long as a good-faith effort at full disclosure is made in the environmental document.

2. Response to Comments

This section provides all written comments received on the circulated MND and the City's response to each comment.

Comment letters and specific comments within those letters are assigned an alphanumeric designation for reference purposes. The following is a list of all comment letters received on the circulated MND during the 30-day public review period, which began December 18, 2024, and ended January 27, 2025.

Letter Reference	Commenting Person/Agency	Date of Comment	Page No.
A	Riverside County Flood Control and Water Conservation District, Amy McNeill, Engineering Project Manager	December 23, 2024	4

3. Revisions to the IS/MND

LETTER A – Riverside County Flood Control and Water Conservation District, Amy McNeill, Engineering Project Manager (2 pages)

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RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

December 23, 2024

City of Wildomar
Planning Department
23873 Clinton Keith Road, Suite 201
Wildomar, CA 92595

Attention: Matthew Bassi

Re: PLN 24-0056,
Cherry Outpost Commercial Center Project,
APNs 366-290-007 and 366-290-008

The Riverside County Flood Control and Water Conservation District (District) does not normally recommend conditions for land divisions or other land use cases in incorporated cities. The District also does not plan check City land use cases or provide State Division of Real Estate letters or other flood hazard reports for such cases. District comments/recommendations for such cases are normally limited to items of specific interest to the District including District Master Drainage Plan facilities, other regional flood control and drainage facilities which could be considered a logical component or extension of a master plan system, and District Area Drainage Plan fees (development mitigation fees). In addition, information of a general nature is provided.

The District's review is based on the above-referenced project transmittal, received December 18, 2024. The District **has not** reviewed the proposed project in detail, and the following comments do not in any way constitute or imply District approval or endorsement of the proposed project with respect to flood hazard, public health and safety, or any other such issue:

☐ This project would not be impacted by District Master Drainage Plan facilities, nor are other facilities of regional interest proposed.

☐ This project involves District proposed Master Drainage Plan facilities, namely, _____. The District will accept ownership of such facilities on written request by the City. The Project Applicant shall enter into a cooperative agreement establishing the terms and conditions of inspection, operation, and maintenance with the District and any other maintenance partners. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection, and administrative fees will be required. All regulatory permits (and all documents pertaining thereto, e.g., Habitat Mitigation and Monitoring Plans, Conservation Plans/Easements) that are to be secured by the Applicant for both facility construction and maintenance shall be submitted to the District for review. The regulatory permits' terms and conditions shall be approved by the District prior to improvement plan approval, map recordation, or finalization of the regulatory permits. There shall be no unreasonable constraint upon the District's ability to operate and maintain the flood control facility(ies) to protect public health and safety. A-1

☐ This project proposes channels, storm drains larger than 36 inches in diameter, or other facilities that could be considered regional in nature and/or a logical extension a District's facility, the District would consider accepting ownership of such facilities on written request by the City. The Project Applicant shall enter into a cooperative agreement establishing the terms and conditions of inspection, operation, and maintenance with the District and any other maintenance partners. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection, and administrative fees will be required. The regulatory permits' terms and conditions shall be approved by the District prior to improvement plan approval, map recordation, or finalization of the regulatory permits. There shall be no unreasonable constraint upon the District's ability to operate and maintain the flood control facility(ies) to protect public health and safety.

2. Response to Comments

☐ This project is located within the limits of the District's _____ Area Drainage Plan for which drainage fees have been adopted. If the project is proposing to create additional impervious surface area, applicable fees should be paid (in accordance with the Rules and Regulations for Administration of Area Drainage Plans) to the Flood Control District or City prior to issuance of grading or building permits. Fees to be paid should be at the rate in effect at the time of issuance of the actual permit.

A-1

CONT'D

☒ An encroachment permit shall be obtained for any construction related activities occurring within District right of way or facilities, namely, Sedco Master Drainage Plan Line F. If a proposed storm drain connection exceeds the hydraulic performance of the existing drainage facilities, mitigation will be required. For further information, contact the District's Encroachment Permit Section at 951.955.1266.

☐ The District's previous comments are still valid.

GENERAL INFORMATION

The project proponent shall bear the responsibility for complying with all applicable mitigation measures defined in the California Environmental Quality Act (CEQA) document, and/or Mitigation Monitoring and Reporting Program, and with all other federal, state, and local environmental rules and regulations that may apply, such as, but not limited to, the Multiple Species Habitat Conservation Plan (MSHCP), Sections 404 and 401 of the Clean Water Act, California Fish and Game Code Section 1602, and the Porter Cologne Water Quality Control Act. The District's action associated with the subject project triggers evaluation by the District with respect to the applicant's compliance with federal, state, and local environmental laws. For this project, the Lead Agency is the agency in the address above, and the District is a Responsible Agency under CEQA. The District, as a Co-permittee under the MSHCP, needs to demonstrate that all District related activities, including the actions identified above, are consistent with the MSHCP. This is typically achieved through determinations from the CEQA Lead Agency (if they are also a Co-permittee) for the project. For the MSHCP, the District's focus will be particular to Sections 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.3.7, 7.5.3, and Appendix C of the MSHCP. Please include consistency determination statements from the Lead Agency/Co-permittee for the project for each of these sections in the CEQA document. The District may also require that an applicant provide supporting technical documentation for environmental clearance.

A-2

This project may require a National Pollutant Discharge Elimination System (NPDES) permit from the State Water Resources Control Board. Clearance for grading, recordation, or other final approval should not be given until the City has determined that the project has been granted a permit or is shown to be exempt.

If this project involves a Federal Emergency Management Agency (FEMA) mapped floodplain, then the City should require the applicant to provide all studies, calculations, plans, and other information required to meet FEMA requirements, and should further require that the applicant obtain a Conditional Letter of Map Revision (CLOMR) prior to grading, recordation, or other final approval of the project and a Letter of Map Revision (LOMR) prior to occupancy.

A-3

Very truly yours,

Amy McNeill

AMY MCNEILL
Engineering Project Manager

EM:zl

3. Revisions to the IS/MND

A. Response to Comments from Riverside County Flood Control and Water Conservation District, Amy McNeill, Engineering Project Manager, dated December 23, 2024.

A-1 The commenter states that the Riverside County Flood Control and Water Conservation District (District) does not normally recommend conditions for land divisions or other land use cases in incorporated cities. The commenter states that an encroachment permit shall be obtained for any construction-related activities occurring within the District right of way or facilities, namely the Sedco Master Drainage Plan Line F.

The project applicant will obtain all applicable permits and pay all applicable fees to the District. If the proposed project is required to construct additional facilities within the Sedco Master Drainage Plan Line F facility, the applicant will ensure that all facilities are constructed to meet the District's standards and will submit plans to the District for plan check and inspection.

A-2 The commenter states that the project applicant is responsible for implementing all applicable mitigation measures as listed in the MMRP as well as complying with all applicable regulations, including the MSCHP. The commenter states that the proposed project may require a National Pollutant Discharge Eliminations System (NPDES) permit.

The proposed project would implement all the mitigation measures in the MMRP and comply with all applicable regulations. As indicated on page 64 of the IS/MND, Impact 7(b) states that the proposed project is subject to the NPDES permit as the proposed project would disturb more than one acre.

Please refer to Appendix 3, *General Biological Resources Assessment*, of the IS/MND which includes a consistency analysis with the MSHCP. Additionally, as indicated on pages 52 and 53 of the IS/MND, Impact 4(f) provides a summary of the consistency analysis. The project site is within the Elsinore Area Plan of the MSCHP, and is not located within or adjacent to an MSCHP Criteria Area, therefore, Sections 7.3.7 and 7.5.3 of the MSHCP do not apply. As there are no riparian/riverine areas or species onsite, the proposed project would not conflict with MSHCP Section 6.1.2, and therefore, a Determination of Biologically Equivalent Superior Preservation is not required. The project site is not within a Narrow Endemic Plant Species Survey Area and therefore, no focused surveys were required; the proposed project is consistent with Section 6.1.3 of the MSHCP. As the project site is not adjacent to a MSHCP Conservation Area, manufactured slopes associated with the proposed project would not impact MSHCP Conservation Areas. As such, the proposed project would be consistent with MSHCP Section 6.1.4.

A-3 The commenter states that if the project site is in a Federal Emergency Management Agency (FEMA) mapped floodplain, then the City should require the applicant to provide all studies, calculations, plans, and other information required to meet the FEMA requirements and require the applicant to obtain a Letter of Map Revision.

As indicated on page 80 of the IS/MND, Impact 10(c.iv), the project site is not within a flood risk zone according to FEMA.

2. Response to Comments

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3. Revisions to the IS/MND

3.1 INTRODUCTION

This section contains revisions to the IS/MND based upon (1) additional or revised information required to prepare a response to a specific comment; (2) applicable updated information that was not available at the time of IS/MND publication; and/or (3) typographical errors. This section also includes revisions to the mitigation measures based on additional information that was not available at the time of the IS/MND publication. The revisions to the IS/MND do not alter any impact significance conclusions as disclosed in the IS/MND. Changes made to the IS/MND are identified here in ~~strikeout text~~ to indicate deletions and in <u>underlined text</u> to signify additions.

3.2 REVISIONS TO THE IS/MND

GEOLOGY AND SOILS

Mitigation Measure GEO-2 on pages 22 and 23, in Table ES-1, Project Impact and Mitigation Summary, and page 66 have been revised for consistency purposes.

GEO-2 Prior to issuance of a grading permit <u>and during ground-disturbing activities</u>, the project applicant shall retain a Certified Paleontologist. As there is a moderate potential to encounter paleontological resources on the project site if excavations reach 10 to 13 feet, the project applicant shall retain a Certified Paleontologist to monitor all initial ground-disturbing activities that extend beyond depths of 5 feet. If the paleontologist, upon observing initial earthwork, determines there is low potential for discovery, no further action shall be required, and the paleontologist shall submit a memo to the City confirming findings of low potential.

Should any paleontological resources (i.e., fossils) be uncovered during project construction activities, all work within a 50-foot radius of the discovery site shall be halted or diverted to other areas on the site and the City shall be immediately notified. The Certified Paleontologist shall evaluate the finds and recommend appropriate next steps to ensure that the resource is not adversely impacted, including but not limited to avoidance, preservation in place, excavation, documentation, curation, data recovery, fossil identification, laboratory preparation, or other appropriate measures.

Further ground disturbance shall not resume within a 50-foot radius of the discovery site until an agreement has been reached between the project applicant, the Certified

Paleontologist, and the City as to the appropriate preservation or mitigation measures to ensure that the resource is not substantially adversely impacted.

Salvage and collection of significant fossils shall be done in accordance with the Society of Vertebrate Paleontology guidelines. Any paleontological resources salvaged shall be provided for curation at a local curation facility, or any other local museum or repository, such as the Western Science Center or World Museum of Natural History, willing and able to accept and house the resource to preserve for future scientific study.

Timing/Implementation: *During ground-disturbing construction activities*

Enforcement/Monitoring: *City of Wildomar Community Development Department and Building and Safety Department*

NOISE

A revised Noise Study for the proposed project was prepared by MD Acoustics, LLC (MD) on March 19, 2025 (Appendix B, *Revised Noise Study*). The assessment examines the operational noise levels of the proposed car wash and compares them to the City of Wildomar's Noise Ordinance as well as the combined predicted levels from the acoustic analysis report prepared by Helix Environmental Planning (Appendix 10, *Cherry Outpost Project Acoustical Analysis Report*, of the IS/MND). The revisions outlined below are based on the findings of the revised noise study from MD (see Appendix B). The revised analysis provides a more precise evaluation of the operational noise of the proposed car wash, which resulted in revisions to Mitigation Measure NOI-1 of the IS/MND (see below). However, these revisions do not trigger the recirculation requirements outlined in Section 15073.5, Recirulation of a Negative Declaration Prior to Adoption, of the State CEQA Guidelines. Therefore, recirculation is unnecessary as the revisions amplifies the analysis and the revised mitigation measure is effectively equal to the original mitigation measure.

Mitigation Measure NOI-1 on pages 24 and 25, in Table ES-1, Project Impact and Mitigation Summary, of the IS/MND has been revised based on the Revised Noise Study (Appendix B).

13. Noise	
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	
NOI-1	**Noise Reduction Features.** The proposed project shall demonstrate that noise is reduced at the residentially-zoned property north of the project site in compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB LMAX, and at the drive-through restaurant's commercial property line in compliance with the Wildomar

3. Revisions to the IS/MND

Municipal Code daytime exterior noise limit of 65 dB LMAX. The following measures shall be included as part of the final project design plans submitted to the City:

1. Install an L-shaped 6-foot-tall concrete masonry unit (CMU) wall at the tunnel exit to reflect sound away from the property line between the drive thru restaurant to the north and the exit of the tunnel. ~~Construction of an enclosure at the car wash exit and an on-site sound barrier (wall) at the northern property line. The enclosure at the exit of the car wash shall consist of a 12-foot-tall sound wall parallel to the car wash exit and 28 feet in length at 25 feet from the exit of the car wash. At the southern side of the 28-foot-long wall, a 12-foot-long wall shall extend perpendicularly towards the car wash exit. A roof shall cover the 25-foot by 28-foot area between the car wash exit tunnel and these walls. A second noise wall shall be constructed at the northern property line of the project site. This noise wall shall be 6 feet in height and extend approximately 100 feet, breaking the line-of-sight between the car wash and the residential property line. All noise barriers (wall and roof) must be solid. They can be constructed of any combination of standard building materials, including masonry, wood, plastic, fiberglass, or steel, so long as there are no cracks or gaps through or below the wall. Any seams or cracks must be filled or caulked. All noise barriers shall have a Sound Transmission Class (STC) rating of at least 22.~~

~~2. The addition of a layer noise absorption material with a minimum Noise Reduction Coefficient of 0.80 shall be mounted along the interior surface of the car wash tunnel from the approximate centerline of the blow dryers in the tunnel to the tunnel exit continuing to the tunnel exit ceiling and support walls. The material shall provide a minimum of 80 percent coverage vertically and cover the wall from 1 foot above the floor to 1 foot below the ceiling. Horizontally (on the ceiling), the material shall be mounted from the ceiling to within 1 foot of the walls.~~

~~3. Installation of a variable frequency drive (VFD) that would operate car wash blowers at a frequency of 50 Hz.~~

~~4.~~ 2. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.

Timing/Implementation: *During Final Design Plan-Check*

Enforcement/Monitoring: *City of Wildomar Building Department*

The analysis starting on page 86, Section 13, Noise, under the heading "Operational," has been revised to include the updated analysis based on the Revised Noise Study (see Appendix B).

a) Less Than Significant with Mitigation Incorporated.

…

Operational

Onsite Operations

The properties east and south of the project site are designated Commercial Retail with noise level limits of 65 dBA L_{max} from 7:00 a.m. to 10 p.m., and 55 dBA L_{max} 10:00 p.m. to 7:00 a.m. After approval of the proposed parcel subdivision, on-site property lines would also be subject to the Commercial Retail noise limits. The properties north of the project site are designated Medium Density Residential, which have noise level limits of 55 dBA L_{max} from 7:00 a.m. to 10:00 p.m. and 45 dBA L_{max} 10:00 p.m. to 7:00 a.m.

The proposed project's primary onsite operational noise sources would include rooftop HVAC units, drive-through speakers, and car wash equipment. In order to identify the maximum noise level for comparison with the City noise limits, all sources were modeled in constant operation with the exception of vacuums, half of which would be able to be in use at one time. The car wash would only be open during the daytime hours while HVAC and drive-through speakers were assumed to be in use throughout the night. Noise receivers were placed at onsite and neighboring property lines at a height of five feet. **Table 13-2a**, Unmitigated Operational Noise Levels at Surrounding Land Uses, shows the operational noise levels at the noise receiver sites (Figure 6 of **Appendix 10** shows the locations of the noise receiver sites).

Table 13-2a Unmitigated Operational Noise Levels at Surrounding Land Uses

Receiver	Land Use	City Exterior Noise Limit (Day/Night) (dBA L_{max})	Maximum Daytime Noise Level (dBA L_{max})	Maximum Nighttime Noise Level (dBA L_{max})	Direct Impact?[1]
R1	Medium Density Residential	55/45	58.0	41.4	Yes
R2	Medium Density Residential	55/45	53.8	41.0	No
C1	Retail Commercial	65/55	55.8	35.5	No
C2	Retail Commercial	65/55	58.5	24.5	No
C3	Retail Commercial	65/55	51.3	31.2	No

3. Revisions to the IS/MND

PL1	Retail Commercial	65/55	51.9	48.8	No
PL2	Retail Commercial	65/55	63.0	35.8	No
PL3	Retail Commercial	65/55	67.9	34.2	Yes
PL4	Retail Commercial	65/55	73.2	34.7	Yes
Source: HELIX 2024d					

As shown in ~~the~~ Table 13-2a, the proposed project would not conflict with any nighttime noise limits, however, the proposed project would exceed the City's daytime noise limit at the nearest commercial property ~~line~~ building facade (Receivers PL3 and PL4) at the northern and western boundaries of the car wash parcel and at the nearest residential property line (Receiver R1) at the northern boundary of the project site; the noise levels at these receivers exceed the daytime 65 dBA Lmax and 55 dBA Lmax noise limits of the Wildomar Municipal Code for commercial and residential uses, respectively. ~~residential property line north of the site and at the onsite property lines north of the car wash parcel (quick-serve restaurant and gas station parcels). The daytime noise limit would not be exceeded at offsite commercial land uses or at the proposed hotel property line~~. Because noise levels would be exceeded, impacts would be potentially significant. ~~However, with the implementation of Mitigation Measure **NOI-1**, which describes the noise reduction features to be incorporated into the project, noise levels at receivers R1 and PL3 would be reduced to 53.4 and 62.3 dBA Lmax, respectively~~. However, Table 13-2b, Mitigated Operational Noise Levels at Surrounding Land Uses, summarizes the results of the operational noise levels in the project site and adjacent uses and indicates that noise levels would be below the City's maximum noise levels (see Figure 7 of **Appendix B** shows the operational noise levels).

Table 13-2b Mitigated Operational Noise Levels at Surrounding Land Uses

Receiver	Land Use	City Exterior Noise Limit (Day/Night) (dBA L_{max})	Maximum Daytime Noise Level (dBA L_{max})	Direct Impact?[1]
R1	Medium Density Residential	55/45	53	No
R2	Medium Density Residential	55/45	40	No
C1	Retail Commercial	65/55	47	No
C2	Retail Commercial	65/55	53	No
C3	Retail Commercial	65/55	51	No
PL1	Retail Commercial	65/55	40	No
PL2	Retail Commercial	65/55	58	No
PL3	Retail Commercial	65/55	62	No
PL4	Retail Commercial	65/55	69	No[1]

Notes: [1] This location does not represent a physical receiver. PL4 is considered a model calibration reference site.
Source: HELIX 2024d; MD 2025

With the implementation of Mitigation Measure **NOI-1**, which describes the noise reduction features to be incorporated into the project, noise levels at receivers PL3 and R1 would be reduced to 62 dBA Lmax at the nearest commercial façade and 51 dBA Lmax at the nearest residential property line. Noise levels at PL4 would be reduced to 69 dBA Lmax; while noise levels at PL4 would still exceed the City's noise standard of 65 dBA Lmax, this location does not represent a physical receiver and is a model calibration reference site.

Operation of the car wash would result in noise levels exceeding the daytime Wildomar Municipal Code limits at the gas station and quick-serve restaurant property lines (PL4); however, a continuous-events exception has been requested as part of the proposed project which would exempt the proposed project from these noise limits at the property line. In accordance with Section 9.48.070.B, approval of an exception to the City's noise limits must not be detrimental to the health, safety, or general welfare of the community. Given that the proposed land uses at the property line are a gas station and quick-serve restaurant, which are not noise sensitive land uses, the proposed project would not result in adverse effects to people related to noise. With approval of a continuous-events exception by the City's Planning Commission, as well as implementation of Mitigation Measure **NOI-1**, operational noise would be less than significant with mitigation incorporated.

MITIGATION MEASURES

NOI-1 **Noise Reduction Features.** The proposed project shall demonstrate that noise is reduced at the residentially-zoned property north of the project site in compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB LMAX, and at the drive-through restaurant's commercial property line in compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB LMAX. The following measures shall be included as part of the final project design plans submitted to the City:

1. Install an L-shaped 6-foot-tall concrete masonry unit (CMU) wall at the tunnel exit to reflect sound away from the property line between the drive-through restaurant to the north and the exit of the tunnel. ~~Construction of an enclosure at the car wash exit and an on-site sound barrier (wall) at the northern property line. The enclosure at the exit of the car wash shall consist of a 12-foot-tall sound wall parallel to the car wash exit and 28 feet in length at 25 feet from the exit of the car wash. At the southern side of the 28-foot-long wall, a 12-foot-long wall shall extend perpendicularly towards the car wash exit. A roof shall cover the 25-foot by 28-foot area between the car wash exit tunnel and these walls. A second noise wall shall be constructed at the northern property line of the project site. This noise wall shall be 6 feet in height and extend approximately 100 feet, breaking the line-of-sight between the car wash and the residential property line. All noise barriers (wall and roof) must be solid. They can be constructed of any combination of standard building materials, including masonry, wood, plastic, fiberglass, or steel, so long as there are no cracks or gaps through or~~

3. Revisions to the IS/MND

~~below the wall. Any seams or cracks must be filled or caulked. All noise barriers shall have a Sound Transmission Class (STC) rating of at least 22.~~

~~2 The addition of a layer noise absorption material with a minimum Noise Reduction Coefficient of 0.80 shall be mounted along the interior surface of the car wash tunnel from the approximate centerline of the blow dryers in the tunnel to the tunnel exit continuing to the tunnel exit ceiling and support walls. The material shall provide a minimum of 80 percent coverage vertically and cover the wall from 1 foot above the floor to 1 foot below the ceiling. Horizontally (on the ceiling), the material shall be mounted from the ceiling to within 1-foot of the walls.~~

~~3 Installation of a variable frequency drive (VFD) that would operate car wash blowers at a frequency of 50 Hz.~~

~~4~~ 2. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.

Timing/Implementation: *During Final Design Plan-Check*

Enforcement/Monitoring: *City of Wildomar Building Department*

Appendix A

Mitigation Monitoring and Reporting Program

April 2025 | Mitigation Monitoring and Reporting Program
State Clearinghouse No. 2024120689

CHERRY OUTPOST COMMERCIAL CENTER

City of Wildomar

Prepared for:

City of Wildomar
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PLACEWORKS

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1. Introduction

1.1 PURPOSE OF MITIGATION MONITORING AND REPORTING PROGRAM

The City of Wildomar (City) is the lead agency for the proposed Cherry Outpost Commercial Center and has developed this Mitigation Monitoring and Reporting Program (MMRP) as a vehicle for monitoring mitigation measures outlined in the Cherry Outpost Commercial Center Initial Study and Mitigated Negative Declaration (IS/MND), State Clearinghouse No. 2024120689. As the lead agency, the City is responsible for implementing the MMRP, which has been prepared in conformance with Section 21081.6 of the California Public Resources Code, as follows:

> (a) When making findings required by paragraph (1) of subdivision (a) of Section 21081 or when adopting a mitigated negative declaration pursuant to paragraph (2) of subdivision (c) of Section 21080, the following requirements shall apply:
>
> (1) The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the lead or responsible agency, prepare and submit a proposed reporting or monitoring program.
>
> (2) The lead agency shall specify the location and custodian of the documents or other material which constitute the record of proceedings upon which its decision is based.

The MMRP consists of mitigation measures that avoid, reduce, and/or fully mitigate potential environmental impacts. The mitigation measures have been identified and recommended through preparation of the IS/MND and drafted to meet the requirements of Public Resources Code, Section 21081.6.

1.2 PROJECT CHARACTERISTICS

1.2.1 Project Location

The project site is at the northwest corner of Bundy Canyon Road and Cherry Street in the City of Wildomar, Riverside County, California. The project site consists of a triangular-shaped parcel that covers approximately 6.65 acres and is comprised of Assessor Parcel Numbers (APNs) 366-290-007 and 366-290-008.

1.2.2 Proposed Improvements

The project proposes to construct a commercial retail center consisting of: a 4-story, 72-room hotel (45,571 square feet); a gas station complex, including a 4,176-square-foot convenience store with an attached 3,200-square-foot drive-through restaurant, and a 2-position RV fueling area; a stand-alone 4,425-square-foot fast food/drive-through restaurant; and a 5,724-square-foot express car wash with related accessories.

This Initial Study evaluates the proposed project which is being processed through the following development applications:

- **Tentative Parcel Map:** In accordance with Section 16.24.110 (Subdivision Ordinance) of the Wildomar Municipal Code, the proposed tentative parcel map requires approval by the Planning Commission to subdivide the 6.65-acre site to accommodate the sale of individual parcels on the project site.
- **Conditional Use Permit (CUP):** In accordance with Chapter 17.248 (Alcoholic Beverage Sales) and Chapter 17.76 (C-P-S Scenic Highway Commercial Zone) of the Wildomar Municipal Code, the proposed project requires approval of a CUP to establish a gas station/mini-mart with concurrent beer and wine sales, and express car wash, respectively.
- **Plot Plan (PP):** In accordance with Chapter 17.216 of the Wildomar Municipal Code, the proposed project requires approval of a Plot Plan by the Planning Commission to develop the commercial retail center including site planning, architecture, landscaping, parking, etc. and on-site and off-site improvements consistent with the City's commercial objective design standards and guidelines.

1.3 ENVIRONMENTAL IMPACTS

1.3.1 Impacts Considered Less Than Significant

The IS/MND identified various thresholds from the California Environmental Quality Act (CEQA) Guidelines in a number of environmental categories that would not be significantly impacted by the proposed project and therefore did not require mitigation. Impacts to the following were found to be less than significant:

- Aesthetics
- Agriculture and Forestry Resources
- Energy
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Transportation
- Utilities and Service Systems

1.3.2 Potentially Significant Adverse Impacts That Can Be Mitigated, Avoided, or Substantially Lessened

Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Noise, Tribal Cultural Resources, and Wildfire were identified as having potentially significant impacts that could be reduced, avoided, or substantially lessened through implementation of mitigation measures. No significant and unavoidable impacts were identified.

1. Introduction

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2. Mitigation Monitoring Process

2.1 MITIGATION MONITORING PROGRAM ORGANIZATION

Overall MMRP management is the responsibility of the City of Wildomar. The City's technical consultants (CEQA consultant, etc.) may perform related monitoring tasks under the direction of the environmental monitor if they are contracted by the City.

2.2 CITY OF WILDOMAR

As the lead agency, the City is responsible for the review of all monitoring reports, enforcement actions and document disposition. The City will rely on information provided by individual monitors (e.g., CEQA consultant, etc.) as accurate and up to date, and will field check mitigation measure status, as required.

2.3 MITIGATION MONITORING TEAM

The mitigation monitoring team, consisting of the designated Project Manager (Community Development Director) and Technical Consultants (CEQA consultant, etc.) are responsible for monitoring implementation and compliance with all adopted mitigation measures and conditions of approval. A major portion of the team's work is in-field monitoring and compliance report preparation. Implementation disputes are brought to the Project Manager, and any appeals would go to the City Manager and ultimately the City Council.

2.3.1 Monitoring Team

The following summarizes key positions in the MMRP and their respective functions:

- **Project Manager:** Responsible for coordination of mitigation monitoring team, technical consultants, report preparation, and overall program administration and document/report clearinghouse.
- **Construction Contractor:** Responsible for coordination of mitigation monitoring team; technical consultants; report preparation; and implementation the monitoring program, including overall program administration, document/report clearinghouse, and first phase of dispute resolution.
- **Technical Consultants:** Responsible for monitoring in respective areas of expertise (CEQA consultant, project engineer, noise analyst/specialist). Report directly to the Project Manager.

2.3.2 Recognized Experts

The use of recognized experts on the monitoring team is required to ensure compliance with scientific and engineering mitigation measures. The mitigation monitoring team's recognized experts assess compliance with required mitigation measures, and recognized experts from responsible agencies consult with the Project Manager regarding disputes.

2.4 DISPUTE RESOLUTION

If the mitigation monitor determines that a mitigation measure, in the opinion of the monitor, has not been implemented or has not been implemented correctly, the problem will be brought before the Project Manager for resolution. The decision of the Project Manager is final unless appealed to the City Manager. The Project Manager will have the authority to issue stop-work order until the dispute is resolved.

2.5 ENFORCEMENT

Public agencies may enforce conditions of approval through their existing police power, using stop-work orders, fines, infraction citations, or in some cases, notice of violation for tax purposes.

3. Mitigation Monitoring Requirements

3.1 PREMONITORING MEETING

A pre-monitoring meeting will be scheduled to review mitigation measures, implementation requirements, schedule conformance, and mitigation monitoring committee responsibilities. Committee rules are established, the entire mitigation monitoring program is presented, and any misunderstandings are resolved.

3.2 CATEGORIZED MITIGATION MEASURES/MATRIX

Project-specific mitigation measures have been categorized in matrix format, as shown in Table 3-1, *Mitigation Monitoring Requirements*. The matrix identifies the environmental factor, specific mitigation measures, schedule, and responsible monitor. The mitigation matrix will serve as the basis for scheduling the implementation of, and compliance with, all mitigation measures. These mitigation measures are also contained in the Conditions of Approval matrix for the Project.

3.3 IN-FIELD MONITORING

Project monitors and technical subconsultants shall exercise caution and professional practices at all times when monitoring implementation of mitigation measures. Protective wear (e.g. hard hat, glasses) shall be worn at all times in construction areas. Injuries shall be immediately reported to the mitigation monitoring committee.

3.4 DATABASE MANAGEMENT

All mitigation monitoring reports, letters, and memos shall be prepared utilizing electronic software, such as Microsoft Word, Adobe, etc.

3.5 COORDINATION WITH CONTRACTORS

The construction manager is responsible for coordination of contractors and for contractor completion of required mitigation measures.

3.6 LONG-TERM MONITORING

Long-term monitoring related to several mitigation measures will be required, including review of project plans to ensure compliance with the most recent versions of the California Building Code and California Fire Code. Post-construction fire inspections are conducted on a routine basis by the City of Wildomar Fire Department.

3. Mitigation Monitoring Requirements

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
AIR QUALITY					
AQ-1	**Tier 4 Construction Equipment**. Prior to issuing construction permits, the project applicant or designated representative shall provide to the City a comprehensive inventory of all diesel-powered off-road construction equipment, equal to or greater than 50 horsepower, that will be used on the project site during any portion of construction. The inventory shall include the horsepower rating, engine production year, and certification of the specified Tier standard. The City shall verify that all construction equipment is USEPA Tier Final certified or has been retrofitted with CARB approved diesel particulate matter reduction systems resulting in PM_{10} emissions meeting USEPA Tier 4 Final standards.	Construction contractor	Prior to issuance of construction permits	City of Wildomar Public Works and Engineering Department	
AQ-2	**Fugitive Dust Best Management Practices.** Prior to issuing construction permits, the City shall verify that project construction contract or construction documentation specify the requirement to implement all fugitive dust Best Available Control Measures listed in Table 1 of the SCAQMD Rule 403, and the following control measures are enhanced to require watering exposed surface a minimum of three times per day: • Clearing and Grubbing Control Measure 02-1: Maintain stability of soil through prewatering of site prior to clearing and grubbing. In addition, during dry weather, water exposed surfaces a minimum of three times per day during clearing and grubbing activities. • Cut and Fill Control Measure 05-1: Pre-water soils prior to cut and fill activities (e.g., grading). In addition, during dry weather, water all exposed surfaces a minimum of three times per day during cut and fill activities.	Construction contractor	Prior to issuance of construction permits	City of Wildomar Public Works and Engineering Department	
BIOLOGICAL RESOURCES					
BIO-1	**Burrowing Owl:** In compliance with the MSHCP, a pre-construction survey shall be conducted within 30 days prior to ground-disturbing activities (i.e., earthwork, clearing, grubbing, watering, staging, etc.) occurring on the project site. If the pre-construction survey is negative and Burrowing Owl (BUOW) is confirmed absent,	Qualified biologist	Thirty (30) days prior to the initiation of ground-disturbing activities	City of Wildomar Community Development Department	

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	then ground-disturbing activities shall be allowed to commence, and no further measures would be required. If BUOWs are observed during the pre-construction survey, take of active nests must be avoided, and the City must be immediately notified. The City will coordinate with the Wildlife Agencies (i.e., CDFW and USFWS) to determine whether a BUOW Protection and Relocation Plan is required prior to ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey must be conducted again to confirm BUOW has not colonized the project site since it was last disturbed. If BUOW is found, the same coordination described above would be required.				
BIO-2	**Nesting Birds:** To the extent feasible, construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 1 to August 31 for raptors. 1. If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory birds and raptors, a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities and provided to the City for review. The qualified biologist shall document the results of the pre-construction survey. If construction is inactive for more than seven days, an additional survey shall be conducted. 2. If the qualified biologist determines that no active migratory bird or raptor nests occur, the City shall be notified and the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no construction activities within 300 feet (500 feet for raptors) of the active	Qualified biologist	Seven (7) days prior to the initiation of construction activities	City of Wildomar Community Development Department	

3. Mitigation Monitoring Requirements

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the qualified biologist and approved by the City. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds.				
CULTURAL RESOURCES					
CUL-1	**Human Remains.** If potential human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within the period specified by law (24 hours). Subsequently, the Native American Heritage Commission shall identify the "most likely descendant" (MLD). The MLD shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. No photographs are to be taken of any human remains and/or cremations except by the coroner, with written approval by the consulting tribe(s).	Qualified professional archaeologist	During any ground-disturbing construction activities	City of Wildomar Public Works and Engineering Department and Planning Department	
GEOLOGY AND SOILS					
GEO-1	The project applicant/developer shall incorporate the recommendations of the Geotechnical Report prepared by Geocon West, Inc. (Appendix 5), or as directed by the City Engineer, into project plans related to the proposed project. The project's building plans submitted to the City shall demonstrate that they incorporate all applicable recommendations of the Geotechnical Report and comply with all applicable requirements of the latest adopted version of the California Building Code.	Project applicant and licensed professional	During building plan check, prior to any ground-disturbing construction activities	City of Wildomar Community Development Department and Building and Safety Department	
GEO-2	Prior to issuance of a grading permit and during ground-disturbing activities, the project applicant shall retain a Certified Paleontologist. As there is a moderate potential to encounter paleontological resources on the project site if excavations reach 10 to 13 feet, the project applicant shall retain a Certified Paleontologist to monitor all initial ground-disturbing activities that extend beyond depths of 5 feet. If the paleontologist, upon observing initial earthwork, determines there is low potential	Project applicant and certified paleontologist	During ground-disturbing construction activities	City of Wildomar Community Development Department and Building and Safety Department	

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	for discovery, no further action shall be required, and the paleontologist shall submit a memo to the City confirming findings of low potential. Should any paleontological resources (i.e., fossils) be uncovered during project construction activities, all work within a 50-foot radius of the discovery site shall be halted or diverted to other areas on the site and the City shall be immediately notified. The Certified Paleontologist shall evaluate the finds and recommend appropriate next steps to ensure that the resource is not adversely impacted, including but not limited to avoidance, preservation in place, excavation, documentation, curation, data recovery, fossil identification, laboratory preparation, or other appropriate measures. Further ground disturbance shall not resume within a 50-foot radius of the discovery site until an agreement has been reached between the project applicant, the Certified Paleontologist, and the City as to the appropriate preservation or mitigation measures to ensure that the resource is not substantially adversely impacted. Salvage and collection of significant fossils shall be done in accordance with the Society of Vertebrate Paleontology guidelines. Any paleontological resources salvaged shall be provided for curation at a local curation facility, or any other local museum or repository, such as the Western Science Center or World Museum of Natural History, willing and able to accept and house the resource to preserve for future scientific study.				
HAZARDS AND HAZARDOUS MATERIALS					
HAZ-1	Prior to the issuance of building permits, the project applicant/developer shall demonstrate, to the satisfaction of the City Building Official and the Riverside County Fire Chief, compliance with the 2022 California Building Code (or the most recent edition) (Part 2 of Title 24 of the California Code of Regulations) and the 2022 California Fire Code (or the most recent edition) (Part 9 of Title 24 of the California Code of Regulations), including those regulations pertaining to materials and construction methods intended to mitigate wildfire exposure as described in the 2022 California Building Code and California Residential Code (or most recent edition); specifically California Building Code Chapter 7A; California Residential Code Section	Riverside County Fire Department	Prior to issuance of building permits	City of Wildomar Building Department and Riverside County Fire Department	

3. Mitigation Monitoring Requirements

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	R327; California Residential Code Section R337; California Referenced Standards Code Chapter 12 7A; and California Fire Code Chapter 49.				
HAZ-2	Prior to the issuance of a certificate of occupancy, the applicant shall demonstrate, to the satisfaction of the City Building Official and the County Fire Chief, compliance with the vegetation management requirements prescribed in California Fire Code Section 4906 and California Government Code Section 51182.	Riverside County Fire Department	Prior to issuance of a certificate of occupancy	City of Wildomar Building Department and Riverside County Fire Department	
NOISE					
NOI-1	**Noise Reduction Features.** The proposed project shall demonstrate that noise is reduced at the residentially-zoned property north of the project site in compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB LMAX, and at the drive-through restaurant's commercial property line in compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB LMAX. The following measures shall be included as part of the final project design plans submitted to the City: 1. Install an L-shaped 6-foot-tall concrete masonry unit (CMU) wall at the tunnel exit to reflect sound away from the property line between the drive thru restaurant to the north and the exit of the tunnel. 2. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.	Construction contractor	During final design plan-check	City of Wildomar Building Department	
NOI-2	**Demonstration of Interior Noise Standard.** Once specific building plan information is available, an exterior-to-interior analysis shall be performed for habitable hotel rooms. The exterior-to-interior analysis shall demonstrate to the City that interior noise levels do not exceed 45 CNEL. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior	Construction contractor, acoustical engineer, and project applicant	Prior to construction	City of Wildomar Building Department	

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	noise levels for the planned hotel rooms. If predicted noise levels are found to exceed 45 CNEL, the analysis shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in hotel rooms. Standard measures such as windows with glazing and appropriate STC ratings, as well as walls with appropriate STC ratings, shall be considered. Final plans shall demonstrate that interior noise levels do not exceed 45 CNEL for proposed hotel rooms.				
TRIBAL CULTURAL RESOURCES					
TRI-1	**Inadvertent Archeological Find.** If during ground disturbance activities, cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Cultural resources are defined as being multiple artifacts in close association with each other, but also include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance as determined in consultation with the lead agency and Native American Tribe(s) that elected to consult under AB 52 ("Consulting Tribe(s)"). a. All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the tribal representative(s) and the Community Development Director to discuss the significance of the find. b. At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s), developer, and the archaeologist, a decision shall be made, with the concurrence of the Community Development Director, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources. c. Grading or further ground disturbance shall not resume within the area of the discovery until an agreement has been	Project applicant and professional archaeologist	During any ground-disturbing or construction activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

3. Mitigation Monitoring Requirements

Table 3-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal monitors if needed. d. Treatment and avoidance of the newly discovered resources shall be consistent with the Treatment and Monitoring Agreements entered into with the Consulting Tribe(s) and the applicant. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources located in native soils and/or re-burial on the Project property so they are not subject to further disturbance in perpetuity as identified in Mitigation Measures TRI-2 and TRI-7 e. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan (see Mitigation Measure TRI-6) shall be prepared by the project archeologist, in consultation with the Consulting Tribe(s), and shall be submitted to the City for their review and approval prior to implementation of the said plan. f. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and tribal cultural resources. If the landowner and the Consulting Tribe(s) cannot agree on the significance or the mitigation for the archaeological or tribal cultural resources, these issues will be presented to the Community Development Director for decision. The City's Community Development Director shall make the determination based on the provisions of the California Environmental Quality Act with respect to archaeological and tribal cultural resources, recommendations of the project archeologist, and shall take				

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	into account the cultural and religious principles and practices of the Consulting Tribe(s). Notwithstanding any other rights available under the law, the decision of the City Community Development Director shall be appealable to the City Planning Commission and/or City Council.				
TRI-2	**Cultural Resources Disposition.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a. One or more of the following treatments, in order of preference as numbered, shall be employed with the Consulting Tribe(s). Evidence of such shall be provided to the City of Wildomar Community Development Department: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources. ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the	Project applicant and professional archaeologist	During grading activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

3. Mitigation Monitoring Requirements

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	reburial shall be included in the confidential Phase IV report (see Mitigation Measure TRI-6). The Phase IV Report shall be filed with the City under a confidential cover and not subject to Public Records Request. iii. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets State Resources Department Office of Historic Preservation Guidelines for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees by the Applicant necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the landowner to the City. There shall be no destructive or invasive testing on sacred items, burial goods, and Native American human remains, as defined by the cultural and religious practices of the Most Likely Descendant. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report.				
TRI-3	**Archaeologist Retained.** Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified Registered Professional Archaeologist (RPA), to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources.	Qualified archaeologist, tribal cultural monitor(s), and developer	Prior to issuance of grading permit	City of Wildomar Public Works and Engineering Department and Community	

Table 3-1 Mitigation Monitoring Requirements

Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
The Registered Professional Archaeologist and the Tribal monitor(s) required by Mitigation Measures TRI-4 and TRI-5 shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Registered Professional Archaeologist and the Tribal monitor(s), shall independently have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors. The developer/permit holder shall submit a fully executed copy of the contract to the Community Development Department to ensure compliance with this condition of approval. Upon verification, the Community Development Department shall clear this condition. In addition, the Registered Professional Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) pursuant to the definition in AB 52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB 52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: a. Project grading and development scheduling; b. The Project archaeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring			Development Department	

3. Mitigation Monitoring Requirements

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
	program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.				
TRI-4	**Native American Monitoring (Pechanga).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Pechanga Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.	Project applicant and tribal cultural monitor(s)	During ground-disturbing activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
TRI-5	**Native American Monitoring (Soboba).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Soboba Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.	Project applicant and tribal cultural monitor(s)	During ground-disturbing activities	City of Wildomar Public Works and Engineering Department and Community Development Department	
TRI-6	**Archeology Report – Phase III and IV.** Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required for the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Community Development Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).	Developer and qualified archaeologist	Prior to final inspection	City of Wildomar Public Works and Engineering Department and Community Development Department	

3. Mitigation Monitoring Requirements

Table 3-1 Mitigation Monitoring Requirements

	Mitigation Measure	Responsibility for Implementation	Timing	Responsibility for Monitoring	Monitor (Signature Required) (Date of Compliance)
TRI-7	**Non-Disclosure of Reburial Locations.** It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code Section 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial.	Project applicant and professional archaeologist	During discovery of Native American human remains	City of Wildomar Public Works and Engineering Department and Community Development Department	
TRI-8	**No-Build Easement or Similar Instrument.** In the event that Native American artifacts are found and buried within the project vicinity, a no-build easement, or similar legal instrument, shall be used to preclude future development from taking place on the reburial site(s).	City of Wildomar Community Development Department	Before reburial of Native American artifacts	City of Wildomar Public Works and Engineering Department and Community Development Department	
WILDFIRE					
See Mitigation Measures HAZ-1 and HAZ-2.					

4. Mitigation Monitoring Reports

Mitigation monitoring reports are required to document compliance with the Mitigation Monitoring Program and to resolve disputes. Specific reports include:

- Field Check Report
- Implementation Compliance Report
- Dispute/Enforcement Report

4.1 FIELD CHECK REPORT

Field check reports are required to record in-field compliance and conditions.

4.2 IMPLEMENTATION COMPLIANCE REPORT

The Implementation Compliance Report (ICR) is prepared to document the implementation of mitigation measures on a phased basis, based on the information in Table 3-1. The report summarizes implementation compliance, including mitigation measures, date completed, and monitor's signature.

4.3 DISPUTE/ENFORCEMENT REPORT

The Dispute/Enforcement Report (DER) is prepared to document the outcome of the Project Manager or City Manager and becomes a portion of the ICR.

4. Mitigation Monitoring Reports

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5. Community Involvement

Monitoring reports are public documents and are available for review by the general public. Discrepancies in monitoring reports can be taken to the Project Manager or Community Development Director by the general public.

5. Community Involvement

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6. Report Preparation

6.1 LIST OF PREPARERS

City of Wildomar

Steven Jones, Community Development Director

PlaceWorks

Mark Teague, AICP, Managing Principal

Jasmine Osman, Senior Associate

Joseph Ruiz, Planner

6. Report Preparation

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ATTACHMENT B

PC RESOLUTION NO. 2025-09

TENTATIVE PARCEL MAP NO. 38828

PC RESOLUTION NO. 2025-09

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, APPROVING TENTATIVE PARCEL MAP NO. 38828 TO SUBDIVIDE A 6.65 ACRE SITE INTO FOUR (4) PARCELS, SUBJECT TO CONDITIONS, WITHIN THE C-H ZONE TO ACCOMMODATE THE CHERRY OUTPOST RETAIL CENTER LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

WHEREAS, the Planning Department has received an application for Tentative Parcel Map No. 38828 (PA No. 24-0055) to subdivide approximately 6.65+/- acres into four (4) parcels for the Cherry Outpost Retail Center from:

Applicant/Owner:	J&T Management, Jack Kofdarali
Project Location:	NWC of Cherry St. & Bundy Canyon Road
APN:	366-290-007 & 366-290-008
Project Area:	6.65± acres

WHEREAS, in accordance with the California Government Code Section 66452 – 66452.22 (Subdivision Map Act), and the City of Wildomar Subdivision Ordinance (Title 16), the Planning Commission has the authority, and has reviewed Tentative Parcel Map No. 38828 for the Cherry Outpost Retail Center project; and

WHEREAS, in accordance with Government Code Section 66452.3, the City has provided the Applicant with a copy of the Planning Department staff report and resolution for Tentative Parcel Map No. 38828 containing staff's recommendation to the Planning Commission at least three (3) days prior to the below referenced noticed public hearing; and

WHEREAS, in accordance with Section 16.12.140 of the Wildomar Municipal Code (Title 16,Subdivisions), the Planning Department on May 21, 2025 mailed a public hearing notice to all property owners within a 600-foot radius of the project boundaries notifying said property owners of the June 4, 2025 public hearing for which Tentative Parcel Map No. 38828 would be considered by the Planning Commission; and

WHEREAS, in accordance with Ordinance No. 135, the Planning Department on May 23, 2025 posted four (4) public hearing notice "sign boards" along the Cherry St. & Bundy Canyon Road frontages notifying the general public of the June 4, 2025 public hearing for which Tentative Parcel Map No. 38828 would be considered by the Planning Commission; and

WHEREAS, in accordance with Section 16.12.140 Section and 17.04.050 of the Wildomar Municipal Code, the Planning Department on May 24, 2025 published a legal notice in the Press Enterprise, a local newspaper of general circulation, notifying the general public of the June 4, 2025 public hearing for which Tentative Parcel Map No. 38828 would be considered by the Planning Commission; and

WHEREAS, in accordance with Section 16.12.140 of the Wildomar Municipal Code, the Planning Commission held said public hearing on June 4, 2025 at which time the Planning Commission received public testimony from interested persons in support of, or opposition to the proposed Tentative Parcel Map No. 38828.

NOW, THEREFORE, the Planning Commission of the City of Wildomar does hereby resolve, determine and order as follows:

SECTION 1. CEQA FINDING:

The approval of Tentative Parcel Map No. 38828 is in compliance with requirements of the California Environmental Quality Act ("CEQA"), in that on June 4, 2025, at a duly noticed public hearing, the Planning Commission adopted a Mitigated Negative Declaration and Mitigation Monitoring & Reporting Program (SCH# 2024120689) reflecting its independent judgment and analysis and documenting the environmental impacts and mitigation measures related to the proposed Cherry Outpost Retail Center project. The documents comprising the City's environmental review for the project are on file and available for public review at Wildomar City Hall, 23873 Clinton Keith Road, Suite 201, Wildomar, CA 92595.

SECTION 2. MULTIPLE SPECIES HABITAT CONSERVATION PLAN (MSHCP).

The Planning Commission hereby finds the Cherry Outpost Retail Center project to be consistent with the MSHCP, as the project is located outside of any MSHCP criteria area cell, and mitigation is provided through payment of the MSHCP Mitigation Fee.

SECTION 3. TENTATIVE PARCEL MAP FINDINGS.

In accordance with Government Code §66473.1, §66473.5 and §66474, and Title 16 (Subdivisions) of the Wildomar Municipal Code, the Planning Commission, in light of the whole record before it, including but not limited to the Planning Department's staff report and all documents incorporated by reference therein, the City's General Plan, Subdivision Ordinance, Zoning Ordinance, standards for public streets and facilities, and any other evidence within the record or provided at the public hearing of this matter, hereby make the following findings in support of Tentative Parcel Map No. 38828:

A. The proposed Parcel map is consistent with the City's General Plan and any applicable specific plan as specified in Government Code Section 65451.

Evidence: The proposed parcel map (TPM No. 38828) is consistent with the City's General Plan land use designation of Commercial Retail (CR) which has been established since the City's 2008 incorporation, and the C-H zoning designation, in

that the land use and zoning designations are intended to facilitate the development of commercial and retail land uses and businesses. Given its close proximity to other retail and surrounding residential neighborhoods, the Cherry Outpost Retail project will provide additional commercial and retail service opportunities for residents to shop close to home which is also encouraged in the CR land use and C-H zoning designations. Given these facts, the proposed Parcel Map is consistent with the General Plan. Therefore, the proposed Parcel map meets this finding.

In addition to the above discussion, the commercial and retail project also is consistent with the following land use policies:

LU 5.2 The proposed commercial retail project has been designed in a manner that considers the surrounding area and that visually enhances the semi-rural character of the community.

LU 5.3 The proposed commercial retail project is designed to enhance Wildomar's unique character and raise the quality of design in the City by maintaining and implementing the City's design standards.

LU 9.1 The proposed commercial retail project will accommodate development of a broad range of uses in Wildomar's commercial centers and corridors that reduce the need to travel to adjoining communities for goods and services and capture a greater share of local spending.

LU 10.3 The proposed commercial retail project is located in a commercially designated area that will provide additional commercial and retail services, including sales tax and jobs for Wildomar residents.

B. The design or improvement of the proposed subdivision is consistent with the City's General Plan and any applicable specific plan.

Evidence: The proposed subdivision has been designed to meet all City policies applicable to commercial parcel maps located in the CR land use designation and all development standards of the proposed C-H zone. The site has also been designed and conditioned to construct public improvements such as street widening, traffic signal, etc., which will provide safe pedestrian and vehicular circulation for the project, including emergency vehicle access. Further, utilities, and drainage facilities have been properly designed in conformance with City standards. Given these facts, the proposed Parcel Map has been designed to be consistent with the City's General Plan. There is no specific plan governing this project. Therefore, the proposed Parcel map meets this finding.

C. The site is physically suitable for the type and proposed density of development.

Evidence: The project site encompasses approximately 6.65± acres. The tentative map proposes to subdivide the site into four (4) parcels to accommodate the future

sale of these parcels. Each parcel exceeds the minimum lot size for parcels in the C-H zone (Chapter 17.40 of the WDC) so this parcel map is physically suitable to accommodate the proposed commercial and retail project. Further, the project has been designed to meet all development standards (i.e., setbacks, building height, parking, landscaping, etc.) of the proposed C-H zone so no variances or exceptions are needed to build the project. Given these facts, the proposed Parcel Map is physically suitable for the type and proposed density of development. Therefore, the proposed Parcel map meets this finding.

D. The design of the subdivision or proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.

Evidence: The City has prepared an Initial Study for the proposed commercial and retail project, including Tentative Parcel Map No. 38828, that lead to the preparation of a Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program. The MND for the Cherry Outpost Retail project analyzed all the required environmental issues as mandated by CEQA law. Mitigation measures have been identified that would reduce all impacts to less than significant levels.

These mitigation measures have been added into the required Mitigation Monitoring and Reporting Program (MMRP) and project conditions as required by CEQA. Given these facts, it has been determined that the design of the proposed 4-lot parcel map and proposed improvements will not likely cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat project with implementation of the proposed mitigation measures described above. Therefore, the proposed Parcel map meets this finding.

E. The design of the subdivision or type of improvements is not likely to cause serious public health problems.

Evidence: The design of the subdivision is in conformance with the City's General Plan, Zoning Code and Subdivision Ordinance. The design and construction of all on-site and off-site improvements to accommodate the project have been conditioned to comply with all applicable city ordinances, codes, and standards including, but not limited to, regional water quality and stormwater runoff management requirements and adopted public works standards. As the City's ordinances, codes, and standards have been created based on currently accepted standards and practices for the preservation of the public health, safety and welfare, the proposed Parcel map project meets this finding.

F. The design of the subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of property within the proposed subdivision.

Evidence: No easements of record or easements established by judgment of a court of competent jurisdiction for public access across the site have been disclosed in a search of the title records for the site and the City does not otherwise have any constructive or actual knowledge of any such easements.

SECTION 4. PLANNING COMMISSION ACTION

Based on the findings above, the Planning Commission hereby adopts PC Resolution No. 2025-09 approving of Tentative Parcel Map No. 38828 (Planning Application No. 25-0054), subject to conditions, as provided herein and attached hereto to this Resolution as Exhibit 1.

PASSED, APPROVED AND ADOPTED this 4th day of June 2025, by the following vote:

AYES.

NOES:

ABSENT:

ABSTAINED:

_____
Eric Filar
Planning Commission Chair

ATTEST:

_____
Steven Jones
Community Development Director/Minutes Secretary

APPROVED AS TO FORM:

_____
Stephanie Gutierrez
Assistant City Attorney

ATTACHMENT B - EXHIBIT 1 CHERRY OUTPOST RETAIL CENTER - CONDITIONS OF APPROVAL			
PROJECT NO.: TENTATIVE PARCEL MAP 38828			
Applicant: Cherry Outpost, LP (Jack Kofdarali) - APN: 366-290-007 & 366-290-008			
Planning Commission Approval Date: **June 4, 2025**	**TTM No. 38828 Expiration Date:** **June 4, 2028**		
Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**

PLANNING DEPARTMENT CONDITIONS				
General Requirements / Standard Conditions				
1.	In compliance with Section 15094 of the CEQA Guidelines, a Notice of Determination (NOD) shall be filed with the Riverside County Clerk within five (5) working days of project approval by the Planning Commission. The notice shall include the required California Department of Fish and Wildlife (Fish and Game Code Section 711.4.d.3) fee, and the Riverside County Clerk administrative fee (paid by the Applicant) in the amount of **$2,916.75**. Failure to pay the required fee will result in the project being deemed null and void (California Fish and Game Code Section 711.4(c)).	June 12, 2025	Planning Department	
2.	The Applicant shall review, and sign below verifying the "Acceptance of the Conditions of Approval" for Tentative Parcel Map No. 38828 and submit the signed page to the Wildomar Planning Department within two weeks of the City Council approval. Applicant Signature Date	June 18, 2025	Planning Department	

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Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**
3. The Applicant shall indemnify, protect, defend, and hold harmless, the City of Wildomar, and/or any of its officials, officers, employees, agents, departments, agencies, and instrumentalities thereof, from any and all claims, demands, law suits, writs of mandamus, and other actions and proceedings (whether legal, equitable, declaratory, administrative or adjudicatory in nature), and alternative dispute resolutions procedures (including, but not limited to arbitrations, mediations, and other such procedures), (collectively "Actions"), brought against the City, and/or any of its officials, officers, employees, agents, departments, agencies, and instrumentalities thereof, that challenge, attack, or seek to modify, set aside, void, or annul, the any action of, or any permit or approval issued by, the City and/or any of its officials, officers, employees, agents, departments, agencies, and instrumentalities thereof (including actions approved by the voters of the City), for or concerning the Project, whether such Actions are brought under the California Environmental Quality Act, the Planning and Zoning Law, the Subdivision Map Act, Code of Civil Procedure Chapter 1085 or 1094.5, the California Public Records Act, or any other state, federal, or local statute, law, ordinance, rule, regulation, or any decision of a court of competent jurisdiction. City shall promptly notify the Applicant of any Action brought and request that Applicant defend the City. It is expressly agreed that Applicant may select legal counsel providing the Applicant's defense and the City shall have the right to approve separate legal counsel providing the City's defense. The Applicant shall reimburse City for any attorneys' fees, costs and expenses directly and necessarily incurred by the City in the course of the defense. Applicant agrees that City will forward monthly invoices to Applicant for attorneys' fees, costs and expenses it has incurred related to its defense of any Action and Applicant agrees to timely payment within thirty (30)	Ongoing	Planning Department	

	days of receipt of the invoice. Within fourteen (14) days of an Action being filed, Applicant agrees to post adequate security or a cash deposit with City in an amount to cover the City's estimated attorneys' fees, costs and expenses incurred by City in the course of the defense in order to ensure timely payment of the City's invoices. The amount of the security or cash deposit shall be determined by the City. City shall cooperate with Applicant in the defense of any Action.			
4.	Approval of Tentative Parcel Map No. 38828 shall expire on June 4, 2028 if the final map has not been approved by the City Council and recorded with the Riverside County Clerk. The Applicant may apply in writing for an Extension of Time (EOT) for review and approval by the Planning Commission in accordance with Section 16.12.240 of the Wildomar Municipal Code. Said extension of time application and required fee must be submitted to the Planning Department prior to the expiration date.	June 4, 2028	Planning Department	
5.	In accordance with Section 66020.d.1 of the Government Code, the Applicant has 90 days from project approval to file a protest of the imposition of fees, dedications, reservations, or other exactions being imposed on this project. Notice is hereby given to the Applicant that the 90-day appeal hereby begins with approval of this project.	September 4, 2025	Planning Department	
6.	Applicant hereby understands and agrees that failure to comply with all Conditions of Approval may result in the Planning Commission taking action resulting in a modification to the Conditions of Approval and/or suspension or revocation of the plot plan and/or conditional use permit.	On-Going	Planning Department	

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Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**
7. The project shall be subdivided in accordance with the Tentative Parcel Map No. 38828 approved by the Planning Commission on June 4, 2025. The Applicant may request a minor change/revision to the approved Parcel map, if needed, in accordance with Sections 16.12.210 and/or 16.12.220 of the Wildomar Municipal Code.	On-Going	Planning & Engineering Departments	
8. The proposed Project shall comply with existing SCAQMD rules for the reduction of fugitive dust emissions in accordance with SCAQMD Rule 403.	On-Going	Planning Dept.	
CEQA / Environmental Impact Report (EIR) Mitigation Measures:			
AIR QUALITY			
9. AQ-1 **Tier 4 Construction Equipment**. Prior to issuing construction permits, the project applicant or designated representative shall provide to the City a comprehensive inventory of all diesel-powered off-road construction equipment, equal to or greater than 50 horsepower, that will be used on the project site during any portion of construction. The inventory shall include the horsepower rating, engine production year, and certification of the specified Tier standard. The City shall verify that all construction equipment is USEPA Tier Final certified or has been retrofitted with CARB approved diesel particulate matter reduction systems resulting in PM_{10} emissions meeting USEPA Tier 4 Final standards.	Prior to issuance of construction permits	City of Wildomar Public Works and Engineering Department	

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10. AQ-2 **Fugitive Dust Best Management Practices.** Prior to issuing construction permits, the City shall verify that project construction contract or construction documentation specify the requirement to implement all fugitive dust Best Available Control Measures listed in Table 1 of the SCAQMD Rule 403, and the following control measures are enhanced to require watering exposed surface a minimum of three times per day: • Clearing and Grubbing Control Measure 02-1: Maintain stability of soil through pre-watering of site prior to clearing and grubbing. In addition, during dry weather, water exposed surfaces a minimum of three times per day during clearing and grubbing activities. • Cut and Fill Control Measure 05-1: Pre-water soils prior to cut and fill activities (e.g., grading). In addition, during dry weather, water all exposed surfaces a minimum of three times per day during cut and fill activities.	Prior to issuance of construction permits	City of Wildomar Public Works and Engineering Department	
BIOLOGICAL RESOURCES			
11. BIO-1 **Burrowing Owl:** In compliance with the MSHCP, a pre-construction survey shall be conducted within 30 days prior to ground-disturbing activities (i.e., earthwork, clearing, grubbing, watering, staging, etc.) occurring on the project site. If the pre-construction survey is negative and Burrowing Owl (BUOW) is confirmed absent, then ground-disturbing activities shall be allowed to commence, and no further measures would be required.	Thirty (30) days prior to the initiation of ground-disturbing activities	City of Wildomar Community Development Department	

		If BUOWs are observed during the pre-construction survey, take of active nests must be avoided, and the City must be immediately notified. The City will coordinate with the Wildlife Agencies (i.e., CDFW and USFWS) to determine whether a BUOW Protection and Relocation Plan is required prior to ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-construction survey must be conducted again to confirm BUOW has not colonized the project site since it was last disturbed. If BUOW is found, the same coordination described above would be required.			
12.	BIO-2	**Nesting Birds:** To the extent feasible, construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 1 to August 31 for raptors. 1. If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory birds and raptors, a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities and provided to the City for review. The qualified biologist shall document the	Seven (7) days prior to the initiation of construction activities	City of Wildomar Community Development Department	

		results of the pre-construction survey. If construction is inactive for more than seven days, an additional survey shall be conducted. If the qualified biologist determines that no active migratory bird or raptor nests occur, the City shall be notified, and the activities shall be allowed to proceed without any further requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no construction activities within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the qualified biologist and approved by the City. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds.			
GEOLOGY AND SOILS					
13.	GEO-1	The project applicant/developer shall incorporate the recommendations of the Geotechnical Report prepared by Geocon West, Inc. (Appendix 5), or as directed by the City Engineer, into project plans related to the proposed project. The project's building plans submitted to the City shall demonstrate that they incorporate all applicable recommendations of the Geotechnical Report and comply with all applicable requirements of the latest adopted version of the California Building Code.	During building plan check, prior to any ground-disturbing construction activities	City of Wildomar Community Development Department and Building and Safety Department	
14.	GEO-2	Prior to issuance of a grading permit and during ground-disturbing activities, the project applicant shall retain a Certified Paleontologist. As there is a moderate potential to encounter	During ground-disturbing	City of Wildomar Community Development	

	paleontological resources on the project site if excavations reach 10 to 13 feet, the project applicant shall retain a Certified Paleontologist to monitor all initial ground-disturbing activities that extend beyond depths of 5 feet. If the paleontologist, upon observing initial earthwork, determines there is low potential for discovery, no further action shall be required, and the paleontologist shall submit a memo to the City confirming findings of low potential. Should any paleontological resources (i.e., fossils) be uncovered during project construction activities, all work within a 50-foot radius of the discovery site shall be halted or diverted to other areas on the site and the City shall be immediately notified. The Certified Paleontologist shall evaluate the finds and recommend appropriate next steps to ensure that the resource is not adversely impacted, including but not limited to avoidance, preservation in place, excavation, documentation, curation, data recovery, fossil identification, laboratory preparation, or other appropriate measures. Further ground disturbance shall not resume within a 50-foot radius of the discovery site until an agreement has been reached between the project applicant, the Certified Paleontologist, and the City as to the appropriate preservation or mitigation measures to ensure that the resource is not substantially adversely impacted. Salvage and collection of significant fossils shall be done in accordance with the Society of Vertebrate Paleontology guidelines. Any paleontological resources salvaged shall be provided for curation at a local curation facility, or any other local	construction activities	Department and Building and Safety Department	

		museum or repository, such as the Western Science Center or World Museum of Natural History, willing and able to accept and house the resource to preserve for future scientific study.			
HAZARDS AND HAZARDOUS MATERIALS					
15.	HAZ-1	Prior to the issuance of building permits, the project applicant/developer shall demonstrate, to the satisfaction of the City Building Official and the Riverside County Fire Chief, compliance with the 2022 California Building Code (or the most recent edition) (Part 2 of Title 24 of the California Code of Regulations) and the 2022 California Fire Code (or the most recent edition) (Part 9 of Title 24 of the California Code of Regulations), including those regulations pertaining to materials and construction methods intended to mitigate wildfire exposure as described in the 2022 California Building Code and California Residential Code (or most recent edition); specifically California Building Code Chapter 7A; California Residential Code Section R327; California Residential Code Section R337; California Referenced Standards Code Chapter 12 7A; and California Fire Code Chapter 49.	Prior to issuance of building permits	City of Wildomar Building Department and Riverside County Fire Department	
16.	HAZ-2	Prior to the issuance of a certificate of occupancy, the applicant shall demonstrate, to the satisfaction of the City Building Official and the County Fire Chief, compliance with the vegetation management requirements prescribed in California Fire Code Section 4906 and California Government Code Section 51182.	Prior to issuance of a certificate of occupancy	City of Wildomar Building Department and Riverside County Fire Department	

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CULTURAL RESOURCES					
17.	CUL-1	**Human Remains.** If potential human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within the period specified by law (24 hours). Subsequently, the Native American Heritage Commission shall identify the "most likely descendant" (MLD). The MLD shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. No photographs are to be taken of any human remains and/or cremations except by the coroner, with written approval by the consulting tribe(s).	During any ground-disturbing construction activities	City of Wildomar Public Works and Engineering Department and Planning Department	
NOISE					
18.	NOI-1	**Noise Reduction Features.** The proposed project shall demonstrate that noise is reduced at the residentially-zoned property north of the project site in compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB LMAX, and at the drive-through restaurant's commercial property line in compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB LMAX. The following	During final design plan-check	City of Wildomar Building Department	

		measures shall be included as part of the final project design plans submitted to the City: 1. Install an L-shaped 6-foot-tall concrete masonry unit (CMU) wall at the tunnel exit to reflect sound away from the property line between the drive thru restaurant to the north and the exit of the tunnel. 2. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.			
19.	NOI-2	**Demonstration of Interior Noise Standard.** Once specific building plan information is available, an exterior-to-interior analysis shall be performed for habitable hotel rooms. The exterior-to-interior analysis shall demonstrate to the City that interior noise levels do not exceed 45 CNEL. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels for the planned hotel rooms. If predicted noise levels are found to exceed 45 CNEL,	Prior to construction	City of Wildomar Building Department	

		the analysis shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in hotel rooms. Standard measures such as windows with glazing and appropriate STC ratings, as well as walls with appropriate STC ratings, shall be considered. Final plans shall demonstrate that interior noise levels do not exceed 45 CNEL for proposed hotel rooms.			
WILDFIRE					
20.	See Mitigation Measures HAZ-1 and HAZ-2				
TRIBAL CULTURAL RESOURCES					
21.	TRI-1	**Inadvertent Archeological Find.** If during ground disturbance activities, cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Cultural resources are defined as being multiple artifacts in close association with each other but also include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance as determined in consultation with the lead agency and Native American Tribe(s) that elected to consult under AB 52 ("Consulting Tribe(s)"). a. All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the tribal representative(s) and the Community	During any ground-disturbing or construction activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

	Development Director to discuss the significance of the find. b. At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s), developer, and the archaeologist, a decision shall be made, with the concurrence of the Community Development Director, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources. c. Grading or further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal monitors if needed. d. Treatment and avoidance of the newly discovered resources shall be consistent with the Treatment and Monitoring Agreements entered into with the Consulting Tribe(s) and the applicant. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources located in native soils and/or re-burial on the Project property so they are not subject to further			

	disturbance in perpetuity as identified in Mitigation Measures TRI-2 and TRI-7 e. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan (see Mitigation Measure TRI-6) shall be prepared by the project archeologist, in consultation with the Consulting Tribe(s), and shall be submitted to the City for their review and approval prior to implementation of the said plan. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and tribal cultural resources. If the landowner and the Consulting Tribe(s) cannot agree on the significance or the mitigation for the archaeological or tribal cultural resources, these issues will be presented to the Community Development Director for decision. The City's Community Development Director shall make the determination based on the provisions of the California Environmental Quality Act with respect to archaeological and tribal cultural resources, recommendations of the project archeologist, and shall take into account the cultural and religious principles and practices of the Consulting Tribe(s). Notwithstanding any other rights available under the law, the decision of the City Community Development Director shall be appealable to the City Planning Commission and/or City Council.			

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22. TRI-2 **Cultural Resources Disposition.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a. One or more of the following treatments, in order of preference as numbered, shall be employed with the Consulting Tribe(s). Evidence of such shall be provided to the City of Wildomar Community Development Department: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources. ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods and Native American human remains are excluded. Any reburial process shall be culturally appropriate.	During grading activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

	Listing of contents and location of the reburial shall be included in the confidential Phase IV report (see Mitigation Measure TRI-6). The Phase IV Report shall be filed with the City under a confidential cover and not subject to Public Records Request. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets State Resources Department Office of Historic Preservation Guidelines for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees by the Applicant necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the landowner to the City. There shall be no destructive or invasive testing on sacred items, burial goods, and Native American human remains, as defined by the cultural and religious practices of the Most Likely Descendant. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report.			

23.	TRI-3	**Archaeologist Retained.** Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified Registered Professional Archaeologist (RPA), to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources. The Registered Professional Archaeologist and the Tribal monitor(s) required by Mitigation Measures TRI-4 and TRI-5 shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Registered Professional Archaeologist and the Tribal monitor(s), shall independently have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors. The developer/permit holder shall submit a fully executed copy of the contract to the Community Development Department to ensure compliance with this condition of approval. Upon verification, the Community Development Department shall clear this condition. In addition, the Registered Professional Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) pursuant to the definition in AB 52 to address the details, timing and responsibility of all archaeological and	Prior to issuance of grading permit	City of Wildomar Public Works and Engineering Department and Community Development Department	

	cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB 52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: a. Project grading and development scheduling; b. The Project archaeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and			

		the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.			
24.	TRI-4	**Native American Monitoring (Pechanga).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Pechanga Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.	During ground-disturbing activities	City of Wildomar Public Works and Engineering Department and Community Development Department	
25.	TRI-5	**Native American Monitoring (Soboba).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Soboba Band of Luiseno	During ground-disturbing activities	City of Wildomar Public Works and Engineering Department and Community	

		Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.		Development Department	
26.	TRI-6	**Archeology Report – Phase III and IV.** Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required for the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Community Development Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).	Prior to final inspection	City of Wildomar Public Works and Engineering Department and Community Development Department	

27.	TRI-7	**Non-Disclosure of Reburial Locations.** It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code Section 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial.	During discovery of Native American human remains	City of Wildomar Public Works and Engineering Department and Community Development Department	
28.	TRI-8	**No-Build Easement or Similar Instrument.** In the event that Native American artifacts are found and buried within the project vicinity, a no-build easement, or similar legal instrument, shall be used to preclude future development from taking place on the reburial site(s).	Before reburial of Native American artifacts	City of Wildomar Public Works and Engineering Department and Community Development Department	
Prior to the Recordation of the Final Map					
29.		Prior to recordation of the final map, the Applicant shall submit one (1) set of the Covenants, Conditions, and Restrictions (CC&R's) for the project for review and approval by the Community Development Director, Public Works Director and City Attorney. The CC&R's shall include liability insurance and methods of maintaining landscaping, parking areas, private roads, exterior of all buildings (if applicable), and all landscaped and open areas including parkways, as well as a provisions indicating that the homeowners association may not be terminated or dissolved without the permission of the City. The CC&Rs shall also ensure the implementation and enforcement of approved fuel	Prior to Final Map Recordation	Planning and Engineering Departments	

	truck access to the site as stipulated and approved in the December 2, 2024 Traffic Impact Analysis (TIA). Section 6.0.C, Findings and Recommendations, of the TIA stipulates fuel truck access to the site will circulate from the I- 215 freeway, exiting Scott Road to Bundy Canyon, making a right on Cherry, and when done, back onto Cherry and making a right on Bundy, and taking the I-15 Freeway. Exhibits 6-E & 6-F of the TIA illustrate the on-site truck paths. The approved off-site fuel truck routing compliance shall be the responsibility of the applicant, but the City shall have the right, but not the obligation, to also enforce the routing. The revised CC&R's shall be in the form and content approved by the Planning Director and City Attorney and shall include such provisions as are required by this approval and as said officials deem necessary to protect the interests of the City and its residents. Said CC&R's shall be recorded concurrently with the final map and a copy of the recorded CC&R's shall be submitted to the Planning and Engineering Departments within 2 weeks of recordation.			
PUBLIC WORKS/ENGINEERING CONDITIONS				
General Requirements / Standard Conditions				
1.	The developer shall obtain City approval for any modifications or revisions to the approval of this project. Deviations not identified on the plans may not be approved by the City, potentially resulting in the need for the project to be redesigned. Amended entitlement approvals may be necessary as a result.	On-Going	Engineering Dept.	
2.	No grading shall be performed without the prior issuance of a grading permit by the City.	On-Going	Engineering Dept.	

ATTACHMENT B - EXHIBIT 1 CHERRY OUTPOST RETAIL CENTER - CONDITIONS OF APPROVAL			
PROJECT NO.: TENTATIVE PARCEL MAP 38828			
Applicant: Cherry Outpost, LP (Jack Kofdarali) - APN: 366-290-007 & 366-290-008			
Planning Commission Approval Date: **June 4, 2025**	**TTM No. 38828 Expiration Date:** **June 4, 2028**		
Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**
3.	Written permission shall be obtained from the affected property owners allowing the proposed grading and/or facilities to be installed outside of the project boundaries.	On-Going	Engineering Dept.	
4.	The developer/owner or contractor shall apply for an Encroachment Permit for work performed within the public right of way. Compliance with current environmental regulations applies and additional studies and/or permits may be required.	On-Going	Public Works	
5.	The developer's contractor is required to submit for a haul route permit for the hauling of material to and from the project site. Said permit will include limitations of haul routes, haul hours, number of loads per day and the posting of traffic control personnel at all approved entrances/exits onto public roads. Hauled material shall be to/from an approved site. The developer and developer's contractor shall be responsible to inquire with the City in advance regarding potential haul limitations.	On-Going	Public Works	
6.	Storm water and non-storm water discharges from the project site shall be mitigated in conformance with the applicable Regional Water Quality Control Board permit(s) and/or site specific SWPPP prior to entering into the MS4s including, but not limited to, storm drains, streets, channels, etc...	On-Going	Engineering Dept.	
7.	For commercial/industrial projects, the developer/applicant shall submit a Business Registration application for each business that will be in operation to the City for approval. Each business shall be required to pay a fee to the City with the Business Registration for Stormwater Compliance Inspections that are required by the City's NPDES Permit. The requirement for stormwater compliance inspections are recurring for the duration of the development, unless otherwise approved. The	On-Going	Engineering Dept.	

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	developer/applicant shall also submit to the City, prior to Certificate of Occupancy, a document that includes the Business' Statement of Operations and a summary of the business' best management practices for stormwater pollution prevention.			
8.	The developer/applicant shall provide all tenants/employees/homeowners with educational materials regarding Best Management Practices for Stormwater Pollution Prevention. Educational materials are available on the Riverside County Flood Control and Water Conservation District's website.	On-Going	Engineering Dept.	
9.	The developer/owner/tenant shall comply with all applicable laws and regulations regarding the proper disposal of waste materials generated from the business.	On-Going	Engineering Dept.	
10.	The Developer shall dedicate, design and construct all improvements in accordance the City of Wildomar Road Improvement Standards & Specification, Improvement Plan Check Policies and Guidelines, as further conditioned herein and to the satisfaction of the City Engineer.	On-Going	Engineering Dept.	
11.	The Developer shall be responsible for all costs associated with off-site right-of-way and/or easement acquisition, including any costs associated with the eminent domain process, if necessary.	On-Going	Engineering Dept.	
12.	The 10 year storm flow shall be contained within the curb and the 100 year storm flow shall be contained within the street right of way. When either of these criteria is exceeded, additional drainage facilities shall be installed. All lots shall be graded to drain to the adjacent street or an adequate outlet.	On-Going	Engineering Dept.	
13.	All grading shall conform to the California Building Code, including Appendix J, and all other relevant laws, rules, and regulations governing	On-Going	Engineering Dept.	

	grading in the City of Wildomar. Prior to commencing any grading which includes 50 or more cubic yards, the developer shall obtain a grading permit from the Building Department.			
14.	All necessary measures to control dust shall be implemented by the developer during grading to the satisfaction of the City Engineer. A PM10 plan may be required at the time a grading permit is issued.	On-Going	Engineering Dept.	
15.	Graded slopes shall be limited to a maximum steepness ratio of 2:1 (horizontal to vertical) with surface drainage collection unless otherwise approved by the City Engineer. Contour grade to mimic natural slopes in the area.	On-Going	Engineering Dept.	
16.	Grading in excess of 199 cubic yards will require performance security to be posted with the City.	On-Going	Engineering Dept.	
17.	All retaining walls shall require a separate permit from the Building Department.	On-Going	Building Dept.	
18.	Erosion control – landscape plans, required for manufactured slopes greater than 3 feet in vertical height, are to be signed by a registered landscape architect and bonded. The soils engineer shall review the erosion control plans for conformance with the Geotechnical Report's Findings and Recommendations. Erosion control shall be placed within 30 days of meeting final grades to minimize erosion and to ensure slope coverage prior to the rainy season. The Developer shall plant & irrigate all manufactured slopes steeper than a 4:1 (horizontal to vertical) ratio and 3 feet or greater in vertical height with soil stabilizers and ground cover; slopes 15 feet or greater in vertical height shall be planted with additional shrubs or trees or as approved by the City Engineer and City Planner.	On-Going	Engineering Dept. Planning Dept.	

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19. Should this project lie within any assessment/benefit district, the project proponent shall, prior to acceptance of improvements, make application for and pay for their reapportionment of the assessments or pay the unit fees in the benefit district unless said fees are otherwise deferred or covered under the City's Community Facility District (CFD Services).	On-Going	Engineering Dept.	
20. The developer shall annex into the City's Community Facility District (CFD Services) and pay associated costs for annexation. Should this project lie within any assessment/benefit district that duplicates the services to be covered under CFD Services then the developer shall de-annex from said assessment/benefit district.	Prior to Map Recordation	Engineering Dept.	
21. The developer shall design and construct all driveways in accordance with the City of Wildomar Improvement Standards.	On-Going	Engineering Dept.	
22. The improvement plans must provide tapers to existing improvements based on design speed, offset, profile and sight distance extending a minimum of 300 feet beyond the project boundaries at a grade and alignment as approved by the City Engineer.	On-Going	Engineering Dept.	
23. Above-ground utilities shall be undergrounded by the developer in accordance with City of Wildomar Municipal Code 16.04.010. The undergrounding of utilities shall be reflected on the project improvement plans.	On-Going	Engineering Dept.	
24. Improvement Plans for underground utilities (eg. Water, sewer, electrical, telecommunications, etc.) to be placed in public right of way or easement that will be owned and maintained by other entities shall be reviewed by the City prior to Utility Agency approval. The City shall have a place on the Title Sheet to accept the plans with a statement "The city's acceptance is limited to the placement of utilities relative to public	On-Going	Engineering Dept.	

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	infrastructure clearances, uses and future plans within the right of way." The plans shall be attached to a city Encroachment Permit.			
25.	All flood control plans to be reviewed by the City or the Riverside County Flood Control District (RCFCD) shall be submitted through the City of Wildomar, unless otherwise directed by the City Engineer. For projects requiring RCFCD review the developer shall pay the appropriate fees to RCFCD.	On-Going	Engineering Dept.	
26.	The City reserves the right to require modifications to the geometrics or alignment of the public improvements if during final engineering design and review, operational or safety issues are identified that would cause the design not to conform to City Standards and Guidelines or other commonly accepted industry practices and guidelines such as AASHTO, FHWA, and other similar highway and traffic design standards and guidelines.	On-Going	Engineering Dept.	
Prior to Recordation of the Final Map			
27.	Improvement plans shall be prepared, processed, and approved. Construct the improvements; or execute an Improvement Agreement and Improvement Security. This condition shall be in conformance with local regulations and the Subdivision Map Act.	Prior to Final Map Approval	Engineering Dept.	
28.	The developer shall dedicate, design and construct streetlights in accordance with the City of Wildomar Road Improvement Standards & Specification, Improvement Plan Check Policies and Guidelines, City Ordinances and to the satisfaction of the City Engineer. Improvement plans shall be approved prior to Building Permit issuance. Construction of improvements may be secured prior to Building Permit in which case construction shall be completed prior to occupancy.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept.	

29.	The developer shall dedicate a public utility easement adjacent to all public and private streets for overhead and/or underground facilities and appurtenances to the satisfaction of the City Engineer.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept.	
30.	The developer shall submit landscaping and irrigation plans within the public right-of-way to the Planning Department. These plans shall include water usage calculations, estimate of irrigation and the location of all existing trees that will remain. All plans and calculations shall be designed and calculated per the City of Wildomar Road Improvement Standards & Specification, Improvement Plan Check Policies and Guidelines, City Codes and to the satisfaction of the City Engineer.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Planning Dept.	
31.	The developer shall execute a maintenance agreement for the stormwater quality control treatment device to the satisfaction of the City Engineer.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept.	
32.	If CC&Rs are required for the project by the Planning Department, the CC&Rs shall also include language that addresses stormwater pollution prevention best management practices (BMPs) and restrictions, as well as access restrictions for fuel trucks. The CC&Rs shall, at a minimum, address the following items: 1. Acknowledge and incorporate by reference the City of Wildomar's Stormwater Drainage System Protection Ordinance (Chapter 13.12 of the Wildomar Municipal Code), as amended from time to time. 2. Acknowledge the Santa Margarita Water Quality Improvement Plan (WQIP) and that nutrients have been identified as a high priority pollutant in this watershed. 3. Indicate that all lot owners within the development shall be responsible to implement appropriate BMPs, as necessary,	Prior to Recordation of Final Map or First Building Permit	Engineering Dept.	

	when conducting activities on their lots (including those activities which contribute to nutrient runoff). A summary of BMPs for various activities can be located on the City's website here: http://www.cityofwildomar.org/government/departments/public_works/stormwater_quality_and_pollution_prevention. 4. Indicate that Irrigation Runoff into the City's MS4 is prohibited and that lot owners shall be responsible to maintain their irrigation systems so that irrigation runoff does not occur. 5. The CC&Rs shall ensure the implementation and enforcement of approved fuel truck access to the site as stipulated and approved in the December 2, 2024 Traffic Impact Analysis (TIA). Section 6.0.C, Findings and Recommendations, of the TIA stipulates fuel truck access to the site will circulate from the I-215 freeway, exiting Scott Road to Bundy Canyon, making a right on Cherry, and when done, back onto Cherry and making a right on Bundy, and taking the I-15 Freeway. Exhibits 6-E & 6-F of the TIA illustrate the on-site truck paths. The approved off-site fuel truck routing compliance shall be the responsibility of the applicant, but the City shall have the right, but not the obligation, to also enforce the routing. In the CC&Rs, list all source control and structural BMPs that are required by the Water Quality Management Plan (WQMP) and indicate that these BMPs shall be implemented and maintained as noted in the approved project specific WQMP.			

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Project Specific Conditions - Prior to Recordation of the Final Map				
33.	The project shall comply with all recommendations identified in the approved Traffic Impact Analysis (TIA), to the satisfaction of the City Engineer. Recommended improvements noted under the "Existing Plus Project (E+P) Conditions" section of the TIA shall be constructed. For other future recommended improvements noted in the TIA (e.g., Existing + Ambient + Project Conditions, Existing + Ambient + Project + Cumulative Conditions), the developer shall pay their fair share towards the improvements recommended in the TIA. The Fair Share calculations and estimate shall be approved by the City.	Prior to Recordation of Final Map	Engineering Dept. Public Works Dept.	
34.	This project relies on U-turn movements at Sellers Rd. for eastbound access into the site. The developer shall also be required to update traffic signal timing sheets for the Orange St., Sellers Rd., and Monte Vista Dr. traffic signals. The timing shall take into consideration the timing of the Caltrans I-15 NB and SB ramp signals.	Prior to Issuance of a Building Permit	Engineering Dept.	
35.	To support the City's monitoring of the traffic impacts and operations at the Sellers Rd. and Monte Vista Dr. signals, the developer shall install a fully functional Rhythm Control System at both signals, or other equivalent system for remote capabilities as approved by the City Engineer, for connection with the City's traffic monitoring system. This shall include, but not be limited to installation of hardware as necessary to activate the signal interconnect and support a fully operational traffic signal system, per manufacturer's specifications.	Prior to Issuance of a Building Permit	Engineering Dept.	

36.	If modifications are required for any vehicle detection at any of the existing traffic signals, the developer shall install a video detection system in place of adding or replacing/relocating traffic loops.	Prior to Issuance of a Building Permit	Engineering Dept.	
37.	The developer shall dedicate, design and construct part-width improvements along the project frontage on Bundy Canyon Road, including City standard curb, gutter, and sidewalk. Improvements shall be constructed per Riverside County Standard No. 91 (Urban Arterial Highway, 152' ROW) modified to conform to the City of Wildomar General Plan Cross-Section for Bundy Canyon Road, where required, to the satisfaction of the City Engineer. Right-of-way shall be 89' from centerline, in conformance with the "Configuration at Intersection" cross-section shown in Standard No. 91. Geometrics shall include: • Westbound to Northbound Right-Turn Lane • Buffered Class II Bike Lane • Two westbound through lanes The precise location of the curb on Bundy Canyon Road shall be determined in final engineering in accordance with General Plan requirements, and the design shall take into consideration the future widening of the interchange and bridge, the future addition of a third westbound lane in conformance with the General Plan/Circulation Plan, and the potential for two westbound turn lanes onto I-15 SB.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Public Works Dept.	

	Improvements shall include ultimate structural sections across the project frontage to the I-15 NB ramp. Where the existing structural section is already at ultimate, reconstruction of that section is not required. To provide a uniform driving surface, repaving limits shall include half-width repaving from centerline to curb face across the project frontage to the I-15 NB ramp. Paving shall use Asphalt Rubber Hot Mix (ARHM) to match the existing paving on Bundy Canyon Rd. If necessary to provide for proper alignment and turning movements, additional width at the intersection of Cherry Avenue shall be provided during final engineering, to the satisfaction of the City Engineer. The developer may provide a security prior to map recordation or building permit issuance to guarantee the construction of improvements.			
38.	The developer shall dedicate, design and construct part-width improvements along the project frontage on Cherry Street, including City standard curb, gutter, and sidewalk. Improvements shall be constructed per Riverside County Standard No. 111 (Industrial Collector Street, 78' ROW), Modified, and include part-width improvements extending east 21' past the centerline. Geometrics shall include: • 5' Bike Lane • 3' Buffer • 12' SB Lane	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Public Works Dept.	

	• 14' Striped Median • 12' NB Lane • 3' Shoulder Improvements shall include ultimate structural sections across the project frontage within the part-width improvements. Paving shall use Asphalt Rubber Hot Mix (ARHM) to match the existing paving on Cherry St. The developer may provide a security prior to map recordation or building permit issuance to guarantee the construction of improvements.			
39.	The developer shall design, dedicate, and construct all appropriate offsite transitions on Bundy Canyon Road and Cherry Street in accordance with the City of Wildomar Improvement Standards & Specifications and to the satisfaction of the City Engineer. The developer may provide a security prior to map recordation or building permit issuance to guarantee the construction of improvements.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Public Works Dept.	
40.	The developer shall dedicate public utility easements to the applicable utility owner. These easements are shown on the Easement Plan, Sheet 3 of the Cherry Outpost conceptual grading plan.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Public Works Dept.	
41.	The developer shall submit to the City Engineer traffic control plans along Bundy Canyon Road and Cherry Avenue to ensure the continued flow of traffic during construction.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Public Works Dept.	

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Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**
42. The developer shall include on the Final Map reciprocal drainage and access easements between the parcels of the development.			
43. Access shall be restricted from the I-15 NB ramp and from Bundy Canyon Rd. and shall so be noted on the Final Map.	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Public Works Dept.	

END

ATTACHMENT C

PC Resolution No. 2025-10

For CUP/Plot Plan No. 24-0055

PC RESOLUTION NO. 2025-10

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA APPROVING CONDITIONAL USE PERMIT NO. 24-0055 AND PLOT PLAN NO. 24-0055 (INCLUDING THE CHERRY OUTPOST SIGN PROGRAM), SUBJECT TO CONDITIONS, TO DEVELOP THE CHERRY OUTPOST RETAIL CENTER WITHIN THE C-H ZONE LOCATED AT THE NWC OF CHERRY ST. & BUNDY CANYON ROAD (APN: 366-290-007 & 366-290-008).

WHEREAS, the Planning Department has received an application for CUP/Plot Plan No. 24-0055 to develop the Cherry Outpost Retail Center project consisting of commercial and retail uses on a 6.65± acre site from:

Applicant/Owner:	J&T Management, Jack Kofdarali
Project Location:	NWC of Cherry St. & Bundy Canyon Road
APN:	366-290-007 & 366-290-008
Project Area:	6.65± acres

WHEREAS, in accordance with Chapter 17.200 and 17.216 of the Wildomar Municipal Code, the Planning Commission has the authority to review the proposed CUP/Plot Plan No. 24-0055; and

WHEREAS, in accordance with Section 17.125.070 of the Wildomar Municipal Code, the Planning Department on May 21, 2025 mailed a public hearing notice to all property owners within a 600-foot radius of the project boundaries notifying said property owners of the June 4, 2025 public hearing for which CUP/Plot Plan No. 24-0055 would be considered by the Planning Commission; and

WHEREAS, in accordance with Ordinance No. 135, the Planning Department on May 23, 2025 posted four (4) public hearing notice “sign boards” along the Cherry St. & Bundy Canyon Road frontages notifying the general public of the June 4, 2025 public hearing for which CUP/Plot Plan No. 24-0055 would be considered by the Planning Commission; and

WHEREAS, in accordance with Section 17.125.070 of the Wildomar Municipal Code, the Planning Department on May 24, 2025 published a legal notice in the “Press Enterprise”, a local newspaper of general circulation notifying the general public of the June 4, 2025 public hearing for which CUP/Plot Plan No. 24-0055 would be considered by the Planning Commission; and

WHEREAS, in accordance with Section 17.80 and 17.85 of the Wildomar Municipal Code, the Planning Commission held said public hearing on June 4, 2025 at which time the Planning Commission received public testimony from interested persons in support of, or opposition to CUP/Plot Plan No. 24-0055.

NOW, THEREFORE, the Planning Commission of the City of Wildomar does hereby resolve, determine and order as follows:

SECTION 1. CEQA FINDING.

The approval of CUP/Plot Plan No. 24-0055 is in compliance with requirements of the California Environmental Quality Act ("CEQA"), in that on June 4, 2025, at a duly noticed public hearing, the Planning Commission adopted a Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program (SCH# 2024120689) reflecting its independent judgment and analysis and documenting the environmental impacts and mitigation measures related to the proposed Cherry Outpost Retail Center project. The documents comprising the City's environmental review for the project are on file and available for public review at Wildomar City Hall, Planning Department, 23873 Clinton Keith Road, Suite 201, Wildomar, CA 92595.

SECTION 2. MULTIPLE SPECIES HABITAT CONSERVATION PLAN (MSHCP).

The Planning Commission hereby finds the Cherry Outpost Retail Center project to be consistent with the MSHCP, as the project is located outside of any MSHCP criteria area cell, and mitigation is provided through payment of the MSHCP Mitigation Fee

SECTION 3. CONDITIONAL USE PERMIT FINDINGS.

Pursuant to Chapter 17.80 (Conditional Use Permits) of the Wildomar Municipal Code, the Planning Commission, in light of the whole record before it, including but not limited to the Planning Department's staff report and all documents incorporated by reference herein, the City's General Plan and any other evidence within the record or provided at the public hearing of this matter, hereby find and determine as follows:

A. The proposed use is consistent with the General Plan and any applicable Specific Plan.

   Evidence: The proposal to have an express car wash within this retail center is consistent with the General Plan land use designation of CR and C-H zoning in that it is a conditionally permitted use in the C-H (Scenic Highway Commercial) zone. The project is consistent with General Plan Policy LU 10.3 because the project accommodates the development of a commercial use in an area appropriately designated by the General Plan land use map for a retail center project which includes car washes.

B. The proposed use is consistent with the intent of the zone it is located in and complies with all applicable provisions of this Title and other applicable provisions of the Wildomar Municipal Code (C-H Zone).

Evidence: The proposed conditional use permit is consistent with Section 17.40 that permits car washes with the approval of a CUP in the C-H zone. As the project site has an existing C-H zone designation, the project meets this finding.

C. The proposed use will not be detrimental to the health, safety, or general welfare of the community.

Evidence: The proposal to have a car wash within this retail center use will not be detrimental to the health, safety, or general welfare of the community. The car wash will be situated along Bundy Canyon and away from any residences, so noise will not be a factor in this project. The car wash is proposed to be designed to meet our commercial design guidelines and employ the latest recycle, water re-use and solar energy systems available.

D. The proposed use complies with adopted design and development standards applicable to the zone the use is located in.

Evidence: The proposed car wash is proposed to be designed to meet our commercial design guidelines.

SECTION 4. PLOT PLAN FINDINGS.

In accordance with Chapter 17.85 of the Wildomar Municipal Code (Title 17), the Planning Commission, in light of the whole record before it, including but not limited to the Planning Department's staff report and all documents incorporated by reference herein, the City's General Plan and any other evidence within the record or provided at the public hearing of this matter, hereby make the following findings in support of Plot Plan No. 24-0055 (including the Cherry Outpost Sign Program):

A. The proposed use is consistent with the General Plan and any applicable Specific Plan.

Evidence: The Applicant is proposing a Plot Plan (in accordance with Section 17.85 of the Wildomar Municipal Code) to develop a commercial and retail shopping center consisting of various retail uses, including a hotel, express car wash, fueling station with RV fueling, c-store, and drive-thru restaurant. Approval of the Plot Plan must be consistent with the General Plan land use designation of Commercial Retail (CR) and development standards of the C-H zone (Section 17.40 of the Wildomar Municipal Code). In evaluating the proposed retail and commercial center, the design of the plot and proposed uses is consistent with the existing CR general plan land use designation in that this land use designation specifically encourages the development of neighborhood commercial and retail centers. With its close proximity to residential neighborhoods in the area, the Cherry Outpost Retail project will provide commercial and retail services to meet the needs of city residents and provide jobs and sales tax revenue. Given that the C-H zone is highly consistent with

the CR land use designation, the proposed project is consistent with the General Plan as required by this finding.

In addition, the proposed use also is consistent with the following General Plan policies:

LU 5.2 The proposed commercial retail project has been designed in a manner that considers the surrounding area and that visually enhances the semi-rural character of the community.

LU 5.3 The proposed commercial retail project is designed to enhance Wildomar's unique character and raise the quality of design in the City by maintaining and implementing the City's design standards.

LU 9.1 The proposed commercial retail project will accommodate development of a broad range of uses in Wildomar's commercial centers and corridors that reduce the need to travel to adjoining communities for goods and services and capture a greater share of local spending.

LU 10.3 The proposed commercial retail project is located in a commercially designated area that will provide additional commercial and retail services, including sales tax and jobs for Wildomar residents.

Further, the proposed plot plan has been evaluated in detail to ensure the site is developed in compliance with the development standards of the proposed C-H zone. Based upon a detailed review of the development plans, all development standards outlined in the C-H zone related to setbacks, building height, etc., have been met and/or exceeded. Further, the design and layout of the project meets and exceeds the parking, signage and landscaping standards outlined in Section 17.155, 17.180 and 17.165 of the Zoning Ordinance. Given these factors, the proposed project meets this finding.

B. The proposed use is consistent with the intent of the zone it is located in and complies with all applicable provisions of this Title and other applicable provisions of the Wildomar Municipal Code.

Evidence: The proposed Cherry Outpost Retail project has been designed to conform to the logical development of the land and is compatible with the present and future logical development of the surrounding property. The site has an existing general plan land use designation of Commercial Retail (CR) which has existed since the city incorporated in 2008, including the area to the east and south of the site. The Bundy Canyon corridor has always been anticipated in the General Plan as a commercial and retail corridor.

C. The proposed use will not have an adverse effect to the public health, safety, or general welfare of the community, nor detrimental to surrounding properties or improvements.

Evidence: The proposed retail center use will not be detrimental to the health, safety, or general welfare of the community. The project is designed to meet all development standards and design standards required for the C-H zone.

D. The proposed use complies with adopted design and development standards applicable to the zone the use is located in.

Evidence: The proposed commercial retail center project is proposed to be designed to meet our commercial design guidelines. Given these factors, the proposed plot plan meets this finding.

SECTION 4. PLANNING COMMISSION ACTION:

Based upon the findings discussed above, the Planning Commission hereby adopts PC Resolution No. 2025-10 approving Conditional Use Permit / Plot Plan No. 24-0055 (including the Cherry Outpost Sign Program), subject to conditions, as illustrated herein and attached hereto to this Resolution as Exhibit 1.

PASSED, APPROVED AND ADOPTED this 4th day of June 2025, by the following vote:

AYES.

NOES:

ABSENT:

ABSTAINED:

_____
Eric Filar
Planning Commission Chair

ATTEST:

_____
Steven Jones
Community Development Director/Minutes Secretary

APPROVED AS TO FORM:

_____
Stephanie Gutierrez
Assistant City Attorney

ATTACHMENT C - EXHIBIT 1 CHERRY OUTPOST RETAIL CENTER - CONDITIONS OF APPROVAL			
PROJECT NO.: CUP/PLOT PLAN NO. 24-0055			
Applicant: Cherry Outpost, LP (Jack Kofdarali) - APN: 366-290-007 & 366-290-008			
Planning Commission Approval Date: June 4, 2025	**CUP/Plot Plan No. 24-0055 Expiration Date: June 4, 2028**		
Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**

PLANNING DEPARTMENT CONDITIONS				
General / Standard Conditions				
1.	In compliance with Section 15094 of the CEQA Guidelines, a Notice of Determination (NOD) shall be filed with the Riverside County Clerk within five (5) working days of project approval by the Planning Commission. The notice shall include the required California Department of Fish and Wildlife (Fish and Game Code Section 711.4.d.3) fee, and the Riverside County Clerk administrative fee (paid by the Applicant) in the amount of **$2,916.75**. Failure to pay the required fee will result in the project being deemed null and void (California Fish and Game Code Section 711.4(c)).	June 12, 2025	Planning Department	
2.	The Applicant shall review, and sign below verifying the "Acceptance of the Conditions of Approval" for CUP/Plot Plan No. 24-0055 and submit the signed page to the Wildomar Planning Department within two weeks of the Planning Commission approval. Applicant Signature Date	June 18, 2025	Planning Department	

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3.	The Applicant shall indemnify, protect, defend, and hold harmless, the City of Wildomar, and/or any of its officials, officers, employees, agents, departments, agencies, and instrumentalities thereof, from any and all claims, demands, law suits, writs of mandamus, and other actions and proceedings (whether legal, equitable, declaratory, administrative or adjudicatory in nature), and alternative dispute resolutions procedures (including, but not limited to arbitrations, mediations, and other such procedures), (collectively "Actions"), brought against the City, and/or any of its officials, officers, employees, agents, departments, agencies, and instrumentalities thereof, that challenge, attack, or seek to modify, set aside, void, or annul, the any action of, or any permit or approval issued by, the City and/or any of its officials, officers, employees, agents, departments, agencies, and instrumentalities thereof (including actions approved by the voters of the City), for or concerning the Project, whether such Actions are brought under the California Environmental Quality Act, the Planning and Zoning Law, the Subdivision Map Act, Code of Civil Procedure Chapter 1085 or 1094.5, the California Public Records Act, or any other state, federal, or local statute, law, ordinance, rule, regulation, or any decision of a court of competent jurisdiction. City shall promptly notify the Applicant of any Action brought and request that Applicant defend the City. It is expressly agreed that Applicant may select legal counsel providing the Applicant's defense and the City shall have the right to approve separate legal counsel providing the City's defense. The Applicant shall reimburse City for any attorneys' fees, costs and expenses directly and necessarily incurred by the City in the course of the defense. Applicant agrees that City will forward monthly invoices to Applicant for attorneys' fees, costs and expenses it has incurred related to its defense of any Action and Applicant agrees to timely payment	Ongoing	Planning Department	

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	within thirty (30) days of receipt of the invoice. Within fourteen (14) days of an Action being filed, Applicant agrees to post adequate security or a cash deposit with City in an amount to cover the City's estimated attorneys' fees, costs and expenses incurred by City in the course of the defense in order to ensure timely payment of the City's invoices. The amount of the security or cash deposit shall be determined by the City. City shall cooperate with Applicant in the defense of any Action.			
4.	Approval of *CUP/Plot Plan No. 24-0055* shall expire on June 4, 2028 (3 years after approval by the Planning Commission) if grading and/or building permits have not been issued and substantial construction work has commenced on the project site. The Applicant may apply in writing for an Extension of Time (EOT) for review and approval of the Community Development Director in accordance with Section 17.125.120 of the Wildomar Municipal Code. Said extension of time application and required fee must be submitted to the Planning Department 60 days prior to the expiration date.	June 4, 2028	Planning Department	
5.	In accordance with Section 66020.d.1 of the Government Code, the Applicant has 90 days from project approval to file a protest of the imposition of fees, dedications, reservations, or other exactions being imposed on this project. Notice is hereby given to the Applicant that the 90-day appeal hereby begins with approval of this project.	September 4, 2025	Planning Department	
6.	Applicant hereby understands and agrees that failure to comply with all Conditions of Approval may result in the Planning Commission taking action resulting in a modification to the Conditions of Approval and/or suspension or revocation of the plot plan and/or conditional use permit.	On-Going	Planning Department	

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7.	The project shall be developed in accordance with the approved plot plan approved by the Planning Commission on June 4, 2025. The Applicant may request a modification/revision to the approved project, if needed, in accordance with Section 17.125.130 of the Wildomar Municipal Code.	Ongoing	Planning Department	
8.	The proposed Project shall comply with existing SCAQMD rules for the reduction of fugitive dust emissions in accordance with SCAQMD Rule 403.	On-Going	Planning Dept.	
9.	All grading shall conform to the California Building Code and all other relevant laws, rules, and regulations governing grading in the City of Wildomar. Prior to commencing any grading which includes 50 or more cubic yards, the developer shall obtain a grading permit from the Building Dept.	On-Going	Planning & Engineering Depts.	
10.	Erosion control-landscape plans, required for manufactured slopes greater than 3 feet in vertical height, are to be signed by a registered landscape architect and bonded (refer to dept. form 284-47). Planting shall occur within 30 days of meeting final grades to minimize erosion and to ensure slope coverage prior to the rainy season. The developer shall plant and irrigate all manufactured slopes steeper than a 4:1 (horizontal to vertical) ratio and 3 feet or greater in vertical height with grass or ground cover; slopes 15 feet or greater in vertical height shall be planted with additional shrubs or trees or as approved by the City Engineer.	On-Going	Planning & Engineering Depts.	
11.	The Applicant is prohibited from using any sort of blasting device or activity during all grading and/or construction operations.	On-Going	Planning Department	

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12.	The proposed development approved by the Planning Commission shall comply with the standards and requirements of the City's Light Pollution Ordinance in accordance with Section 8.64 of the WMC.	On-Going	Planning Department	
13.	As required by Chapter 8.56 of the WMC, subsequent development on the site will need to comply with the County of Riverside, Department of Environmental Health, Local Enforcement Agency (LEA) for all activities related to potential hazardous materials.	On-Going	Planning Department	
14.	The Applicant shall provide EV charging stations throughout the parking lot at designated locations consistent with the plot plan and the requirements of the State of California Cal Green Building Code.	On-Going	Planning & Building Departments	
15.	The Applicant shall be subject to, and comply with, the following four (4) state mandated codes/ordinances including all other applicable state & local codes/ordinances already in effect: • California Building Code, Chapter 7A; • California Residential Code, Chapter R327; • California Referenced Standards Code, Chapter 12-7A; and • California Fire Code, Chapter 49.	On-Going	Building & Fire Departments	
16.	In accordance with, Chapter 17.216 of the WMC, this project is prohibited from selling any existing or subsequently constructed structures on the parcel until the parcel is divided and a final map recorded in accordance with Title 16 (Subdivisions) in such a manner that each building is located on a separate legally divided parcel.	On-Going	Planning Department	
17.	The proposed Project shall comply with the requirements of Chapter 9.48 of the WMC relating to noise.	On-Going	Planning Department	

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18.		The RV fueling station is prohibited from allowing dumping of waste or overnight vehicle parking. In addition, parking stalls for semi-trucks shall not be provided at the fueling station, and semi-trucks shall not be allowed to remain at fueling pumps longer than reasonably necessary to re-fuel.	On-Going	Planning Department	
CEQA / Environmental Impact Report (EIR) Mitigation Measures:					
AIR QUALITY					
19.	AQ-1	**Tier 4 Construction Equipment**. Prior to issuing construction permits, the project applicant or designated representative shall provide to the City a comprehensive inventory of all diesel-powered off-road construction equipment, equal to or greater than 50 horsepower, that will be used on the project site during any portion of construction. The inventory shall include the horsepower rating, engine production year, and certification of the specified Tier standard. The City shall verify that all construction equipment is USEPA Tier Final certified or has been retrofitted with CARB approved diesel particulate matter reduction systems resulting in PM_{10} emissions meeting USEPA Tier 4 Final standards.	Prior to issuance of construction permits	City of Wildomar Public Works and Engineering Department	
20.	AQ-2	**Fugitive Dust Best Management Practices.** Prior to issuing construction permits, the City shall verify that project construction contract or construction documentation specify the requirement to implement all fugitive dust Best Available Control Measures listed in Table 1 of the SCAQMD Rule 403, and the following control measures are enhanced to require watering exposed surface a minimum of three times per day:	Prior to issuance of construction permits	City of Wildomar Public Works and Engineering Department	

		• Clearing and Grubbing Control Measure 02-1: Maintain stability of soil through pre-watering of site prior to clearing and grubbing. In addition, during dry weather, water exposed surfaces a minimum of three times per day during clearing and grubbing activities. • Cut and Fill Control Measure 05-1: Pre-water soils prior to cut and fill activities (e.g., grading). In addition, during dry weather, water all exposed surfaces a minimum of three times per day during cut and fill activities.			
BIOLOGICAL RESOURCES					
21.	BIO-1	**Burrowing Owl:** In compliance with the MSHCP, a pre-construction survey shall be conducted within 30 days prior to ground-disturbing activities (i.e., earthwork, clearing, grubbing, watering, staging, etc.) occurring on the project site. If the pre-construction survey is negative and Burrowing Owl (BUOW) is confirmed absent, then ground-disturbing activities shall be allowed to commence, and no further measures would be required. If BUOWs are observed during the pre-construction survey, take of active nests must be avoided, and the City must be immediately notified. The City will coordinate with the Wildlife Agencies (i.e., CDFW and USFWS) to determine whether a BUOW Protection and Relocation Plan is required prior to ground disturbance. If ground-disturbing activities occur, but the site is left undisturbed for more than 30 days, a pre-	Thirty (30) days prior to the initiation of ground-disturbing activities	City of Wildomar Community Development Department	

		construction survey must be conducted again to confirm BUOW has not colonized the project site since it was last disturbed. If BUOW is found, the same coordination described above would be required.			
22.	BIO-2	**Nesting Birds:** To the extent feasible, construction activities (i.e., earthwork, clearing, and grubbing) shall occur outside of the general bird nesting season for migratory birds, which is February 15 through August 31 for songbirds and January 1 to August 31 for raptors. 1. If construction activities (i.e., earthwork, clearing, and grubbing) must occur during the general bird nesting season for migratory birds and raptors, a qualified biologist shall perform a pre-construction survey of potential nesting habitat to confirm the absence of active nests belonging to migratory birds and raptors afforded protection under the Migratory Bird Treaty Act (MBTA) and California Fish and Game (CFG) Code. The pre-construction survey shall be performed no more than seven days prior to the commencement of construction activities and provided to the City for review. The qualified biologist shall document the results of the pre-construction survey. If construction is inactive for more than seven days, an additional survey shall be conducted. If the qualified biologist determines that no active migratory bird or raptor nests occur, the City shall be notified, and the activities shall be allowed to proceed without any further	Seven (7) days prior to the initiation of construction activities	City of Wildomar Community Development Department	

		requirements. If the qualified biologist determines that an active migratory bird or raptor nest is present, no construction activities within 300 feet (500 feet for raptors) of the active nest shall occur until the young have fledged the nest and the nest is confirmed to no longer be active, as determined by the qualified biologist and approved by the City. The biological monitor may modify the buffer or propose other recommendations to minimize disturbance to nesting birds.			
GEOLOGY AND SOILS					
23.	GEO-1	The project applicant/developer shall incorporate the recommendations of the Geotechnical Report prepared by Geocon West, Inc. (Appendix 5), or as directed by the City Engineer, into project plans related to the proposed project. The project's building plans submitted to the City shall demonstrate that they incorporate all applicable recommendations of the Geotechnical Report and comply with all applicable requirements of the latest adopted version of the California Building Code.	During building plan check, prior to any ground-disturbing construction activities	City of Wildomar Community Development Department and Building and Safety Department	
24.	GEO-2	Prior to issuance of a grading permit and during ground-disturbing activities, the project applicant shall retain a Certified Paleontologist. As there is a moderate potential to encounter paleontological resources on the project site if excavations reach 10 to 13 feet, the project applicant shall retain a Certified Paleontologist to monitor all initial ground-disturbing activities that extend beyond depths of 5 feet. If the paleontologist, upon observing initial earthwork, determines	During ground-disturbing construction activities	City of Wildomar Community Development Department and Building and Safety Department	

	there is low potential for discovery, no further action shall be required, and the paleontologist shall submit a memo to the City confirming findings of low potential. Should any paleontological resources (i.e., fossils) be uncovered during project construction activities, all work within a 50-foot radius of the discovery site shall be halted or diverted to other areas on the site and the City shall be immediately notified. The Certified Paleontologist shall evaluate the finds and recommend appropriate next steps to ensure that the resource is not adversely impacted, including but not limited to avoidance, preservation in place, excavation, documentation, curation, data recovery, fossil identification, laboratory preparation, or other appropriate measures. Further ground disturbance shall not resume within a 50-foot radius of the discovery site until an agreement has been reached between the project applicant, the Certified Paleontologist, and the City as to the appropriate preservation or mitigation measures to ensure that the resource is not substantially adversely impacted. Salvage and collection of significant fossils shall be done in accordance with the Society of Vertebrate Paleontology guidelines. Any paleontological resources salvaged shall be provided for curation at a local curation facility, or any other local museum or repository, such as the Western Science Center or World Museum of Natural History, willing and able to accept and house the resource to preserve for future scientific study.			

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HAZARDS AND HAZARDOUS MATERIALS					
25.	HAZ-1	Prior to the issuance of building permits, the project applicant/developer shall demonstrate, to the satisfaction of the City Building Official and the Riverside County Fire Chief, compliance with the 2022 California Building Code (or the most recent edition) (Part 2 of Title 24 of the California Code of Regulations) and the 2022 California Fire Code (or the most recent edition) (Part 9 of Title 24 of the California Code of Regulations), including those regulations pertaining to materials and construction methods intended to mitigate wildfire exposure as described in the 2022 California Building Code and California Residential Code (or most recent edition); specifically California Building Code Chapter 7A; California Residential Code Section R327; California Residential Code Section R337; California Referenced Standards Code Chapter 12 7A; and California Fire Code Chapter 49.	Prior to issuance of building permits	City of Wildomar Building Department and Riverside County Fire Department	
26.	HAZ-2	Prior to the issuance of a certificate of occupancy, the applicant shall demonstrate, to the satisfaction of the City Building Official and the County Fire Chief, compliance with the vegetation management requirements prescribed in California Fire Code Section 4906 and California Government Code Section 51182.	Prior to issuance of a certificate of occupancy	City of Wildomar Building Department and Riverside County Fire Department	
CULTURAL RESOURCES					

27.	CUL-1	**Human Remains.** If potential human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within the period specified by law (24 hours). Subsequently, the Native American Heritage Commission shall identify the "most likely descendant" (MLD). The MLD shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. No photographs are to be taken of any human remains and/or cremations except by the coroner, with written approval by the consulting tribe(s).	During any ground-disturbing construction activities	City of Wildomar Public Works and Engineering Department and Planning Department	

NOISE					
28.	NOI-1	**Noise Reduction Features.** The proposed project shall demonstrate that noise is reduced at the residentially-zoned property north of the project site in compliance with the Wildomar Municipal Code daytime exterior noise limit of 55 dB LMAX, and at the drive-through restaurant's commercial property line in compliance with the Wildomar Municipal Code daytime exterior noise limit of 65 dB LMAX. The	During final design plan-check	City of Wildomar Building Department	

	following measures shall be included as part of the final project design plans submitted to the City: 1. Install an L-shaped 6-foot-tall concrete masonry unit (CMU) wall at the tunnel exit to reflect sound away from the property line between the drive thru restaurant to the north and the exit of the tunnel. 2. The project applicant shall demonstrate to the City that the features described in this measure are shown on construction plans and will be implemented prior to issuance of a building permit. Substitution of any measures may be used if demonstrated to achieve adequate noise reduction to meet City standards. A final inspection of the described features shall be conducted by the City to confirm installation of such features prior to operation of the car wash.			

29.	NOI-2	**Demonstration of Interior Noise Standard.** Once specific building plan information is available, an exterior-to-interior analysis shall be performed for habitable hotel rooms. The exterior-to-interior analysis shall demonstrate to the City that interior noise levels do not exceed 45 CNEL. The information in the analysis shall include wall heights and lengths, room volumes, window and door tables typical for a building plan, as well as information on any other openings in the building shell. With this specific building plan information, the analysis shall determine the predicted interior noise levels for the planned hotel rooms. If predicted noise levels are found to exceed 45 CNEL, the analysis shall identify architectural materials or techniques that could be included to reduce noise levels to 45 CNEL in hotel rooms. Standard measures such as windows with glazing and appropriate STC ratings, as well as walls with appropriate STC ratings, shall be considered. Final plans shall demonstrate that interior noise levels do not exceed 45 CNEL for proposed hotel rooms.	Prior to construction	City of Wildomar Building Department	
5.12 TRIBAL CULTURAL RESOURCES					
30.	TRI-1	**Inadvertent Archeological Find.** If during ground disturbance activities, cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Cultural resources are defined as being multiple artifacts in close association with each other but also include fewer artifacts if the area of the find is determined to be of significance due to	During any ground-disturbing or construction activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

	its sacred or cultural importance as determined in consultation with the lead agency and Native American Tribe(s) that elected to consult under AB 52 ("Consulting Tribe(s)"). a. All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the developer, the archaeologist, the tribal representative(s) and the Community Development Director to discuss the significance of the find. b. At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s), developer, and the archaeologist, a decision shall be made, with the concurrence of the Community Development Director, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources. c. Grading or further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal monitors if needed. d. Treatment and avoidance of the newly discovered resources shall be consistent with			

	the Treatment and Monitoring Agreements entered into with the Consulting Tribe(s) and the applicant. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources located in native soils and/or re-burial on the Project property so they are not subject to further disturbance in perpetuity as identified in Mitigation Measures TRI-2 and TRI-7 e. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan (see Mitigation Measure TRI-6) shall be prepared by the project archeologist, in consultation with the Consulting Tribe(s), and shall be submitted to the City for their review and approval prior to implementation of the said plan. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and tribal cultural resources. If the landowner and the Consulting Tribe(s) cannot agree on the significance or the mitigation for the archaeological or tribal cultural resources, these issues will be presented to the Community Development Director for decision. The City's Community Development Director shall make the determination based on the provisions of the California Environmental Quality Act with respect to archaeological and tribal cultural resources, recommendations of the project archeologist, and shall take			

		into account the cultural and religious principles and practices of the Consulting Tribe(s). Notwithstanding any other rights available under the law, the decision of the City Community Development Director shall be appealable to the City Planning Commission and/or City Council.			
31.	TRI-2	**Cultural Resources Disposition.** In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a. One or more of the following treatments, in order of preference as numbered, shall be employed with the Consulting Tribe(s). Evidence of such shall be provided to the City of Wildomar Community Development Department: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources. ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic	During grading activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

	recordation have been completed, with an exception that sacred items, burial goods and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the reburial shall be included in the confidential Phase IV report (see Mitigation Measure TRI-6). The Phase IV Report shall be filed with the City under a confidential cover and not subject to Public Records Request. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets State Resources Department Office of Historic Preservation Guidelines for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees by the Applicant necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the landowner to the City. There shall be no destructive or invasive testing on sacred items, burial goods, and Native American human remains, as defined by the cultural and			

		religious practices of the Most Likely Descendant. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report.			
32.	TRI-3	**Archaeologist Retained.** Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified Registered Professional Archaeologist (RPA), to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources. The Registered Professional Archaeologist and the Tribal monitor(s) required by Mitigation Measures TRI-4 and TRI-5 shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Registered Professional Archaeologist and the Tribal monitor(s), shall independently have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors. The developer/permit holder shall submit a fully executed copy of the contract to the Community Development Department to ensure compliance with this condition of approval. Upon verification, the Community Development Department shall clear this condition.	Prior to issuance of grading permit	City of Wildomar Public Works and Engineering Department and Community Development Department	

	In addition, the Registered Professional Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) pursuant to the definition in AB 52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB 52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: a. Project grading and development scheduling; b. The Project archaeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other			

		appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.			
33.	TRI-4	**Native American Monitoring (Pechanga).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Pechanga Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.	During ground-disturbing activities	City of Wildomar Public Works and Engineering Department and Community Development Department	

34.	TRI-5	**Native American Monitoring (Soboba).** Tribal monitor(s) shall be required on-site during all ground-disturbing activities, including grading, stockpiling of materials, engineered fill, rock crushing, etc. The land divider/permit holder shall retain a qualified tribal monitor(s) from the Soboba Band of Luiseno Indians. Prior to issuance of a grading permit, the developer shall submit a copy of a signed contract between the above-mentioned Tribe and the land divider/permit holder for the monitoring of the project to the Community Development Department and to the Engineering Department. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist.	During ground-disturbing activities	City of Wildomar Public Works and Engineering Department and Community Development Department	
35.	TRI-6	**Archeology Report – Phase III and IV.** Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required for the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. The Community Development Department shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, the Community Development Department shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of	Prior to final inspection	City of Wildomar Public Works and Engineering Department and Community Development Department	

		California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s).			
36.	TRI-7	**Non-Disclosure of Reburial Locations.** It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code Section 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial.	During discovery of Native American human remains	City of Wildomar Public Works and Engineering Department and Community Development Department	
37.	TRI-8	**No-Build Easement or Similar Instrument.** In the event that Native American artifacts are found and buried within the project vicinity, a no-build easement, or similar legal instrument, shall be used to preclude future development from taking place on the reburial site(s).	Before reburial of Native American artifacts	City of Wildomar Public Works and Engineering Department and Community Development Department	
5.14 WILDFIRE					
38.	See Mitigation Measures HAZ-1 and HAZ-2 above				
Project Specific CUP Conditions for Alcohol Sales at the Gas Station					
39.	Notwithstanding any other provision of law, establishments engaged in the concurrent sale of motor vehicle fuel with beer and wine for off-		On-Going	Planning Department	

ATTACHMENT C - EXHIBIT 1 CHERRY OUTPOST RETAIL CENTER - CONDITIONS OF APPROVAL			
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Planning Commission Approval Date: June 4, 2025	**CUP/Plot Plan No. 24-0055 Expiration Date: June 4, 2028**		
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	premises consumption, in accordance with Chapter 17.235 of the WMC shall comply with the following conditions: 1) Only the sale of beer and wine can be sold consistent with an ABC Type 20 license (Off Sale Beer & Wine). 2) The owner of each location and the management at each location shall educate the public regarding driving under the influence of intoxicating beverages, minimum age for purchase and consumption of alcoholic beverages, driving with open containers and the penalty associated with violation of these laws. In addition, the owner and management shall provide health warnings about the consumption of alcoholic beverages. This educational requirement may be met by posting prominent signs, decals or brochures at points of purchase. In addition, the owner and management shall provide adequate training for all employees at the location as to these matters. 3) No displays of beer or wine shall be located within five (5) feet of any building entrance or checkout counter. 4) Cold beer or wine shall be sold from, or displayed in, the main, permanently affixed electrical coolers only. 5) No beer, wine or other alcoholic beverages advertising shall be located on gasoline islands; and no lighted advertising for beer, wine, or other alcoholic beverages shall be located on the exterior of buildings or within window areas. 6) Employees selling beer and wine between the hours of 10:00 p.m. and 2:00 a.m. shall be at least 21 years of age. 7. No sale of alcoholic beverages shall be made from a drive-in window.			

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40.	Prior to an employee selling alcohol from this facility, the alcohol licensee, or employer for the facility shall ensure that the employee has received Licensee Education on Alcohol and Drugs (L.E.AD.) training from the California Department of Alcoholic Beverage Control.	On-Going	Planning Department	
41.	Prior to the issuance of occupancy permits for the gas station/mini-mart use, the Applicant and/or the gas station service provider shall obtain a Type 20 License from the State Department of Alcohol Beverage Control (ABC). A copy of said license shall be submitted to the Planning Department prior to occupancy of the building.	Prior to the issuance of occupancy permits	Planning Department	
Project Specific Conditions for Plot Plan No. 24-0055 (Appliable to Commercial/Retail)				
Prior to the Issuance of Grading Permits				
42.	Prior to the issuance of the 1st grading permit for Phase 1 gas station, the Applicant shall have prepared and received approval of a "Vector Control Plan" from the Riverside County Department of Environmental Health/Vector Control Program to ensure that proper and adequate mitigation measures are implemented for the Cherry Outpost project.	Prior to Issuance of Grading Permits	Planning Department	
43.	Prior to the issuance of any grading permit, the Project applicant shall comply with all of the provisions of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), including payment of the MSHCP Local Development Mitigation Fee and Best Management Practices (specifically Appendix C, Standard Best Management Practices, of the MSHCP).	Prior to Issuance of Grading Permits	Planning Department	
44.	Prior to the issuance of the 1st grading permit on the property, the applicant shall submit a haul permit for any import of material to the site or export of material off-site for review and approval by the City Engineer and Community Development Director. The request for a haul permit shall include a haul route plan addressing the limitations of	Prior to Issuance of a Grading Permit	Planning & Engineering Depts.	

	haul hours, number of loads per day and the posting of traffic control personnel at all approved entrances/exits onto public roads. This haul permit shall be in place prior to the issuance of the grading permit and the mobilization of equipment on the project site. If the proposed material source or disposal site does not have an approved environmental assessment, a grading environmental assessment shall be submitted for review and approval by the Community Development Director prior to the issuance of the haul permit.			
45.	The grading plan shall include the following information in the Notes Section of the Grading Plan: "No grubbing/clearing of the site shall occur prior to scheduling the pre-grading meeting with Engineering. All project sites containing suitable habitat for burrowing owls, whether owls were found or not, require a 30-day preconstruction survey that shall be conducted within 30 days prior to ground disturbance to avoid direct take of burrowing owls. If the results of the survey indicate that no burrowing owls are present on-site, then the project may move forward with grading, upon Planning Department approval. If burrowing owls are found to be present or nesting on-site during the preconstruction survey, then the following recommendations must be adhered to: Exclusion and relocation activities may not occur during the breeding season, which is defined as March 1 through August 31, with the following exception: From March 1 through March 15 and from August 1 through August 31 exclusion and relocation activities may take place if it is proven to the City and appropriate regulatory agencies (if any) that egg laying or chick rearing is not taking place. This determination must be made by a qualified biologist."	Prior to Issuance of a Grading Permit	Planning & Engineering Depts.	

46.	The grading plan shall include the following information in the Notes Section of the Grading Plan: "If at any time during excavation/construction of the site, archaeological/cultural resources, or any artifacts or other objects which reasonably appears to be evidence of cultural or archaeological resource are discovered, the property owner shall immediately advise the City of such and the City shall cause all further excavation or other disturbance of the affected area to immediately cease. The Community Development Director at his/her sole discretion may require the property owner to deposit a sum of money it deems reasonably necessary to allow the City to consult and/or authorize an independent, fully qualified specialist to inspect the site at no cost to the City, in order to assess the significance of the find. Upon determining that the discovery is not an archaeological/cultural resource, the Community Development Director shall notify the property owner of such determination and shall authorize the resumption of work. Upon determining that the discovery is an archaeological/cultural resource, the Community Development Director shall notify the property owner that no further excavation or development may take place until a mitigation plan, or other corrective measures have been approved by the Community Development Director.	Prior to Issuance of a Grading Permit	Planning & Engineering Depts.	
47.	Concurrent with the submittal of grading plans, the applicant shall submit two (2) sets of detailed/complete landscape and irrigation construction drawings to the Planning Department, including on-site and public right-of-way and a fence/wall plan for review and approval by the Planning Department. Said landscape and irrigation plans shall be prepared by a licensed Landscape Architect and shall comply with all requirements of Section 17.165 (Water Efficient Landscapes) of the	Concurrent with the submittal of grading plans	Planning and Landscape Depts.	

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	Wildomar Municipal Code, and EVMWD's Water Efficient Landscape Standards as adopted by the Planning Commission on November 12, 2015. The landscape plans shall include the following: • All plantings within the Very High Fire Severity Zone shall be designed using only fire resistive plants. Applicant shall verify if project falls within Very High Fire Hazard Severity Zone and ensure permit plan sets follows all applicable requirements per local and county fire codes prior to permit plan check submittal. Contact Wildomar Fire Marshal prior to developing permit plan set to verify if fuel modification is required and comply with all local and state requirements. • The landscape construction plans shall be in substantial conformance with the preliminary landscape plans as approved by the City's Landscape Architect, City Administrative Staff, Planning Commission and/or Planning Commission. Notes, details, and specifications shall be included. • All planter areas shall provide a minimum 5 feet wide planter area clear of curbs, concrete step-out strips, walkways, walls, footings, and overhead supports. A limited of number of planters less than 5 feet wide may be provided in substantial conformance with the approved concept. Planter areas less than the 5 foot width shall not count towards the minimum required landscape area. • Step-out strips are required when adjacent to parking spaces and shall be 12" wide by 4" deep doweled into the adjacent 6" curb, or 12" wide by 12" deep integrally poured curb. Show			

	step-out strips on plans and coordinate with the project engineer. • Provide a minimum of 5 foot wide planters with landscape screening on three sides of trash enclosure. Reduced planter widths may be considered where there are site constraints. Again, plans shall be in substantial conformance with the approved conceptual landscape plan and provide at minimum the screening provided on the approved concept at all trash enclosures. • Street trees shall be installed at 30 feet on center. Where fuel modification is required, trees spacing shall provide a minimum 10 feet of clearance between canopy edge to canopy edge. City Landscape Architect will review closely proposed street tree quantities and spacing at time of landscape permit submittal. • Fire apparatus access roads shall be illustrated and noted on planting plan. Trees are to be located so that the mature canopies do not encroach into the access road clear zone of 28 feet wide and 13.5 feet high. Remove any tree in conflict with this restriction. • Avoid plants that require cutting back to keep them within a specific area or at a trimmed height. Carefully select and locate plants where they will be allowed to grow to maturity and keep their natural shape. • All areas of the project site shall be landscaped. Decorative rock, exposed mulch, and similar shall account for no more than 20% of the landscape area.			

	• Linear root barriers shall be installed for all trees located within 5 feet of paving and within 10 feet of city sidewalks. • Above ground utilities shall be located in shrub areas and screened as required from public view. • Utilities and light standard locations shall be coordinated with Owner's engineering team to avoid conflicts with required tree locations and utility screening. • Plant materials to be sized per minimum required sizes within City's Landscape Design Standard and Guidelines. All shrubs shall be a minimum of 5 gallon size, all groundcover shall be a minimum of 1 gallon size, and all street trees to be a minimum of 24" box size. • All plant materials to be spaced to achieve a filled in landscape within 2 years from installation. • A minimum of 50% shading shall be provided over parking stall area. Additional trees shall be provided as needed to satisfy this requirement. A minimum of 1 tree per every three stalls shall be required. Where dense trees are not allowed based on fire risk, applicant may consider alternate non-tree and non-combustible shading methods. • Screening shrubs shall be provided along all parking stalls, drive aisles, and similar as needed to prevent onsite headlight glare from exiting the site. Screening shall be assessed closely as time of permit plan check. Where screening is not sufficient due to fuel modification shrub spacing, a low decorative screen wall shall be utilized instead and shall be 36" – 48" high. Screen wall may be used in combination with berming to			

	accomplish required headlight and parking lot screenings. If berming is utilized, it shall be identified clearly on plans. • All slopes and basins shall meet the minimum planting requirements outlined in the City's Landscape Standards and Guidelines document. • Trees shall be provided along the front of buildings at an average rate of 1 per 30 linear feet, unless contraindicated by fuel modification requirements. • The landscape construction documents shall meet the minimum requirements outlined in the City's Landscape Standards and Guidelines document and provide the required applicable items on the City's Landscape Architectural Plan Check checklist, the Objective Design Standard checklist for commercial developments, and the Fuel Modification Requirements in the City's Fuel Modification Guideline and any applicable requirements within Chapter 49 of the State's Fire Code regarding vegetation. Fuel modification requirements shall apply if fuel modification is indicated as required per the City's Fire Marshal and/or the Riverside County Fire Department.			
Prior to Issuance of Building Permits				
48.	Prior to the issuance of a building permit, the applicant shall comply with Building Department requirements in obtaining all necessary permits to construct said structures, including submittal of plans for all signs to be constructed as part of this project.	Prior to Issuance of a Building Permit	Planning Department	

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49. Prior to issuance of building permits, the Applicant shall submit a detailed/final photometric analysis for review and approval by the Planning and Building departments. The proposed development approved by the Planning Commission shall comply with the standards and requirements of the City's Light Pollution Ordinance in accordance with Chapter 8.64 of the Wildomar Municipal Code.	Prior to Issuance of Building Permits	Planning Department	
50. Prior to the issuance of the building permits, the applicant shall pay all applicable and current Development Impact Fees and City Mitigation Fees as determined by the Building and Engineering departments, including but not limited to, regional fees such TUMF, MSHCP, K-Rat fees, School Fees, etc. in accordance with the timing outlined in Title 3 of the WMC.	Prior to Issuance of Building Permits	Planning & Building Departments	
51. Prior to the issuance of the building permits, the applicant shall submit for review and approval by the Planning Department a final exterior lighting/security lighting plan/photometric survey. Said lighting plan shall comply with all applicable provisions of Section 8.64 (Light Pollution Ordinance) of the WMC.	Prior to Issuance of Building Permits	Planning & Building Departments	
Prior to Issuance of a Certificate of Occupancy			
52. Prior to the issuance of occupancy permits, the following conditions shall be satisfied: • Performance securities, in the amount determined by the City Landscape Architect and Community Development Director, shall be provided to guarantee the adequate maintenance of the landscaping materials and irrigation system in accordance with the approved plans for a period of one (1) year from the date of final clearance of the installed landscaping by the City. Acceptable	Prior to the Issuance of Occupancy Permits	Planning Dept.	

	forms of security shall be limited to cash deposit, cash bonds, or irrevocable letters of credit. The performance securities shall be released one (1) year after final clearance of the installed landscaping by the City, upon written request by the owner, if the landscaping has been adequately maintained in accordance with the approved landscape plans. A deposit to cover re-inspection of the landscape, at the current City rate shall be posted with the Planning Department prior to re-inspection for maintenance bond release. • The project landscape contractor shall provide the City with the Landscape Installation Certification of Completion stating that the landscaping was installed per the approved plans. The City will review the Certificate and conduct inspections to ensure that the landscape installation is in compliance with the approved landscape plans.			
53.	Prior to the issuance of the final Certificate of Occupancy permit, all required onsite landscape planting and irrigation improvements for the planning area shall have been installed and fully operational consistent with the approved construction plans. The plants shall be healthy and free of weeds, disease, or pests. The irrigation system shall be properly constructed and in good working order. The Applicant shall contact the Planning Department to schedule the final inspection(s).	Prior to the Issuance of Occupancy Permits	Planning Dept.	
54.	Prior to the Issuance of the final Certificate of Occupancy permit, all Planning Department conditions listed herein shall be completed to the satisfaction of the Planning Department.	Prior to final Certificate of Occupancy	Planning Dept.	
55.	Prior to the Issuance of the final Certificate of Occupancy permit, all Riverside County Fire Department conditions shall be complied with	Prior to final Certificate of Occupancy	Planning Dept.	

	and cleared by the Fire Department. The Applicant shall provide written verification from County Fire that all applicable conditions have been met.			
56.	Prior to issuance of occupancy permits for the gas station in Phase 1, the Applicant shall post "No Parking Signs" along the entire project frontage of Cherry Street in accordance with Chapter 10.20 of the Wildomar Municipal Code.	Prior to Occupancy Permits	Planning and Public Works Depts.	
PUBLIC WORKS/ENGINEERING/BUILDING DEPARTMENT CONDITIONS				
General Requirements/Conditions				
1.	○ The project shall comply with all recommendations identified in the approved Traffic Impact Analysis (TIA), to the satisfaction of the City Engineer. Recommended improvements noted under the "Existing Plus Project (E+P) Conditions" section of the TIA shall be constructed. For other future recommended improvements noted in the TIA (e.g., Existing + Ambient + Project Conditions, Existing + Ambient + Project + Cumulative Conditions), the developer shall pay their fair share towards the improvements recommended in the TIA. The Fair Share calculations and estimate shall be approved by the City.	On-Going	Planning & Engineering Departments	
2.	The developer shall obtain City approval for any modifications or revisions to the approval of this project. Deviations not identified on the plans may not be approved by the City, potentially resulting in the need	On-Going	Engineering Dept.	

	for the project to be redesigned. Amended entitlement approvals may be necessary as a result.			
3.	No grading shall be performed without the prior issuance of a grading permit by the City.	On-Going	Engineering Dept.	
4.	Written permission shall be obtained from the affected property owners allowing the proposed grading and/or facilities to be installed outside of the project boundaries.	On-Going	Engineering Dept.	
5.	All grading shall conform to the California Building Code, including Appendix J, and all other relevant laws, rules, and regulations governing grading in the City of Wildomar. Prior to commencing any grading which includes 50 or more cubic yards, the developer shall obtain a grading permit from the Building Department.	On-Going	Engineering Dept. Building Dept.	
6.	All necessary measures to control dust shall be implemented by the developer during grading to the satisfaction of the City Engineer. A PM10 plan may be required at the time a grading permit is issued.	On-Going	Engineering Dept.	
7.	Graded slopes shall be limited to a maximum steepness ratio of 2:1 (horizontal to vertical) unless otherwise approved by the City Engineer. Contour grade to mimic natural slopes in the area.	On-Going	Engineering Dept.	
8.	Grading in excess of 199 cubic yards will require performance security to be posted with the City.	On-Going	Engineering Dept.	
9.	All retaining walls shall require a separate permit from the Building Department.	On-Going	Engineering Dept. Building Dept.	
10.	The developer/owner or contractor shall apply for an Encroachment Permit for work performed within the public right of way. Compliance	On-Going	Public Works	

	with current environmental regulations applies and additional studies and/or permits may be required.			
11.	The developer's contractor is required to submit for a haul route permit for the hauling of material to and from the project site. Said permit will include limitations of haul routes, haul hours, number of loads per day and the posting of traffic control personnel at all approved entrances/exits onto public roads. Hauled material shall be to/from an environmentally approved site. The developer and developer's contractor shall be responsible to inquire with the City in advance regarding potential haul limitations.	On-Going	Public Works	
12.	Storm water and non-storm water discharges from the project site shall be mitigated in conformance with the City of Wildomar Water Quality Management Plan.	On-Going	Engineering Dept.	
13.	For commercial/industrial projects, the developer/applicant shall submit a Business Registration application for each business to the city for approval. Each Business Registration shall indicate that this business in required to submit a Stormwater Compliance Deposit to the City for ongoing Commercial/Industrial Inspection requirements of the City's MS4 permit (NPDES Inspection). The requirement for stormwater compliance deposits and NPDES inspections are recurring for the duration of the conditional use permit. The developer/applicant shall also provide to the Planning Department, as part of the Business' Statement of Operations, a copy of the educational materials, business' handbook, training or similar documents describing the business' best management practices for storm water pollution prevention.	On-Going	Engineering Dept.	
14.	The developer/applicant shall provide all tenants/employees/homeowners with educational materials regarding	On-Going	Engineering Dept.	

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	Best Management Practices for Stormwater Pollution Prevention. Educational materials are available on the Riverside County Flood Control and Water Conservation District's website. .			
15.	The developer/owner/tenant shall comply with all applicable laws and regulations regarding the proper disposal of waste materials generated from the business.	On-Going	Engineering Dept.	
16.	The Developer shall dedicate, design and construct all improvements in accordance the City of Wildomar Road Improvement Standards & Specification, Improvement Plan Check Policies and Guidelines, as further conditioned herein and to the satisfaction of the City Engineer.	On-Going	Engineering Dept.	
17.	The Developer shall be responsible for all costs associated with off-site right-of-way acquisition, including any costs associated with the eminent domain process, if necessary.	On-Going	Engineering Dept.	
18.	Erosion control – landscape plans, required for manufactured slopes greater than 3 feet in vertical height, are to be signed by a registered landscape architect and bonded. The soils engineer shall review the erosion control plans for conformance with the Geotechnical Report's Findings and Recommendations. Erosion control shall be placed within 30 days of meeting final grades to minimize erosion and to ensure slope coverage prior to the rainy season. The Developer shall plant & irrigate all manufactured slopes steeper than a 4:1 (horizontal to vertical) ratio and 3 feet or greater in vertical height with soil stabilizers and ground cover; slopes 15 feet or greater in vertical height shall be planted with additional shrubs or trees or as approved by the City Engineer and City Planner.	On-Going	Engineering Dept. Planning Dept.	

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19.	Should this project lie within any assessment/benefit district, the project proponent shall, prior to acceptance of improvements, make application for and pay for their reapportionment of the assessments or pay the unit fees in the benefit district unless said fees are otherwise deferred or covered under the City's Community Facility District (CFD Services).	On-Going	Engineering Dept.	
20.	The developer shall annex into the City's Community Facility District (CFD Services) and pay associated costs for annexation. Should this project lie within any assessment/benefit district that duplicates the services to be covered under CFD Services then the developer shall de-annex from said assessment/benefit district.	Prior to Map Recordation	Engineering Dept.	
21.	The developer shall design and construct all driveways in accordance with the City of Wildomar Improvement Standards.	On-Going	Engineering Dept.	
22.	The improvement plans for the required public improvements must be prepared and shall be based upon a design profile extending a minimum of 300 feet beyond the project boundaries at a grade and alignment as approved by the City Engineer.	On-Going	Engineering Dept.	
23.	All above-ground utilities, including but not limited to communication and power that are 33KV in size or less, shall be undergrounded by the developer in accordance with City requirements. The undergrounding of utilities shall be reflected on the project improvement plans.	On-Going	Engineering Dept.	
24.	Improvement Plans for underground utilities (eg. Water, sewer, electrical, telecommunications, etc.) to be placed in public right of way or easement that will be owned and maintained by other entities shall be reviewed by the City. The City shall have a place on the Title Sheet to accept the plans with a statement "The city's acceptance is limited to the placement of utilities relative to public infrastructure clearances,	On-Going	Engineering Dept.	

	uses and future plans within the right of way." The plans shall be attached to a city Encroachment Permit.			
25.	All flood control plans to be reviewed by the City or the Riverside County Flood Control District (RCFCD) shall be submitted through the City of Wildomar, unless otherwise directed by the City Engineer. For projects requiring RCFCD review the developer shall pay the appropriate fees to RCFCD.	On-Going	Engineering Dept.	
26.	The developer shall obtain a Caltrans Encroachment Permit for all work within Caltrans Right-of-Way.	On-Going	Engineering Dept.	
27.	The developer shall obtain approval from Caltrans to discharge into the Caltrans right-of-way at the I-15 NB ramp.			
28.	The City reserves the right to require modifications to the geometrics or alignment of the public improvements if during final engineering design and review, operational or safety issues are identified that would cause the design not to conform to City Standards and Guidelines or other commonly accepted industry practices and guidelines such as AASHTO, FHWA, and other similar highway and traffic design standards and guidelines.	On-Going	Engineering Dept.	
Prior to the Issuance of Grading Permits				
29.	The developer shall submit a geotechnical soils reports to the City Engineer for review and approval prior to issuance of grading permit. The findings and recommendations shall reflect current conditions and the report shall be no older than one (1) year. All grading shall be in conformance with the recommendations of the geotechnical/soils reports as approved by City of Wildomar.	Prior to Issuance of a Grading Permit	Engineering Dept.	

30.	The developer shall obtain any and all easements and/or permissions necessary to perform the grading required for the project. A notarized letter of permission from all affected property owners or easement holders, or encroachment permit, is required for all off-site grading.	Prior to Issuance of a Grading Permit	Engineering Dept.	
31.	The project specific SWPPP and an Erosion/Sediment Control plan shall be approved by the City Engineer.	Prior to Issuance of a Grading Permit	Engineering Dept.	
32.	The Developer shall provide the Engineering Department evidence of compliance with the National Pollutant Discharge Elimination System (NPDES); obtain a construction permit from the State Water Resource Control Board (SWRRCB); and, reference the WDID number on the improvement/grading plans.	Prior to Issuance of a Grading Permit	Engineering Dept.	
33.	The developer shall have obtained approval for the import/export location from the City of Wildomar. Additionally, if either location was not previously approved by an Environmental Assessment, prior to issuing a grading permit, a Grading Environmental Assessment shall be submitted to the Planning Director for review and comment and to the City Engineer for approval.	Prior to Issuance of a Grading Permit	Engineering Dept.	
34.	A Final Water Quality Management Plan (WQMP), in conformance with the requirements of the City of Wildomar Model WQMP shall be prepared and approved. All stormwater quality treatment devices shall be located outside of the ultimate public right of way, unless otherwise approved by the City Engineer The developer shall design the stormwater quality treatment devices to accommodate all project runoff, including new roadway improvements, ensuring post-construction flows and volumes do not exceed pre-construction levels, in accordance with City of Wildomar's Hydrology Manual, Stormwater Quality Best Management Practice Design Handbook, Improvement Standards, and	Prior to Issuance of a Grading Permit	Engineering Dept.	

	to the satisfaction of the City Engineer. These BMPs shall be consistent with the Final WQMP and installed and maintained to the satisfaction of the City Engineer.			
35.	This site is located within a High Priority Land Use per the State Water Board's Trash Amendments Order. As a result, the Project shall install full-trash capture BMPs, as approved by the State Water Board, in all on-site and off-site drainage inlets. Off-site trash capture BMPs shall be Connector Pipe Screens, or other approved BMP, to the satisfaction of the City Engineer. These BMPs shall be in addition to any other required WQMP BMPs.	Prior to Issuance of a Grading Permit	Engineering Dept.	
36.	A Grading Agreement and Grading Bond and a Storm Water Management Facilities Agreement shall be approved by the City Engineer and/or Planning Commission.	Prior to Issuance of a Grading Permit	Engineering Dept.	
37.	The developer shall prepare and submit a comprehensive drainage study and plan that includes, but is not limited to: definition with mapping of the existing watersheds; a detailed pre- and post-project hydrologic and hydraulic analysis of the project and project impacts; definition of the local controlling 100-year frequency water levels existing and with project; the proposed method of flow conveyance to mitigate the potential project impacts with adequate supporting calculations; any proposed improvements to mitigate the impacts of increased runoff from the project and any change in runoff; including quality, quantity, volume, and duration in accordance with City of Wildomar's Hydrology Manual, Improvement Standards, and to the satisfaction of the City Engineer. Specifically, the study will:	Prior to Issuance of a Grading Permit	Engineering Dept.	

	a. Analyze the detention basin drainage area for a project using the Rational Method 100-year storm event for the pre-project and post-project. b. Analyze 4 hydrographs for the detention basin drainage area for a project using the Unit Hydrograph 100-year storm event for the 1-hour, 3-hour, 6-hour, and 24-hour storm durations for post-project condition. c. Using the Unit Hydrographs determine which duration provides the highest flow rate. Adjust parameters such as lag time, flow line roughness coefficient or other parameters to calibrate Unit Hydrograph model to provide results similar to the Rational Method. Using the calibrated Unit Hydrograph for the detention basin drainage area perform basin routing analysis to demonstrate that the outflow is less than the pre-project Rational Method flow rate.			
38.	The developer shall show all easements per the Title Report to the satisfaction of Public Works. Any conflict with existing easements resulting in the site being redesigned potentially requires a minor change or amendment approval by Planning Commission.	Prior to the 1st Improvement Plan submittal	Engineering Dept.	
39.	The developer shall prepare a proposed ultimate vertical profile for the centerline of Cherry St. from Waite St. to Bundy Canyon Rd. in conformance with City Standards and Guidelines. The proposed profile shall consider the need for vertical curves based on the ultimate road classification and ultimate design speed. The profile shall be used to establish the centerline and top of curb profiles along the project frontage. The proposed profile for Cherry St. shall be approved by the City prior to grading plan and improvement plan submittal, as changes	Prior to Grading Permit Issuance and Prior to 1st Grading and Improvement Plan Submittal	Engineering Dept.	

ATTACHMENT C - EXHIBIT 1 CHERRY OUTPOST RETAIL CENTER - CONDITIONS OF APPROVAL			
PROJECT NO.: CUP/PLOT PLAN NO. 24-0055			
Applicant: Cherry Outpost, LP (Jack Kofdarali) - APN: 366-290-007 & 366-290-008			
Planning Commission Approval Date: June 4, 2025	**CUP/Plot Plan No. 24-0055 Expiration Date: June 4, 2028**		
Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**
	to the profile may have impacts to the design of grading and improvement plans. The ultimate centerline profile shall be shown on the street improvement plans, for reference. Transitions from the project's frontage improvements to shall be designed in conformance with City Standards and Guidelines and shall be designed to minimize future reconstruction to the extent possible.			
Prior to Issuance of Building Permits				
40.	Comply with the Conditions of Approval for Tentative Parcel Map 38828.	Prior to Issuance of a Building Permit	Building Dept. Engineering Dept.	
41.	The developer shall dedicate public utility easements to the applicable utility owner. These easements are shown on the Easement Plan, Sheet 3 of the Cherry Outpost conceptual grading plan.	Prior to Issuance of a Building Permit	Engineering Dept	
42.	The developer/owner shall obtain a grading permit and/or approval to construct from the City Engineer.	Prior to Issuance of a Building Permit	Building Dept. Engineering Dept.	
43.	The developer shall provide grading reports (including compaction results), rough grading certifications, and soils engineer certifications for each pad.	Prior to Issuance of a Building Permit	Building Dept. Engineering Dept.	
44.	The developer shall obtain a Precise/Commercial Grading Permit for the site, prior to or concurrent with Building Permit Issuance.	Prior to Issuance of a Building Permit	Building Dept. Engineering Dept.	
45.	Improvement plans shall be approved by the City Engineer and all improvements to be constructed shall be secured by the Developer.	Prior to Issuance of a Building Permit	Building Dept. Engineering Dept.	
46.	The developer shall provide will serve letters from the appropriate water and sewer agencies.	Prior to Issuance of a Building Permit	Building Dept.	
47.	The developer shall provide approval letter from Fire Department for fire water service.	Prior to Issuance of a Building Permit	Building Dept. Fire Dept.	

48.	The developer shall install streetlights in accordance with the City of Wildomar Road Improvement Standards & Specification, Improvement Plan Check Policies and Guidelines, City Ordinances and to the satisfaction of the City Engineer, or the improvements shall be secured by the Developer.	Prior to Issuance of a Building Permit	Building Dept. Public Works Dept.	
49.	The developer shall install all street name signs at intersections adjacent to the project, public or private and/or replace street name signs in accordance with the City of Wildomar Standard Details and to the satisfaction of the City Engineer. Improvement plans shall be approved prior to Building Permit issuance. Construction of improvements may be secured prior to Building Permit in which case construction shall be completed prior to occupancy. However, any street name signs required for public safety and access to the site during construction shall be installed prior to Building Permit issuance.	Prior to Issuance of a Building Permit	Public Works Dept.	
50.	The developer shall annex into the CFD Services District to offset development related costs for maintenance and services.	Prior to Issuance of a Building Permit	Engineering Dept.	
51.	The developer/applicant shall demonstrate that all development related fees, impact fees, and mitigation fees have been satisfactorily paid.	Prior to Issuance of a Building Permit or Certificate of Occupancy	Building Dept.	
52.	The developer shall pay all necessary impact and mitigation fees required. These fees include, but are not limited to, fees associated with Transportation Uniform Mitigation Fee (TUMF), Quimby (parkland in-lieu) Fee, and City Development Impact Fees.	Prior to Issuance of a Building Permit or Certificate of Occupancy	Building Dept.	
Project Specific Conditions - Prior to Issuance of a Building Permit				

53.	This project relies on U-turn movements at Sellers Rd. for eastbound access into the site. The developer shall also be required to update traffic signal timing sheets for the Orange St., Sellers Rd., and Monte Vista Dr. traffic signals. The timing shall take into consideration the timing of the Caltrans I-15 NB and SB ramp signals.	Prior to Issuance of a Building Permit	Engineering Dept.	
54.	To support the City's monitoring of the traffic impacts and operations at the Sellers Rd. and Monte Vista Dr. signals, the developer shall install a fully functional Rhythm Control System at both signals, or other equivalent system for remote capabilities as approved by the City Engineer, for connection with the City's traffic monitoring system. This shall include, but not be limited to installation of hardware as necessary to activate the signal interconnect and support a fully operational traffic signal system, per manufacturer's specifications.	Prior to Issuance of a Building Permit	Engineering Dept.	
55.	If modifications are required for any vehicle detection at any of the existing traffic signals, the developer shall install a video detection system in place of adding or replacing/relocating traffic loops.	Prior to Issuance of a Building Permit	Engineering Dept.	
56.	The developer shall dedicate, design and construct part-width improvements along the project frontage on Bundy Canyon Road, including City standard curb, gutter, and sidewalk. Improvements shall be constructed per Riverside County Standard No. 91 (Urban Arterial Highway, 152' ROW) modified to conform to the City of Wildomar General Plan Cross-Section for Bundy Canyon Road, where required, to the satisfaction of the City Engineer. Right-of-way shall be 89' from centerline, in conformance with the "Configuration at Intersection" cross-section shown in Standard No. 91. Geometrics shall include: • Westbound to Northbound Right-Turn Lane • Buffered Class II Bike Lane	Prior to Recordation of Final Map or First Building Permit	Engineering Dept. Public Works Dept.	

	• Two westbound through lanes The precise location of the curb on Bundy Canyon Road shall be determined in final engineering in accordance with General Plan requirements, and the design shall take into consideration the future widening of the interchange and bridge, the future addition of a third westbound lane in conformance with the General Plan/Circulation Plan, and the potential for two westbound turn lanes onto I-15 SB. Improvements shall include ultimate structural sections across the project frontage to the I-15 NB ramp. Where the existing structural section is already at ultimate, reconstruction of that section is not required. To provide a uniform driving surface, repaving limits shall include half-width repaving from centerline to curb face across the project frontage to the I-15 NB ramp. Paving shall use Asphalt Rubber Hot Mix (ARHM) to match the existing paving on Bundy Canyon Rd. If necessary to provide for proper alignment and turning movements, additional width at the intersection of Cherry Avenue shall be provided during final engineering, to the satisfaction of the City Engineer. The developer may provide a security prior to map recordation or building permit issuance to guarantee the construction of improvements.			
57.	The developer shall dedicate, design and construct part-width improvements along the project frontage on Cherry Street, including City standard curb, gutter, and sidewalk. Improvements shall be	Prior to Recordation of	Engineering Dept. Public Works Dept.	

	constructed per Riverside County Standard No. 111 (Industrial Collector Street, 78' ROW), Modified, and include part-width improvements extending east 21' past the centerline. Geometrics shall include: • 5' Bike Lane • 3' Buffer • 12' SB Lane • 14' Striped Median • 12' NB Lane • 3' Shoulder Improvements shall include ultimate structural sections across the project frontage within the part-width improvements. Paving shall use Asphalt Rubber Hot Mix (ARHM) to match the existing paving on Cherry St. The developer may provide a security prior to building permit issuance to guarantee the construction of improvements.	Final Map or First Building Permit		
58.	Access shall be restricted from the I-15 NB ramp and from Bundy Canyon Rd. and shall so be noted on the Final Map or by a separate instrument if no map is recorded.	Prior to Building Permit	Engineering Dept. Public Works Dept.	
Prior to Certificate of Occupancy, Final Inspection or Surety Release				
59.	The developer shall construct the stormwater quality treatment devices to accommodate all project runoff from in accordance with City of Wildomar's Hydrology Manual, Stormwater Quality Best Management	Prior to Certificate of Occupancy	Building Dept. Public Works Dept.	

	Practice Design Handbook, Improvement Standards, and to the satisfaction of the City Engineer. All stormwater quality treatment devices shall be constructed outside of the ultimate public right of way.			
60.	All off-site public improvements shall be constructed and completed. This includes the frontage improvements on Bundy Canyon Road and Cherry Street, off-site mitigation and fair share payments as required by the TIA and as further conditioned herein, and traffic signal modifications as conditioned herein.	Prior to Certificate of Occupancy	Engineering Dept.	
61.	The developer shall submit final grading certifications, final soils certifications, and final grading reports for all pads and all on-site improvements.	Prior to Certificate of Occupancy	Engineering Dept.	
62.	The developer shall submit as-built plans for all on-site and off-site improvements.	Prior to Certificate of Occupancy	Engineering Dept.	
63.	The Applicant shall prepare and record Covenants, Conditions, and Restrictions (CC&Rs) to ensure the implementation and enforcement of approved fuel truck access to the site as stipulated and approved in the December 2, 2024 Traffic Impact Analysis (TIA). Section 6.0.C, Findings and Recommendations, of the TIA stipulates fuel truck access to the site will circulate from the I-215 freeway, exiting Scott Road to Bundy Canyon, making a right on Cherry, and when done, back onto Cherry and making a right on Bundy, and taking the I-15 Freeway. Exhibits 6-E & 6-F illustrate the on-site truck paths. The approved off-site fuel truck routing compliance is the responsibility of the applicant.	Prior to Certificate of Occupancy	Engineering Dept.	

ATTACHMENT C - EXHIBIT 1 CHERRY OUTPOST RETAIL CENTER - CONDITIONS OF APPROVAL			
PROJECT NO.: CUP/PLOT PLAN NO. 24-0055			
Applicant: Cherry Outpost, LP (Jack Kofdarali) - APN: 366-290-007 & 366-290-008			
Planning Commission Approval Date: June 4, 2025	**CUP/Plot Plan No. 24-0055 Expiration Date: June 4, 2028**		
Conditions of Approval	**Timing/ Implementation**	**Enforcement/ Monitoring**	**Verification (Date and Signature)**
64. The applicant shall receive final Caltrans approval and sign-offs for the Caltrans Encroachment Permit and for discharges into Caltrans right-of-way.	Prior to Certificate of Occupancy	Engineering Dept.	

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BUILDING DEPARTMENT CONDITIONS				
General Conditions				
1.	The design of the construction drawings submittal post entitlement must be reviewed and stamped by an architect or engineer licensed in the State of California – (Business and Professions code Sections 5537, 5538 and 6737.1).	On-Going	Building Department	
2.	A building permit shall be obtained for the proposed construction and site development. The design of the building shall comply with the 2019 California Building Codes.	On-Going	Building Department	
3.	All grading shall conform to the 2019 California Building Code, and all other relevant laws, ordinances and resolutions governing grading as adopted by the City of Wildomar. The applicant shall obtain a grading permit from the Building & Safety Division prior to commencing any grading or site excavation.	On-Going	Building Department	
4.	A Final geotechnical and/or soils reports shall be submitted to the Building Official for review and approval prior to issuance of a grading permit. All grading shall be in conformance with the recommendations of the geotechnical/soils reports as approved by the City of Wildomar.	On-Going	Building Department	
5.	All proposed work shall comply with the 2019 California Energy Code and all other relevant laws, ordinances and resolutions governing Energy conservation as adopted by the City of Wildomar.	On-Going	Building Department	
6.	Proposed project shall comply with the 2019 California Green Building Standards Code and all other relevant laws, ordinances and resolutions governing sustainable design as adopted by the City of Wildomar.	On-Going	Building Department	

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7. Proposed project shall be sprinklered and comply with all other relevant laws, ordinances and resolutions governing residential sprinklers as adopted by the City of Wildomar.	On-Going	Building Department	
8. Building Department comments and conditions are subject to plan check. Comments are based on information provided.	On-Going	Building Department	
9. A Fence and wall plan required will be required prior to the issuance of any building permits for construction of any fences/walls.	On-Going	Building Department	
RIVERSIDE COUNTY FIRE DEPARTMENT CONDITIONS			
General Conditions			
1. **Fire Protection Water Supplies/Fire Flow** - Minimum fire flow for the construction of all buildings is required per CFC Appendix B. Prior to building permit issuance for new construction and/or combustibles (this includes form boards) being placed on site a water and access verification inspection is required by the Fire Department. The applicant shall provide documentation to show there exists a water system capable of delivering the required fire flow. Specific design features may increase or decrease the required fire flow. Reference CFC 507.3, OFM-02 Underground Private Service Mains, and OFM-01B Fire Department Water Supply and Fire Hydrant Requirements for Commercial & Residential Development.	Prior to Building Permit	Fire Department	
2. **Fire Protection Water Supplies/Hydrants -** The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with CFC Appendix C and NFPA 24. Fire hydrants shall be located no more than 400 feet from all portions of the exterior of the building or facility along an approved route on a fire apparatus access road, unless otherwise approved by the Fire	Prior to Building Permit	Fire Department	

	Department. Prior to building permit issuance for new construction and/or combustibles (this includes form boards) being placed on site a water and access verification inspection is required by the Fire Department. Fire hydrants, PIV's, FDC's shall be at least 40 feet from the building it is serving. A fire hydrant shall be located within 20 to 100 feet of the fire department connection for buildings protected with a fire sprinkler system. The size and number of outlets required for the approved fire hydrants are 4" x 2 ½" x 2 ½" (super hydrant). Reference CFC 507.5, CFC Appendix C, NFPA 24, OFM-02 Underground Private Service Mains, and OFM-01B Fire Department Water Supply and Fire Hydrant Requirements for Commercial & Residential Development.			
3.	**Water Plans -** If fire hydrants are required to be installed, applicant/developer shall furnish the water system fire hydrant plans to the Fire Department for review and approval prior to building permit issuance. Plans shall be signed by a registered civil engineer, and shall confirm hydrant type, location, spacing, and minimum fire flow. A fire flow letter shall be submitted with the water plans. Once plans are signed and approved by the local water authority, the originals shall be presented to the Fire Department for review and approval. Reference CFC 105.4.1.	Prior to Building Permit	Fire Department	
4.	**Fire Department Access -** Fire apparatus access roads shall be provided to within 150 feet of all exterior portions of buildings, unless otherwise approved by the Fire Department. Fire apparatus access roads shall have an unobstructed width of not less than 24 feet. Dead-end fire apparatus access roads more than 150 feet shall be provided with an approved turn around. The minimum required turning radius of a fire apparatus access road is 45 feet outside radius and 24 feet inside radius. The construction of the fire apparatus access roads shall be all	On-Going	Fire Department	

	weather and capable of sustaining 80,000 lbs. Unless otherwise approved, the grade of a fire apparatus access road shall not exceed 16 percent, and the cross slope shall not exceed 2.5 percent. The angles of approach and departure for fire apparatus access roads shall be a maximum of 6 percent grade change for 25 feet of approach/departure. Reference CFC 503.1.1, 503.2.1, and OFM-01A Fire Department Access Requirements for Commercial & Residential Development.			
5.	**Aerial Fire Apparatus Access Roads –** Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet, approved aerial fire apparatus access roads shall be provided. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof. Reference CFC 503.2.2 - **Width:** Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof. - **Proximity to building**: One or more of the required access routes meeting the condition shall be located not less than 15 feet and not greater than 30 feet from the building and shall be positioned parallel to one entire side of the building. The side of the building which the aerial fire access road is positioned shall be approved by the fire code official. - **Obstructions:** Overhead utility and power lines shall not be located over the aerial fire apparatus access road or	On-Going	Fire Department	

	between the aerial fire apparatus road and the building. Other obstructions shall be permitted to be placed with the approval of the fire code official.			
6.	**Fire Access Road Identification -** Fire Lane identification will be required when it is necessary to restrict parking of vehicles to maintain the required width of fire access roads for emergency vehicle use. Unlawful use of fire lanes will be enforced by the property owner and local law enforcement agency in accordance with the California Vehicle Code (CVC).	On-Going	Fire Department	
7.	**Knox key boxes and/or key switches -** Knox devices shall be provided where necessary to ensure that immediate access for firefighting, rescue, and other emergency purposes is possible. Knox equipment locations shall be shown on access plans. Reference CFC 506, OFM-01A Fire Department Access Requirements for Commercial & Residential Development, and Riverside County Fire Department Office of the Fire Marshal Technical Policy TP# 06-003 Emergency Access Key Boxes.	On-Going	Fire Department	
8.	**Fire Department Building Construction Permit Review** - Submittal of construction plans and a fire flow letter to the Fire Department will be required. Final fire and life safety conditions will be addressed when the Fire Department reviews these plans. These conditions will be based on California Fire Code, California Building Code (CBC), and related codes/standards adopted at the time of construction plan submittal. Reference CFC 105.1	On-Going	Fire Department	
9.	**Fire Sprinkler System -** All new commercial buildings and structures 3,600 square feet or larger will be required to install a fire sprinkler	On-Going	Fire Department	

	system. Reference CFC 903.2, City of Wildomar Municipal Code, Riverside County Ordinance 787.10			
10.	**Fire Alarm and Detection System -** A water flow monitoring system and/or fire alarm system may be required as determined at time of building construction plan review. Reference CFC 903.4 and CFC 907.2	On-Going	Fire Department	
11.	**Vehicle Impact Protection –** Where fire service appurtenances, fire hydrants, and/or control valves are subject to impact or damage, impact protection shall be provided. Reference CFC 312	On-Going	Fire Department	
12.	**Blue Dot Reflectors –** Blue retro-reflective pavement markers shall be mounted on private streets, public streets, and driveways to indicate the location of fire hydrants. Prior to installation, placement of markers must be approved by the Riverside County Fire Department. Reference CFC 507, City of Wildomar Municipal Code, and Riverside County Fire Department Office of The Fire Marshal Technical Policy #TP 06-11	On-Going	Fire Department	
13.	**Premises Identification -** Premise identification requirements are applicable to both new and existing buildings and facilities. Wildomar-OFM may require compliance with these requirements when necessary to facilitate emergency response. Three possible configurations of buildings or units within a building may exist and are identified as follows: freestanding buildings, multi-unit buildings, or multi-building clusters. Reference CFC 505, and OFM-01A Fire Department Access Requirements for Commercial & Residential Development.	On-Going	Fire Department	
14.	**Adverse Impacts –** The proposed project could have a cumulative adverse impact on the City of Wildomar Fire Department's ability to provide an acceptable level of service. These impacts include an increased number of emergency and public service calls due to the	On-Going	Fire Department	

	increased presence of structures, traffic, and population. The project proponents/developers will be expected to provide proportional mitigations to these impacts via capital improvements and/or impact fees. Upon additional impact analysis, the applicants/developers may be required to enter into an agreement with the City of Wildomar to offset costs and impacts.			
15.	**Acceptable Fire Response Distance and Time -** Riverside County Fire Department provides cooperative integrated regional fire protection services to the project area. The nearest Riverside County Fire Department fire station is located within an acceptable estimated response distance and response drive time. Wildomar Station 61 was referenced as 1st-in response.	On-Going	Fire Department	
16.	**Outside Aerial Truck Company Service Area -** This project is located outside the service area of a dedicated aerial truck company. We recommend that this issue be discussed with the fire department operations staff to ensure that all hazards are mitigated, and response needs are met. *Quint 97 is the closest Riverside County Fire Department resource providing Aerial Truck Company services with a 8:43-minute response time estimated, being 7.30 road miles from the project. (A maximum 8:00-minute response time is established per Riverside County Fire Department Standards). This response and resource impact is being assessed due to the proposed 4-story Hotel structure.	Prior to Hotel Building Permit	Fire Department	
17.	**Adverse Impacts** - This project will contribute to a cumulative adverse impact on the fire department's ability to provide an acceptable level of service. These impacts include an increased number of emergency and	On-Going	Fire Department	

	public service calls due to the increased presence of structures, traffic, and population.			
18.	**Fire Mitigation– Provide Fire Station, Equipment and/or Provide Funds -** Mitigations for these issues will require the construction, equipping and placing in service of a new fire station. This station will be located as specified by the fire department and its site adequately sized to meet operational needs. This station may be constructed by, or under the direction of a developer, with full fire department specifications, design approval and construction oversight. Alternately, the mitigation may be met by the project providing funding for the Fire Station and equipment (Aerial). Timing of construction or funding to be approved by the Fire Department and jurisdictional leadership. It is recommended that these issues be further discussed with fire department operations staff to ensure that all hazards are mitigated, and response needs are met.	Prior to Hotel Building Permit	Fire Department	
19.	**Fire Mitigation– Ongoing Fire Funds -** While Development Impact Fees (DIF) apply to this project, these fees assist in the initial, one-time mitigation for capital projects. As a general note, considering ongoing governmental funding challenges facing most agencies, we encourage your administrative staff and legislative bodies to review and determine if revenue enhancement mitigations are necessary for ongoing fiscal impacts to our operational services.	On-Going	Fire Department	

END

CHERRY OUTPOST

ENTITLEMENT SUBMITTAL

CONTACT INFORMATION

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STUDIO ONE
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RICHARD RAMIREZ
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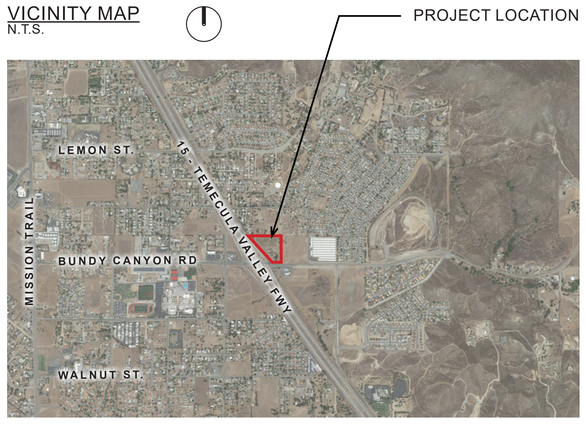
rramirez@cdpcinc.com

VICINITY MAP
N.T.S.



PROJECT INFORMATION

SCOPE OF WORK:
PROPOSED DEVELOPMENT OF ±6.64 AC SITE WHICH INCLUDES ±16,700 SF RETAIL, 72 KEY HOTEL, AND ON-SITE IMPROVEMENTS. PROPOSED RETAIL USES INCLUDE RESTAURANTS, CONVENIENCE STORE, GAS/DIESEL STATION AND CAR WASH.

ASSESSOR'S PARCEL NUMBERS:
366-290-007 & 366-290-008

LAND USE: COMMERCIAL RETAIL
CURRENT ZONING: SCENIC HIGHWAY COMMERCIAL

LEGAL DESCRIPTION:
THE LAND REFERRED TO HEREIN IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF RIVERSIDE, CITY OF WILDOMAR AND DESCRIBED AS FOLLOWS:

PARCEL 1:
THAT PORTION OF LOT 29 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA. AS SHOWN BY MAP ON FILE IN BOOK 10,, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:
BEGINNING AT A TWO INCH IRON PIPE MARKING THE NORTHEAST CORNER OF SAID LOT 29; THENCE ALONG THE EASTERLY LINE OF SAID LOT 29, SOUTH 01° 11' 58" WEST(RECORD SOUTH 00° 37'20"WEST) 133.12 FEET; THENCE COURSE "A" NORTH 35° 22'37'WEST, 20.59 FEET; THENCE COURSE "B" NORTH 44° 14' 20" WEST, 55.90 FEET; THENCE COURSE "C"NORTH 33° 56'00" WEST, 94.44 FEET TO THE NORTHERLY LINE OF SAID LOT29, DISTANT ALONG SAID NORTHERLY LINE NORTH 88° 52' 14" WEST (RECORD NORTH 89° 26' 10" WEST) 105.44 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTHERLY LINE SOUTH 88° 52*14" EAST (RECORD SOUTH 89° 26'10"EAST) 106.44 FEET TO THE POINT OF BEGINNING.
EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

PARCEL 2:
ALL THAT PORTION OF LOT 19 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, LYING NORTHEASTERLY OF THE STATE HIGHWAY, AS CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED APRIL 20, 1955 IN BOOK 1725. PAGE 467, OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.
EXCEPTING THEREFROM THAT PORTION AS DESCRIBED IN THE DEED TO THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 20.1970 AS FILE NO. 18792, OF OFFICIAL RECORDS.
ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

DRAWING INDEX

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2 EMERGENCY VEHICLE & ACCESSIBLE PATH OF TRAVEL EXHIBIT
3 LOADING PATH EXHIBIT
4 TRUCK ACCESS EXHIBIT
5 PAD 1 CONCEPTUAL FLOOR & ROOF PLAN
6 PAD 1 CONCEPTUAL ELEVATIONS
7 PAD 2 CONCEPTUAL FLOOR & ROOF PLAN
8 PAD 2 CONCEPTUAL ELEVATIONS
9 CAR WASH CONCEPTUAL FLOOR PLAN
10 CAR WASH CONCEPTUAL MEZZANINE PLAN
11 CAR WASH CONCEPTUAL ROOF PLAN
12 CAR WASH CONCEPTUAL ELEVATIONS
13 HOTEL CONCEPTUAL FLOOR PLAN
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LANDSCAPE
L-1 CONCEPTUAL LANDSCAPE PLAN
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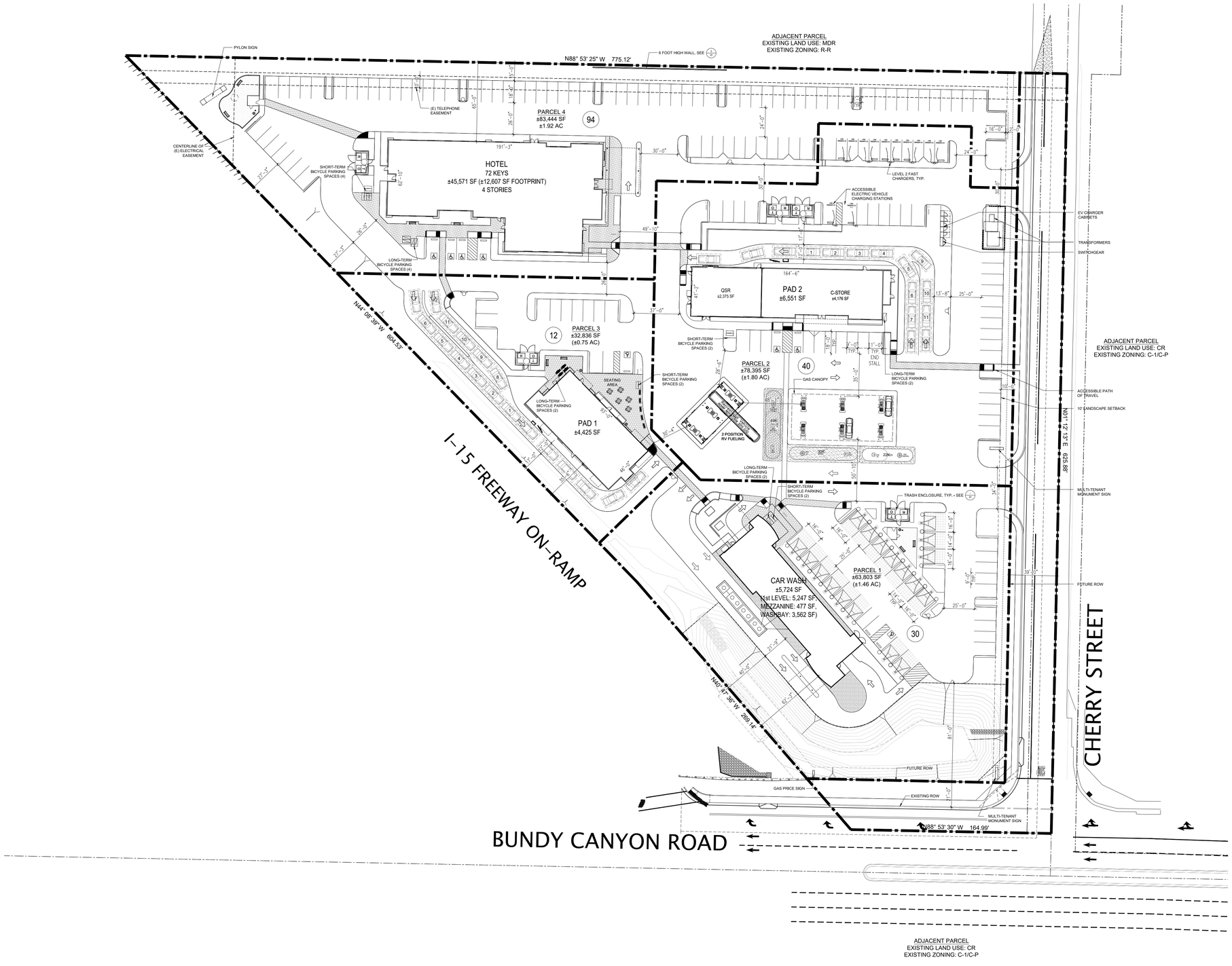
CIVIL
1 CONCEPTUAL GRADING PLAN
2 CONCEPTUAL UTILITY PLAN
3 EASEMENT PLAN
4 CHERRY STREET CENTERLINE PROFILE
5 STRIPING PLAN



SITE SUMMARY

FUTURE NET LAND AREA:	±289,445 SF (±6.64 AC)
EXISTING LAND AREA :	±259,087 SF (±5.95 AC)
BUILDING AREA :	±62,271 SF
LAND/BLDG RATIO:	9.0/1[1]
COVERAGE:	10.0%[1]
PARKING PROVIDED:	176 STALLS
PARKING REQUIRED :	151 STALLS[2]
RETAIL PARKING RATIO:	6.2/1000[3]

BICYCLE PARKING REQUIRED

SHORT TERM PARKING:	9 STALLS[4]
LONG TERM PARKING:	9 STALLS[4]

BICYCLE PARKING PROVIDED

SHORT TERM PARKING:	10 STALLS
LONG TERM PARKING:	10 STALLS

1 Based on Future Net Land Area and first level building area (±28,830 SF).
2 Based on City of Wildomar Municipal Code:
General Retail: 6/1000 (13,138[5]) = 79 stalls
Hotel: 1/ Key (72) = 72 stalls
3 Based on retail building area (13,138 SF[5]) and retail parking (82 stalls).
4 Based on 2022 CalGreen section 5.106.4.
5 Carwash Tunnel/Wash Bay (3,562 SF) is excluded from calculation.

NOTE:
GAS STATION TO PROVIDE REGULAR FUEL PRODUCTS, DIESEL, E85, RACING FUEL, AND ELECTRIC VEHICLE CHARGING STATIONS.
E85 AND RACING FUEL TO BE PROVIDED WITHIN STANDARD FUEL CANOPY.

UTILITIES & SERVICE

WATER:
ELSINORE VALLEY MUNICIPAL WATER DISTRICT
31315 CHANEY ST.
LAKE ELSINORE, CA 92530
951-674-3146

SEWER:
ELSINORE VALLEY MUNICIPAL WATER DISTRICT
31315 CHANEY ST.
LAKE ELSINORE, CA 92530
951-674-3146

GAS:
SOUTHERN CALIFORNIA GAS COMPANY
1801 S. ATLANTIC BLVD
MONTEREY PARK, CA 91754
1-800-427-2000

ELECTRIC:
SOUTHERN CALIFORNIA EDISON COMPANY
P.O. BOX 6400
RANCHO CUCAMONGA, CA 91729
1-800-990-7788

TELEPHONE:
FRONTIER
9 SOUTH 4TH ST.
REDLANDS, CA 92373
909-217-0116

CABLE TELEVISION:
SPECTRUM/CHARTER
560 S. PROMENADE AVE #102
CORONA, CA 92879
951-393-3146

SCHOOL DISTRICT:
LAKE ELSINORE UNIFIED SCHOOL DISTRICT
545 CHANEY ST.
LAKE ELSINORE, CA 92530
951-253-7000

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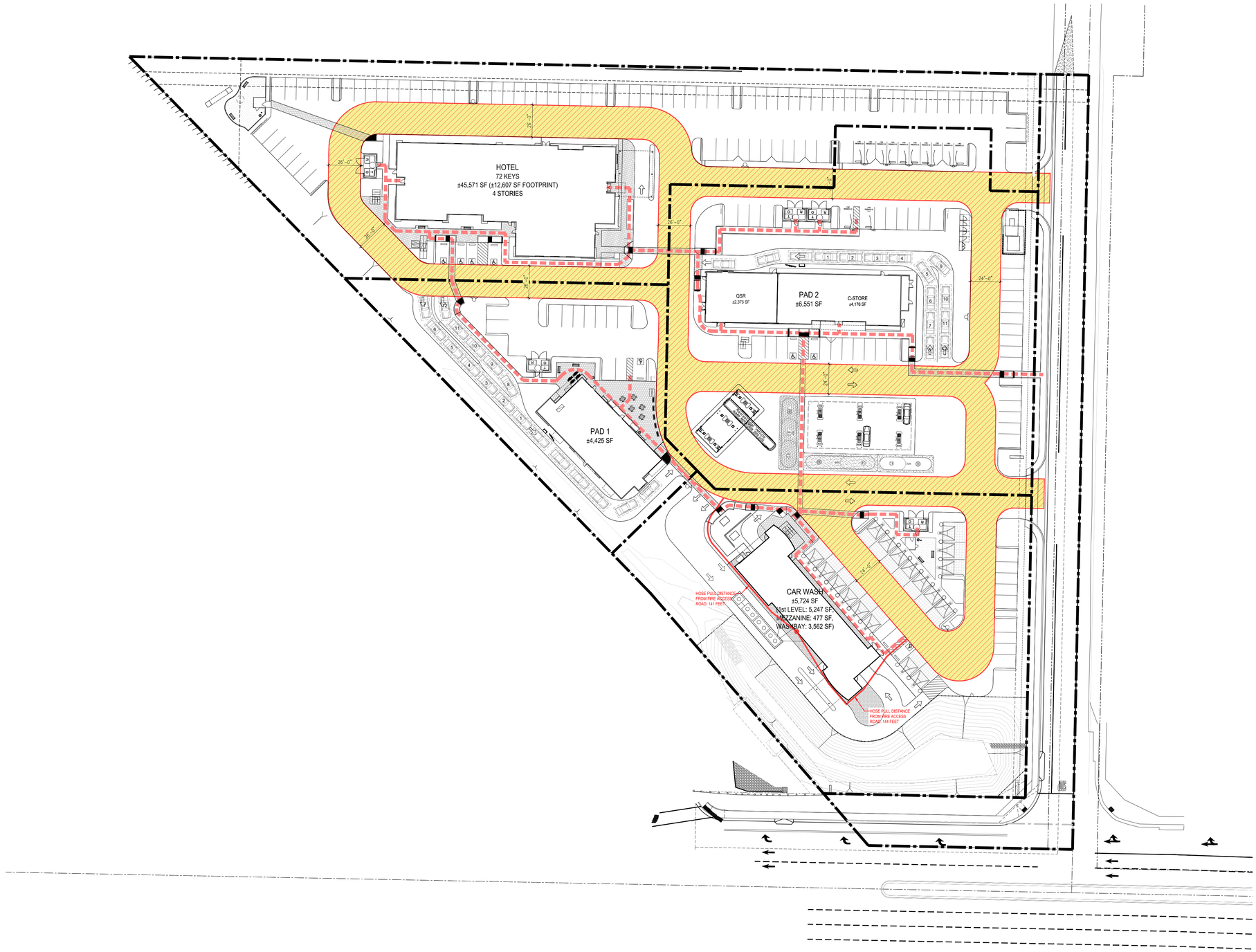
0 20 40 80
SCALE: 1" = 40'

CONCEPTUAL SITE PLAN

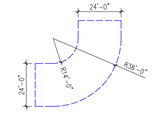


LEGEND

ACCESSIBLE PATH OF TRAVEL

FIRE LANE/SERVICE VEHICLE PATH

FIRE TRUCK TURNING RADIUS



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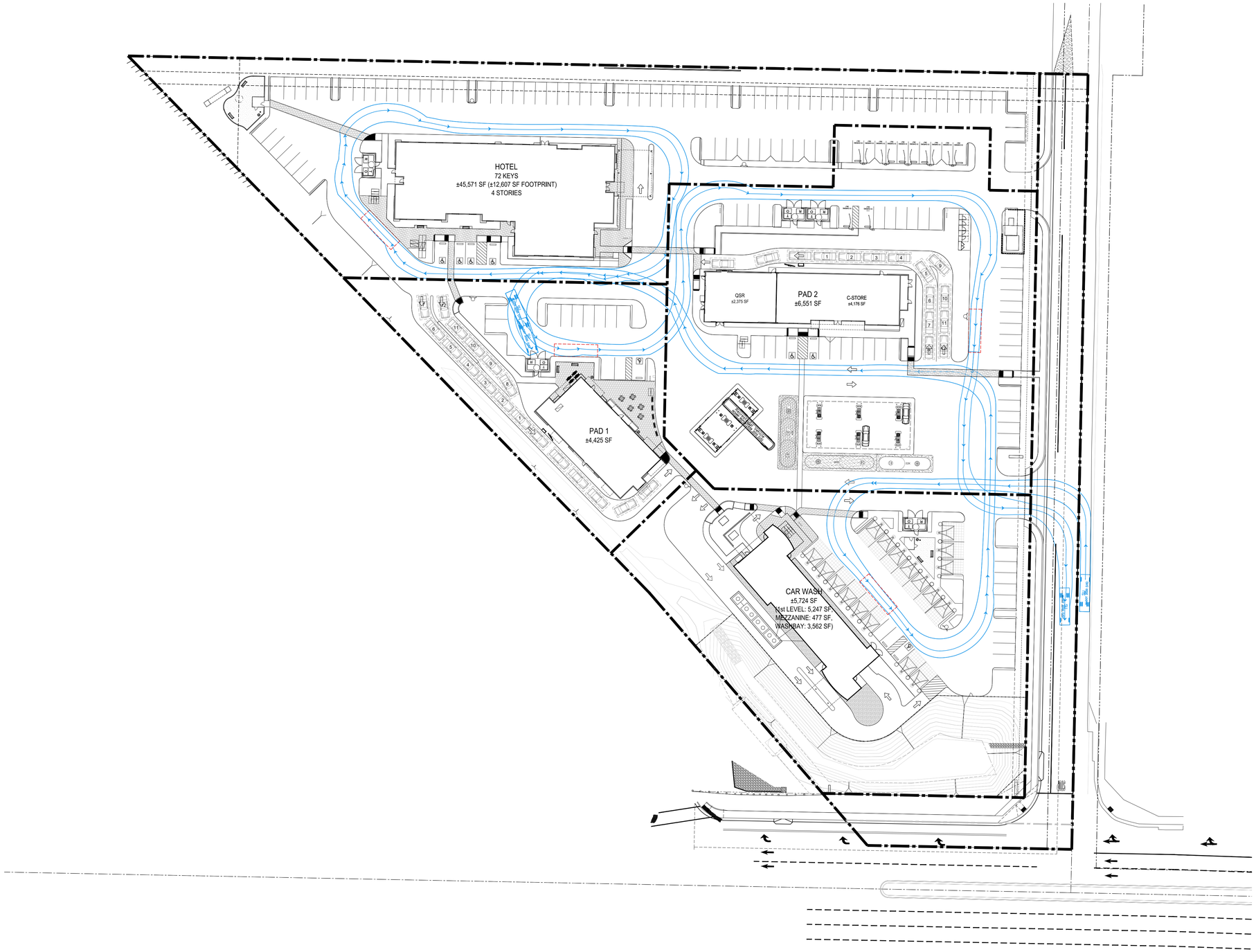
0 20 40 80
SCALE: 1" = 40'

EMERGENCY VEHICLE &
ACCESSIBLE PATH OF TRAVEL EXHIBIT



LEGEND

LOADING TRUCK PATH

LOADING AREA

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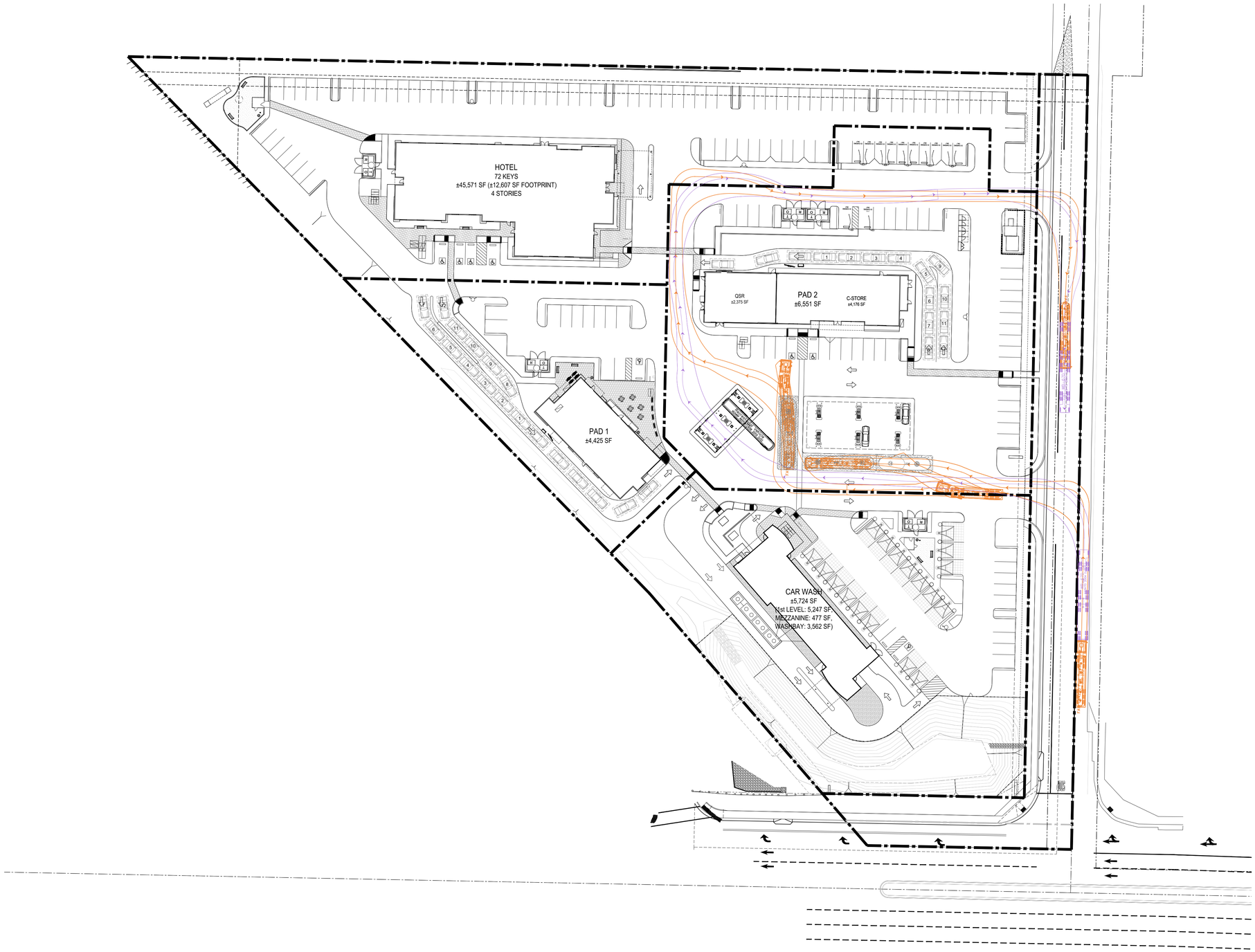
LOADING PATH EXHIBIT



LEGEND

WB-67D TRUCK PATH

FUEL TANKER TRUCK PATH

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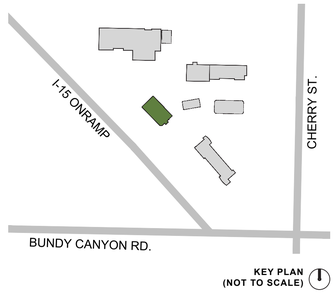
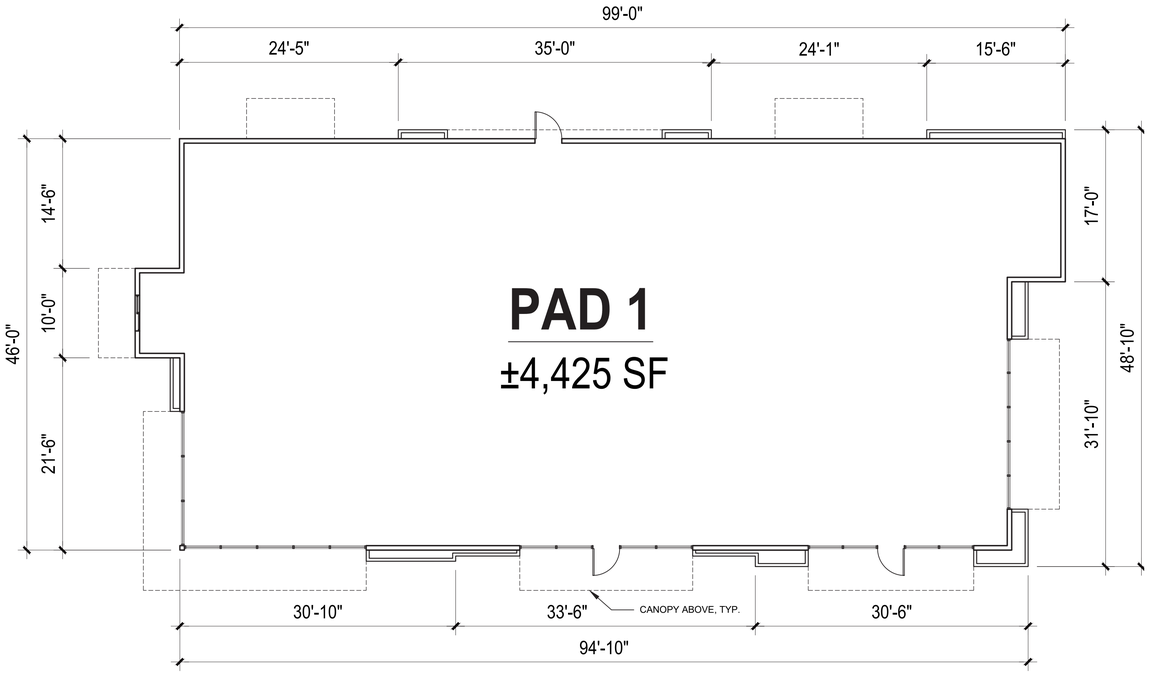
0 20 40 80
SCALE: 1" = 40'

TRUCK ACCESS EXHIBIT

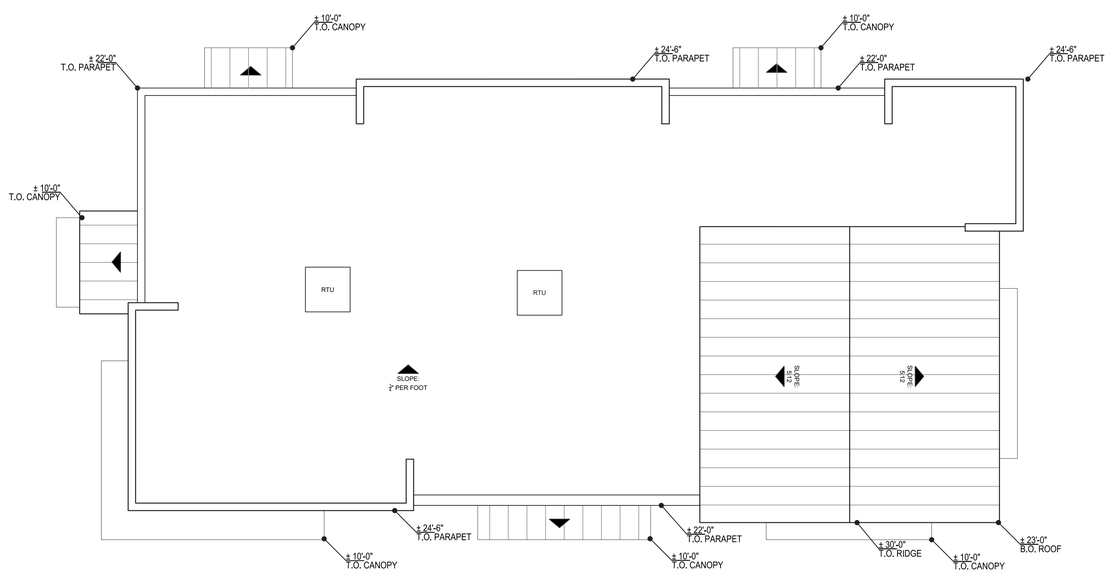


KEY PLAN
(NOT TO SCALE)

NOTE:
1. RTU PLACEMENT IS CONCEPTUAL AND IS SUBJECT TO CHANGE



1 FLOOR PLAN



2 ROOF PLAN

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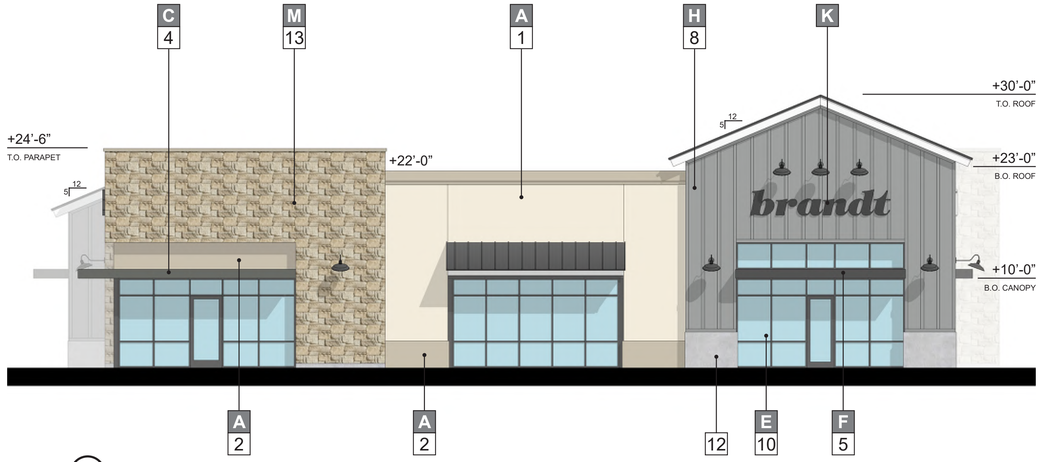
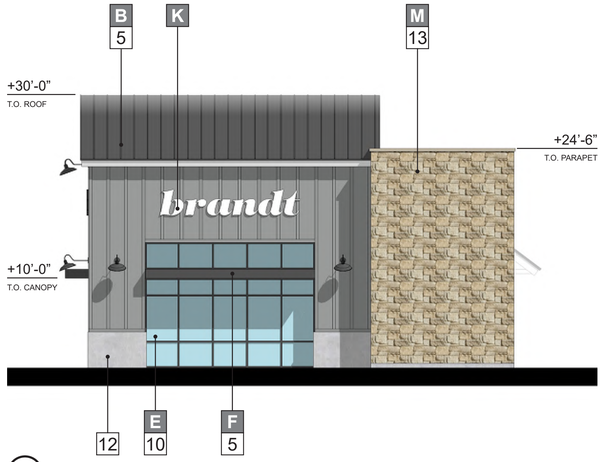
0 4 8 16
SCALE: 1/8" = 1'

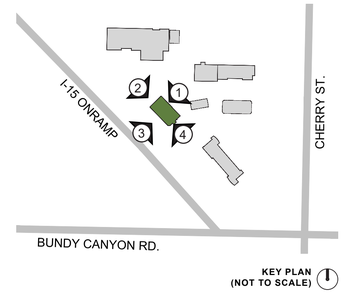
CONCEPTUAL PLANS
PAD 1

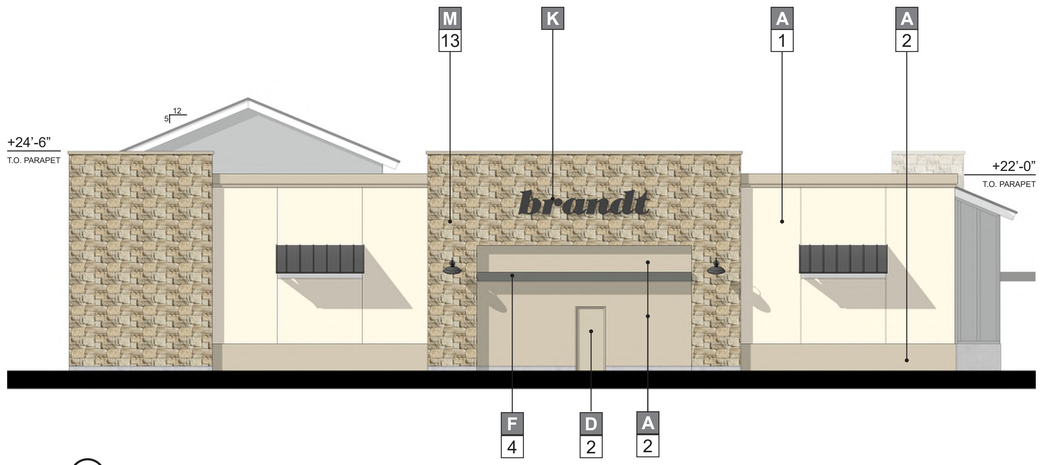


1 NORTHEAST ELEVATION (FRONT)

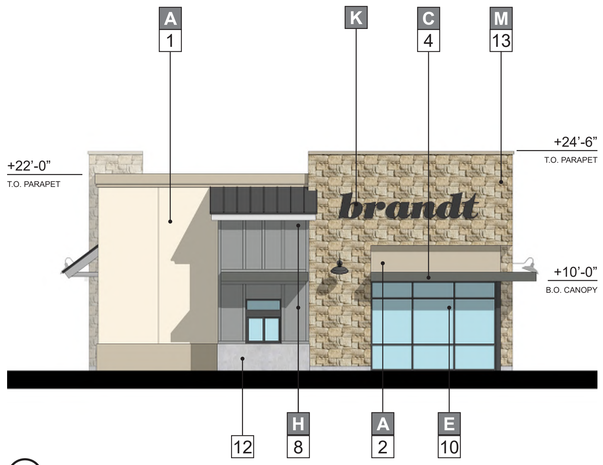


2 NORTHWEST ELEVATION (RIGHT)





3 SOUTHWEST ELEVATION (REAR)



4 SOUTHEAST ELEVATION (LEFT)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
D	**DOOR**	K	**SIGNAGE**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"	13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

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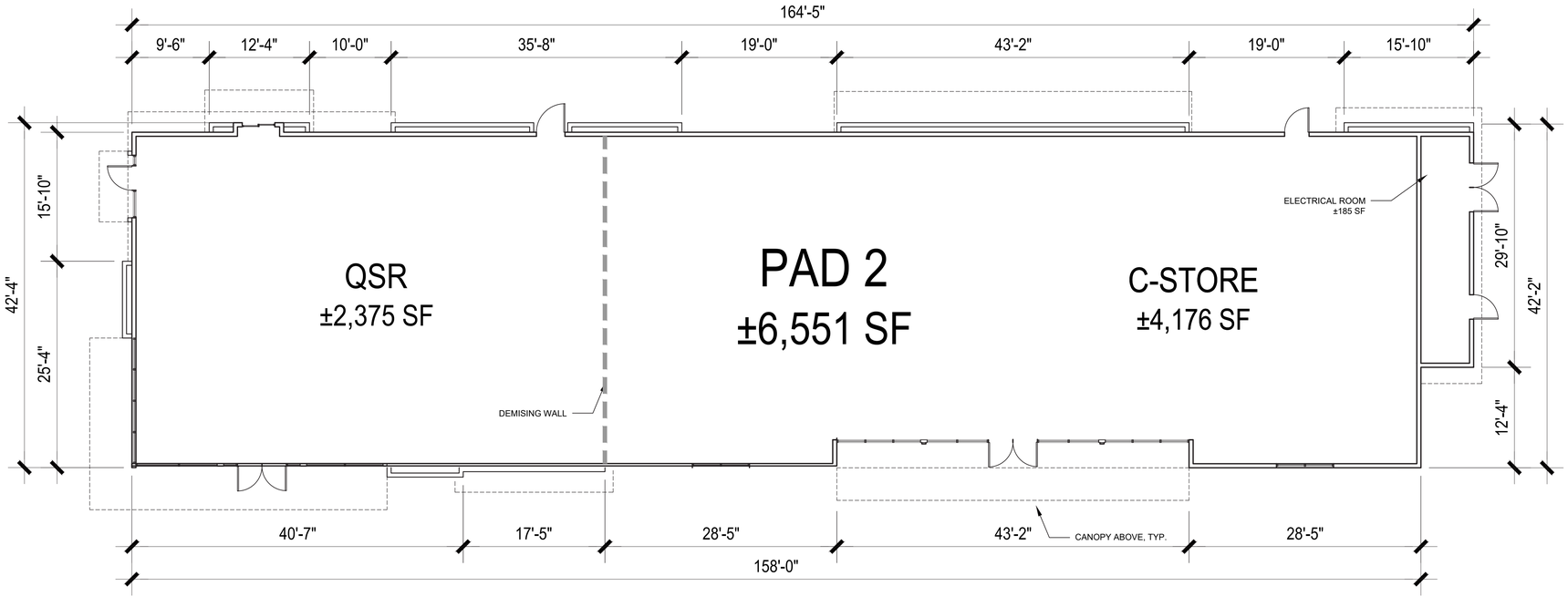
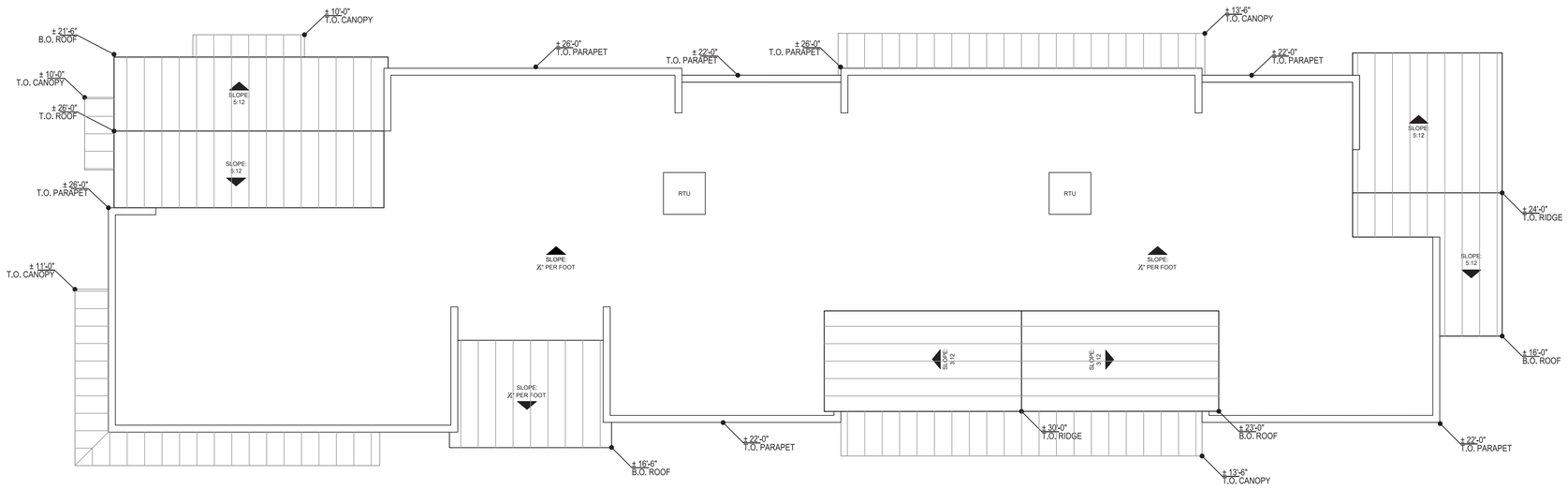
0 4 8 16
SCALE: 1/8" = 1'

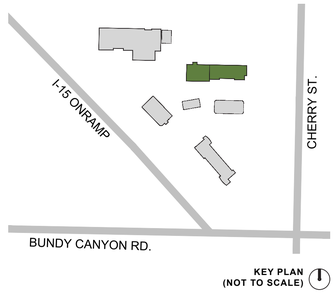
CONCEPTUAL ELEVATIONS
PAD 1



1 FLOOR PLAN



2 ROOF PLAN



NOTE:
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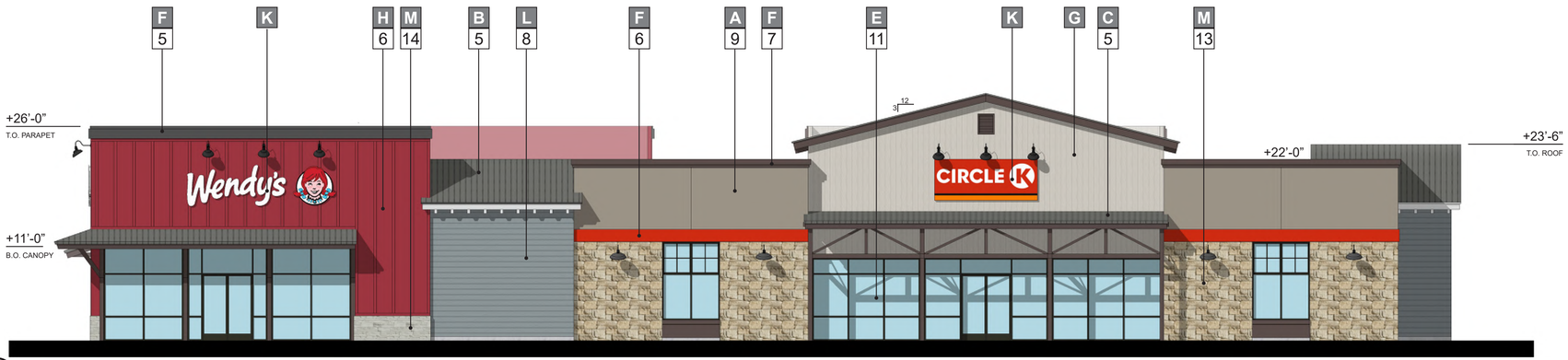
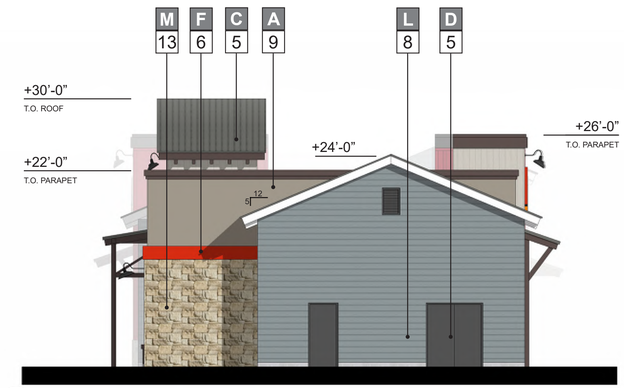
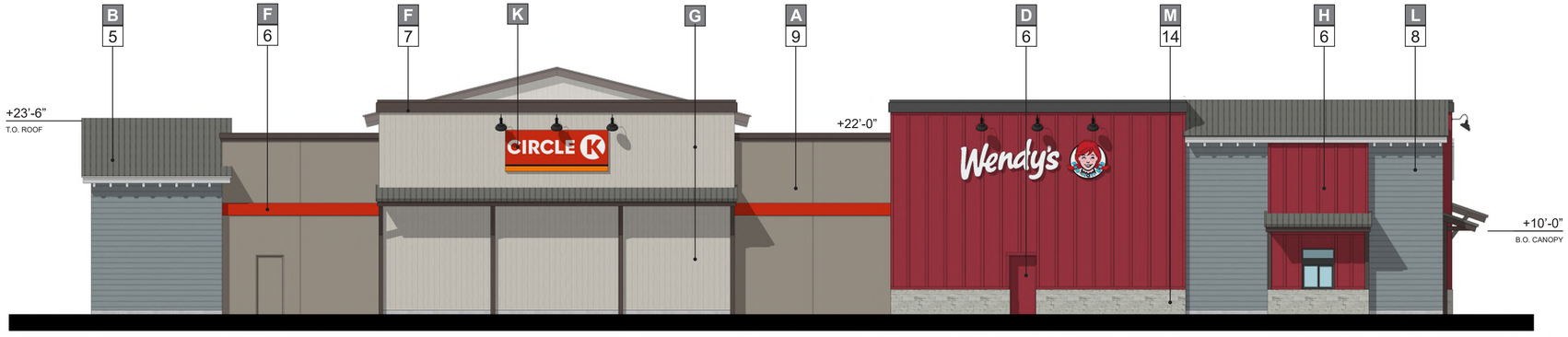
CONCEPTUAL PLANS
PAD 2



1 SOUTH ELEVATION (FRONT)



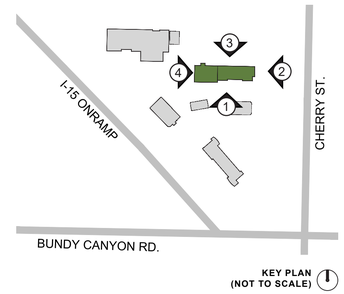
2 EAST ELEVATION (RIGHT)



3 NORTH ELEVATION (REAR)



4 WEST ELEVATION (LEFT)



KEY PLAN
(NOT TO SCALE)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"	1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**	2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"	3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"
D	**DOOR**	K	**SIGNAGE**	4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**	5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**	6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE

COLORS & FINISHES

13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"

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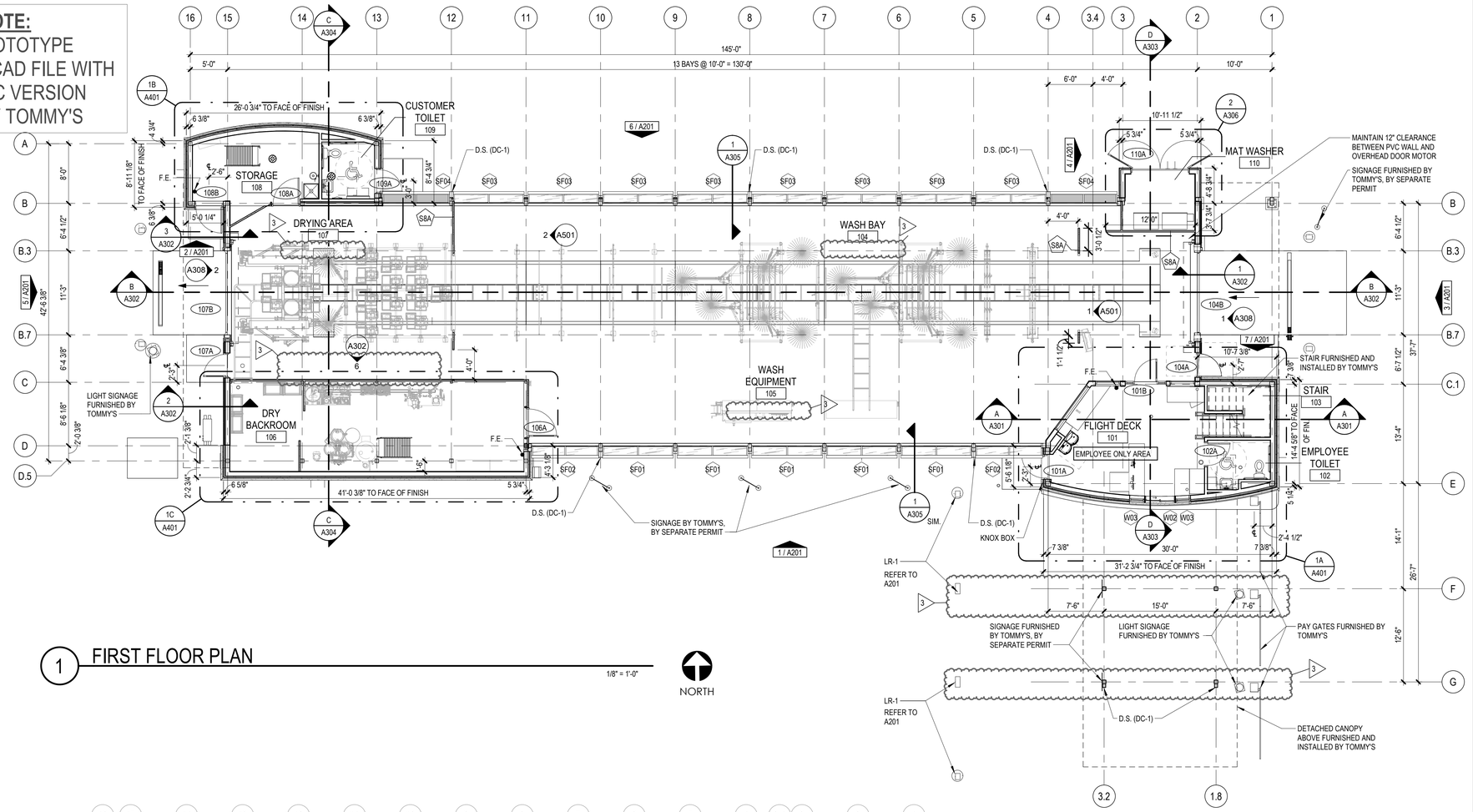
CONCEPTUAL ELEVATIONS
PAD 2

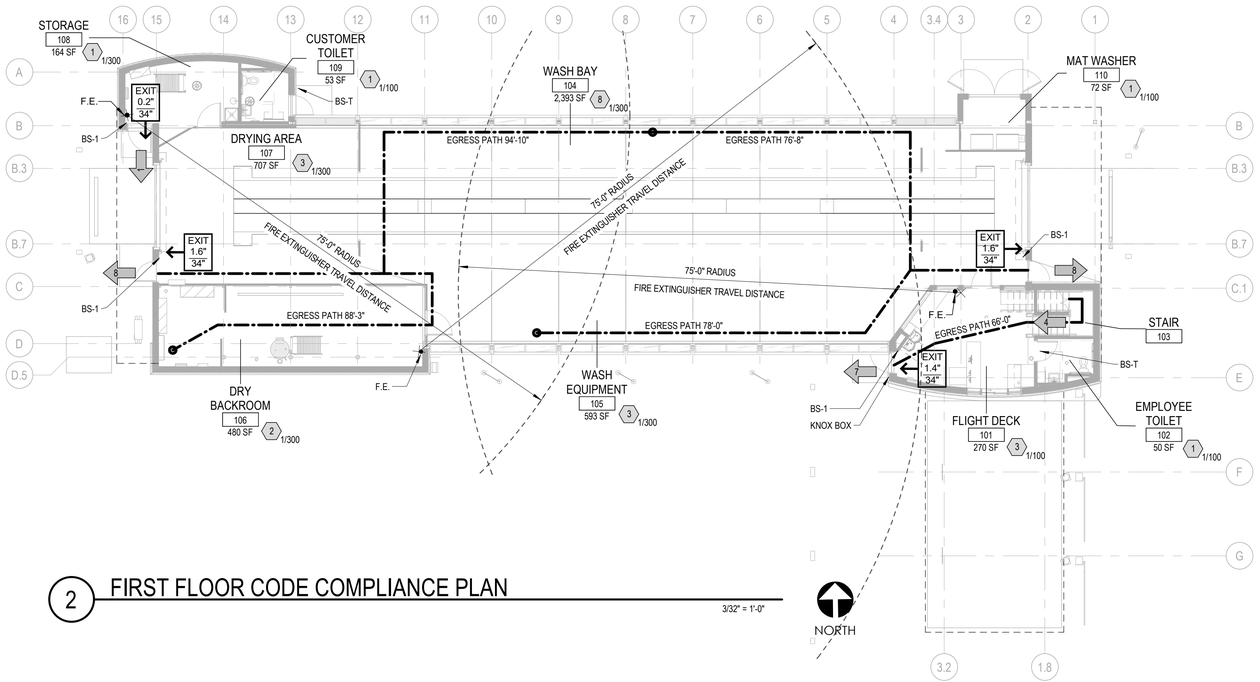
DESIGNER NOTE:
REPLACE PROTOTYPE EQUIPMENT CAD FILE WITH SITE SPECIFIC VERSION PROVIDED BY TOMMY'S



1 FIRST FLOOR PLAN

1/8" = 1'-0"

NORTH



2 FIRST FLOOR CODE COMPLIANCE PLAN

3/32" = 1'-0"

NORTH

DESIGNER NOTE:
STRUCTURAL STEEL MODEL IS INCLUDED FOR REFERENCE ONLY AS A "GENERIC MODEL" FAMILY ON WORKSET "XLINK_STEEL FRAME". REFER TO SITE SPECIFIC STEEL DRAWINGS FOR MORE INFORMATION.

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. FINISH FLOOR ELEVATION = 100' - 0". REFER TO CIVIL DRAWINGS FOR SITE DATUM ELEVATION EQUIVALENT.
3. BEGINNING WORK INDICATES THAT THE CONTRACTOR HAS ACCEPTED AND VERIFIED EXISTING CONDITIONS.
4. REFER TO CODE COMPLIANCE DRAWING(S) FOR LOCATIONS OF RATED ASSEMBLIES AND CODE SUMMARY.
5. ALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF CONCRETE, FACE OF STUDS, COLUMN CENTERLINE AS SHOWN UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS ARE PERPENDICULAR AND PARALLEL, UNLESS NOTED OTHERWISE.
7. OWNER FURNISHED EQUIPMENT IS SHOWN LIGHT DASHED FOR REFERENCE ONLY. REFER TO EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.

FLOOR PLAN LEGEND AND NOTES

D.S. DOWNSPOUTS FURNISHED AND INSTALLED BY G.C.

ENCLOSURES **DC-1** FURNISHED AND INSTALLED BY TOMMY'S, REFER TO SHEET A201

(#) REFER TO SHEET A602 FOR WINDOW SCHEDULE

(#) REFER TO SHEET A601 FOR DOOR SCHEDULE

(#) WALL TYPE, REFER TO WALL TYPE LEGEND

NEW WALL CONSTRUCTION, REFER TO WALL TYPE LEGEND

NOTE 1: ALL GYPSUM BOARD TO BE "TYPE X" FIRE RATED, UNLESS NOTED OTHERWISE, TYP. USE MOISTURE RESISTANT GYP. BOARD IN WET AREAS, TYP.

NOTE 2: ALL PLYWOOD AND DIMENSIONAL LUMBER USED AS BLOCKING TO BE EXTERIOR GRADE PRESSURE TREATED WOOD, UNLESS NOTED OTHERWISE, TYP.

INTERIOR WALL GENERAL NOTES

1. CONSTRUCT ALL WALLS TIGHT TO DECK ABOVE AND EXTEND INTO DECK FLUTES AND WEBS OF STEEL MEMBERS UNLESS OTHERWISE NOTED.
2. PROVIDE DEFLECTION TRACK AT THE TOP OF ALL INTERIOR NON-BEARING METAL STUD WALLS CAPABLE OF ACCOMMODATING 3/4" ROOF/FLOOR DEFLECTION.

INTERIOR WALL LEGEND

S1 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
- S1A 3-5/8" METAL STUDS

S2 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE AND ACOUSTICAL BATT INSULATION. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
- S2A 3-5/8" METAL STUDS

S3 METAL STUD FURRING / FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD ONE SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. PROVIDE FRP PANELS IN TOILET ROOMS AS REQUIRED, REFER TO INTERIOR ELEVATIONS FOR HEIGHTS OF FRP AT TOILET ROOMS
- S3A 7/8" METAL HAT CHANNEL
- S3B 1-1/2" METAL STUDS
- S3D 3-5/8" METAL STUDS

S4 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD ONE SIDE AND 1/2" CDX PLYWOOD WITH SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) AND 1/2" PVC PANELS INSTALLED ON WASH TUNNEL SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
- S4E 6" METAL STUDS

S5 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD AND SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) ONE SIDE AND 5/8" GYPSUM BD W/ FRP PANELS ON TOILET ROOM SIDE, REFER TO INTERIOR ELEVATION FOR HEIGHTS OF FRP. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. UNLESS NOTED OTHERWISE
- S5B 6" METAL STUDS

S6 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE AND 1/2" CDX PLYWOOD WITH SELF-ADHERED WATER RESISTIVE BARRIER (VAPROSHIELD "WRAPSHIELD SA" OR EQUIVALENT) AND 1/2" PVC WALL PANEL. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. UNLESS NOTED OTHERWISE
- S6A 3-5/8" METAL STUDS

S7 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE AND 5/8" GYPSUM BD W/ FRP PANELS ON TOILET ROOM SIDE, REFER TO INTERIOR ELEVATION FOR HEIGHTS OF FRP. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK. UNLESS NOTED OTHERWISE
- S7A 3-5/8" METAL STUDS

S8 DEMOUNTABLE PVC WALL PANEL SYSTEM FURNISHED BY TOMMY'S
- S8A 2-1/4" THICK X 24 " WIDE TONGUE & GROOVE PANEL

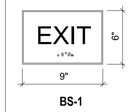
S9 NOT USED

S10 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 1/2" CDX PLYWOOD ONE SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF STRUCTURE ABOVE.
- S10A 3-5/8" METAL STUDS

S11 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE. EXTEND ALL WALL COMPONENTS TO 3'-6" ABOVE UPPER STAIR NOSING
- S11A 3-5/8" METAL STUDS

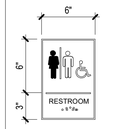
NOTE: ALL PVC WALL PANELS/TRIM ARE FURNISHED BY TOMMY'S AND INSTALLED BY G.C. STAINLESS STEEL FASTENERS FURNISHED AND INSTALLED BY G.C. REFER TO TOMMY'S PROVIDED EXTRUTECH MANUAL FOR FASTENER TYPES AND LOCATIONS.

SIGNAGE



BS-1

BUILDING SIGNS - EXIT 8"W X 6"H
BLACK PLASTIC (FIELD) BACKGROUND WITH WHITE EMBLEMS AND 2" HIGH WHITE LETTERING. (NOTE: EMBLEMS AND LETTERING MUST BE RAISED OR DEPRESSED MIN 1/16" TYPICAL.) PROVIDE (1) SIGN PER EXIT DOOR COMPLYING WITH ANSI A117.1. SIGN TO HAVE RAISED AND BRAILLE CHARACTERS. MOUNT NEAR CORRESPONDING DOOR ACCORDING TO LOCAL CODE.



BS-T

BUILDING SIGNS - TOILET ROOMS 6"W X 9"H
BLACK PLASTIC (FIELD) BACKGROUND WITH WHITE EMBLEMS AND 5/8" MIN. TO 2" MAX. HIGH WHITE LETTERING. (NOTE: EMBLEMS AND LETTERING MUST BE RAISED OR DEPRESSED MIN 1/16" TYPICAL.) PROVIDE (1) SIGN PER TOILET ROOM COMPLYING WITH ANSI A117.1. SIGN TO HAVE RAISED AND BRAILLE CHARACTERS AND PICTORAL SYMBOL OF ACCESSIBILITY. MOUNT NEAR CORRESPONDING DOOR ACCORDING TO LOCAL CODE.

CODE LEGEND

100 EXIT/EXIT ACCESS WITH CAPACITY SERVED

DIRECTION OF EGRESS INCUDING SECONDARY EXIT/EXIT ACCESS

(#) XXX/XX SF OCCUPANT LOAD OF SPACE AND BASIS FOR CALCULATION

EXIT
XXX REQUIRED EGRESS DOOR WIDTH
XXX PROVIDED EGRESS DOOR WIDTH

F.E. WALL MOUNTED FIRE EXTINGUISHER CLASS A Ordinary (Moderate) Hazard Occupancy 2A-10B EXTINGUISHER. CONTRACTOR TO VERIFY LOCATION WITH FIRE INSPECTOR PRIOR TO INSTALLATION. 75' TRAVEL DISTANCE MAXIMUM.

REVISION SCHEDULE		
REVISION NUMBER	REVISION DATE	REVISION DESCRIPTION
1	01/26/2022	2023 CI
2	01/13/2023	2024 CM
3	01/31/2023	2024 CM

CONSULTANTS

TOMMY CAR WASH SYSTEMS

QUOTE: XXXXX
VERSION NUMBER: XX
PROGRAM: 2023-Q1-T3-R24

FIRST FLOOR PLAN AND CODE COMPLIANCE PLAN

TOMMY CAR WASH SYSTEMS

TOMMY EXPRESS TT130-T3-R24-Q1

ADDRESS, CITY, STATE ZIP

ISSUED BY:

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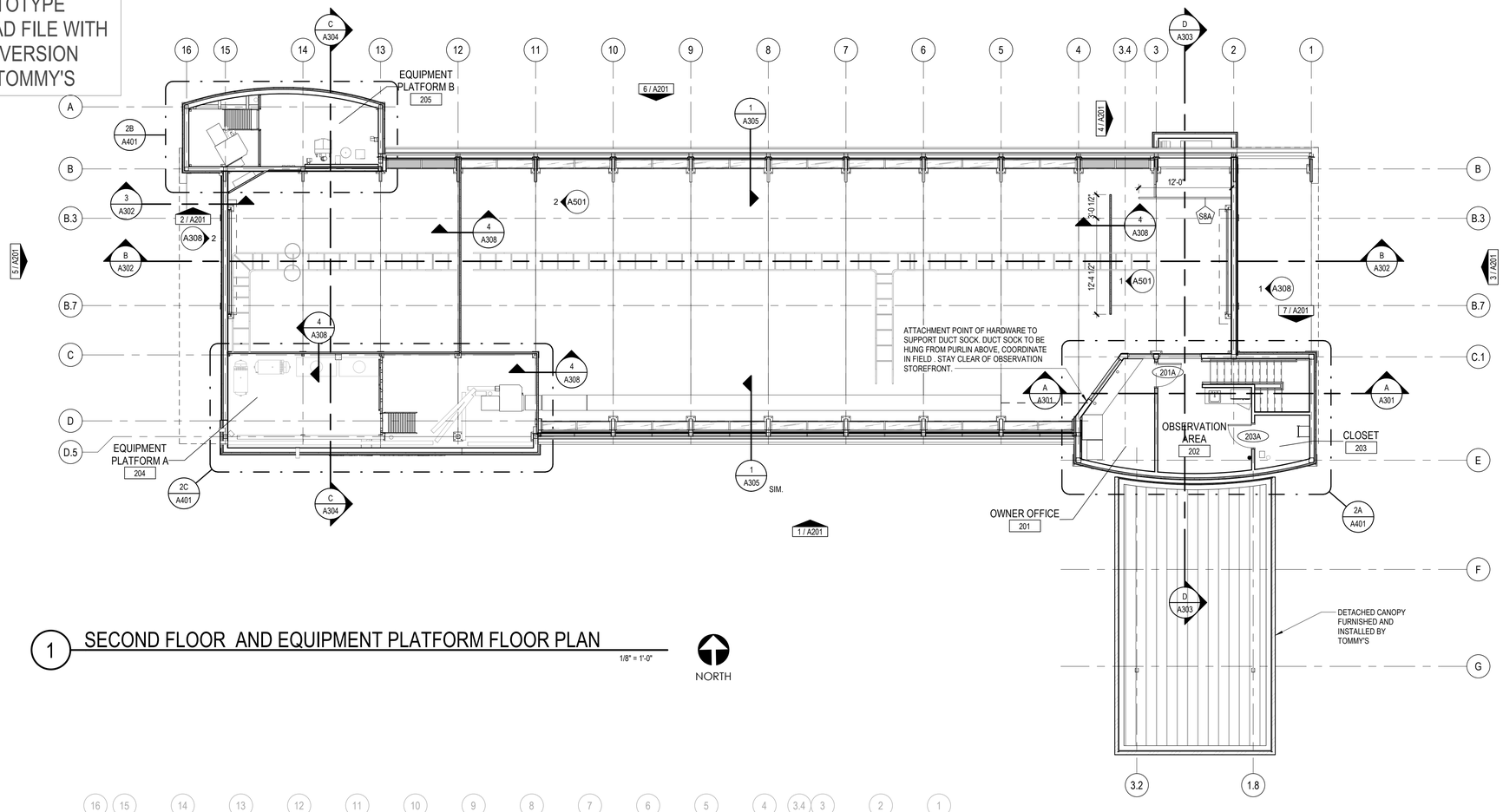
Quality Assurance: -
Scale: As indicated
Sheet: 9
Date: 01/31/2023
Project Number: -

Paul I. Cripe, Inc.

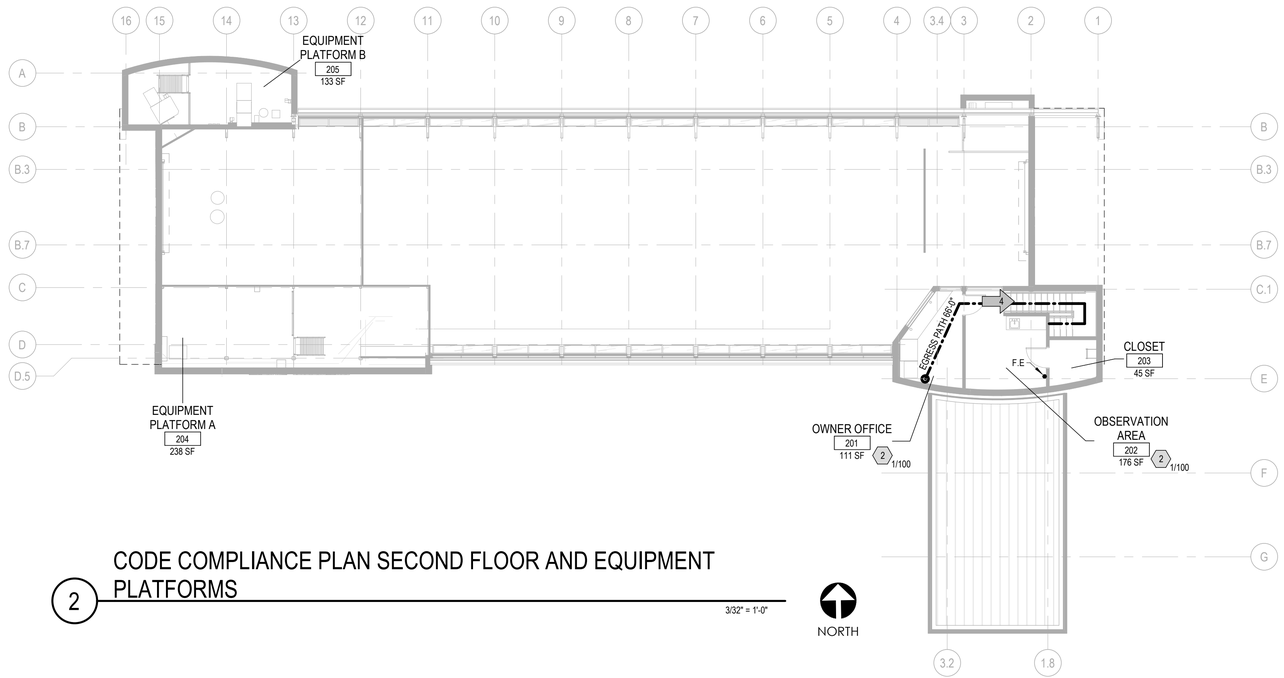
2431

2/1/2023 8:23:19 AM

DESIGNER NOTE:
REPLACE PROTOTYPE EQUIPMENT CAD FILE WITH SITE SPECIFIC VERSION PROVIDED BY TOMMY'S



1 SECOND FLOOR AND EQUIPMENT PLATFORM FLOOR PLAN
1/8" = 1'-0"



2 CODE COMPLIANCE PLAN SECOND FLOOR AND EQUIPMENT PLATFORMS
3/32" = 1'-0"

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. FINISH FLOOR ELEVATION = 100' - 0". REFER TO CIVIL DRAWINGS FOR SITE DATUM ELEVATION EQUIVALENT.
3. BEGINNING WORK INDICATES THAT THE CONTRACTOR HAS ACCEPTED AND VERIFIED EXISTING CONDITIONS.
4. REFER TO CODE COMPLIANCE DRAWING(S) FOR LOCATIONS OF RATED ASSEMBLIES AND CODE SUMMARY.
5. ALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF CONCRETE, FACE OF STUDS, COLUMN CENTERLINE AS SHOWN UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS ARE PERPENDICULAR AND PARALLEL, UNLESS NOTED OTHERWISE.
7. OWNER FURNISHED EQUIPMENT IS SHOWN LIGHT DASHED FOR REFERENCE ONLY. REFER TO EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION.

FLOOR PLAN LEGEND AND NOTES

D.S. DOWNSPOUTS FURNISHED AND INSTALLED BY G.C.

ENCLOSURES **DC-1** FURNISHED AND INSTALLED BY TOMMY'S, REFER TO SHEET A201

(#) REFER TO SHEET A602 FOR WINDOW SCHEDULE

(#) REFER TO SHEET A601 FOR DOOR SCHEDULE

(#) WALL TYPE, REFER TO WALL TYPE LEGEND

NEW WALL CONSTRUCTION, REFER TO WALL TYPE LEGEND

NOTE 1: ALL GYPSUM BOARD TO BE "TYPE X" FIRE RATED, UNLESS NOTED OTHERWISE, TYP. USE MOISTURE RESISTANT GYP. BOARD IN WET AREAS, TYP.

NOTE 2: ALL PLYWOOD AND DIMENSIONAL LUMBER USED AS BLOCKING TO BE EXTERIOR GRADE PRESSURE TREATED WOOD, UNLESS NOTED OTHERWISE, TYP.

INTERIOR WALL GENERAL NOTES

1. CONSTRUCT ALL WALLS TIGHT TO DECK ABOVE AND EXTEND INTO DECK FLUTES AND WEBS OF STEEL MEMBERS UNLESS OTHERWISE NOTED.
2. PROVIDE DEFLECTION TRACK AT THE TOP OF ALL INTERIOR NON-BEARING METAL STUD WALLS CAPABLE OF ACCOMMODATING 3/4" ROOF/FLOOR DEFLECTION.

INTERIOR WALL LEGEND

S1 METAL STUD FRAMING 20 GA @ 16" O.C. W/ 5/8" GYPSUM BOARD EACH SIDE. EXTEND ALL WALL COMPONENTS TO UNDERSIDE OF DECK.
- S1A 3-5/8" METAL STUDS

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- S3B 1-1/2" METAL STUDS
- S3D 3-5/8" METAL STUDS

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CODE LEGEND

100 EXIT/EXIT ACCESS WITH CAPACITY SERVED

DIRECTION OF EGRESS INCUDING SECONDARY EXIT/EXIT ACCESS

(#) OCCUPANT LOAD OF SPACE AND BASIS FOR CALCULATION
XXX/XX SF

EXIT
XXX REQUIRED EGRESS DOOR WIDTH
XXX PROVIDED EGRESS DOOR WIDTH

F.E. WALL MOUNTED FIRE EXTINGUISHER CLASS A Ordinary (Moderate) Hazard Occupancy 2A-10B EXTINGUISHER. CONTRACTOR TO VERIFY LOCATION WITH FIRE INSPECTOR PRIOR TO INSTALLATION. 75' TRAVEL DISTANCE MAXIMUM.

REVISION NUMBER	REVISION DATE	REVISION DESCRIPTION
1	03/28/2022	2023 Q1
3	01/13/2023	2024 Q1

REVISION SCHEDULE

CONSULTANTS

TOMMY CAR WASH SYSTEMS
QUOTE: XXXXX
VERSION NUMBER: XX
PROGRAM: 2023-Q1-T3-R24

SECOND FLOOR PLAN AND CODE COMPLIANCE PLAN

TOMMY CAR WASH SYSTEMS

TOMMY EXPRESS TT1130-T3-R24-Q1

ADDRESS, CITY, STATE ZIP

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Date: 01/31/2023
Project Number: -

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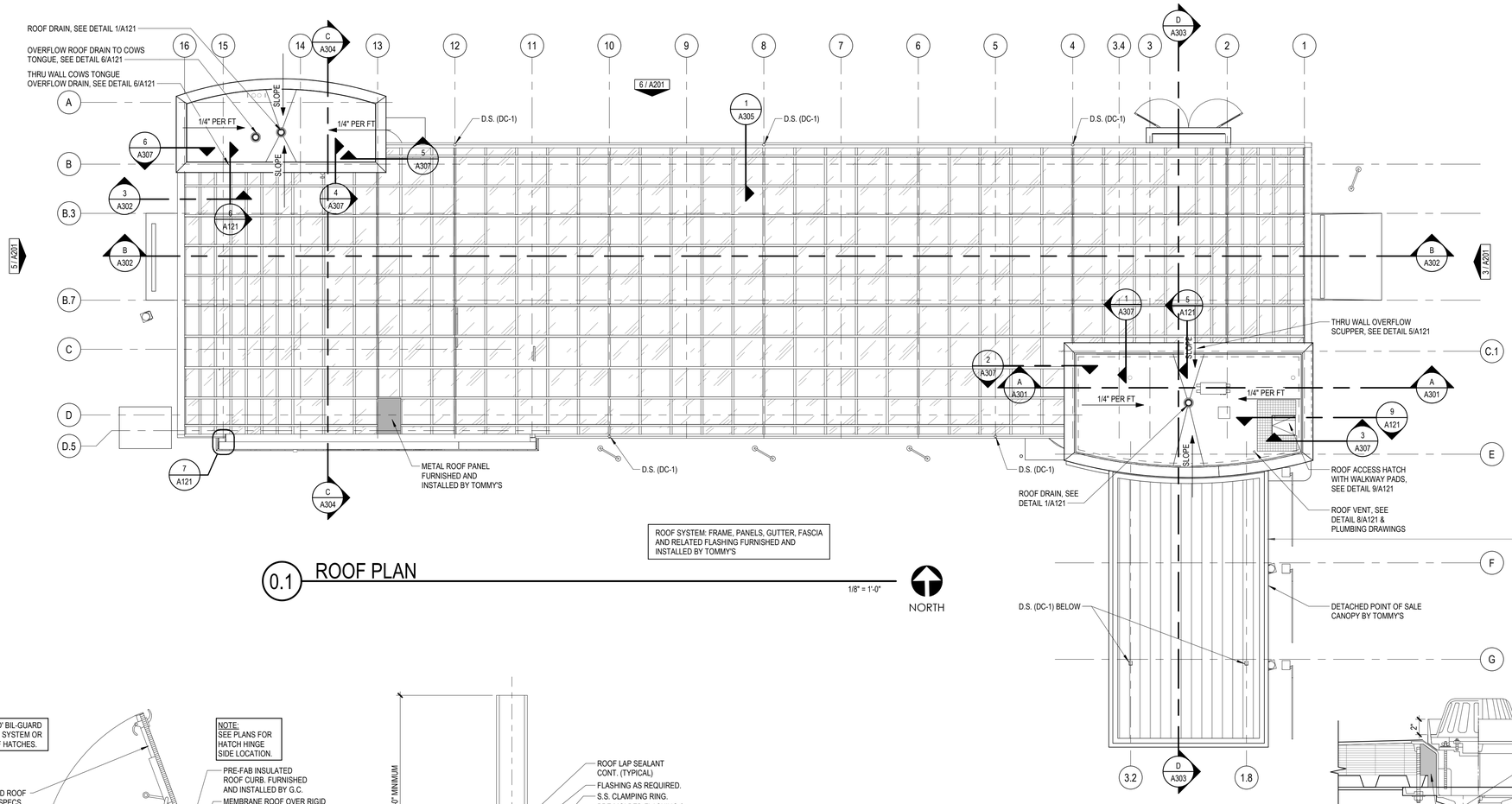


ROOF LEGEND

- THERMOPLASTIC MEMBRANE ROOFING OVER (2) LAYERS OF POLYISOCYANURATE INSULATION STAGGERED OVER METAL DECK FOR A TOTAL OF 5" MINIMUM THICKNESS AT LOWEST POINT.
- ACRYLIC ROOF SYSTEM FURNISHED AND INSTALLED BY TOMMY'S
- ROOF WALKWAY PAD
- INDICATES DIRECTION OF SLOPE
- ROOF DRAIN (RD) OR OVERFLOW ROOF DRAIN (ORD)

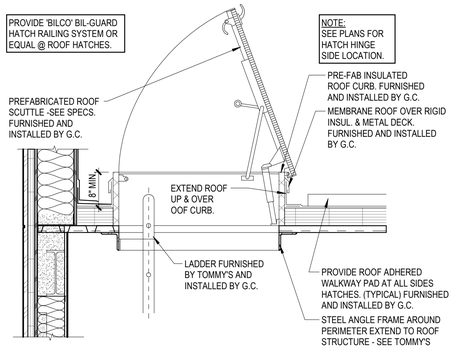
DESIGNER NOTE:
POS CANOPY IS A MODEL GROUP THAT CAN BE SELECTED AND QUICKLY SWITCHED TO THE 2-LANE OR CANTILEVERED VERSION IN THE PROPERTIES WINDOW.

ROOF SYSTEM: FRAME, PANELS, GUTTER, FASCIA AND RELATED FLASHING FURNISHED AND INSTALLED BY TOMMY'S

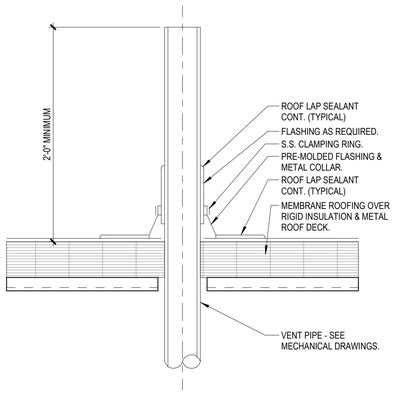
0.1 ROOF PLAN

1/8" = 1'-0"

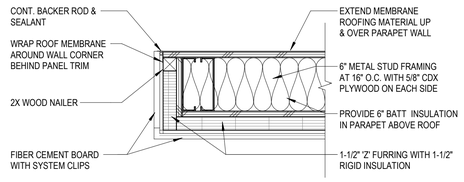
NORTH



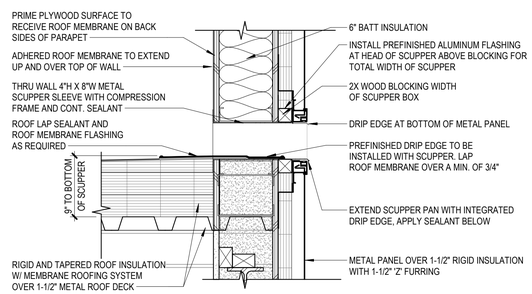
9 ROOF HATCH DETAIL
A121 3/4" = 1'-0"



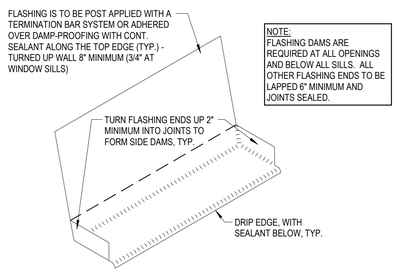
8 TYPICAL ROOF VENT DETAIL
1 1/2" = 1'-0"



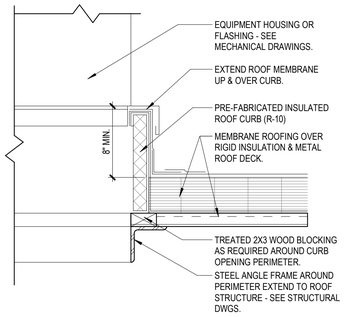
7 PLAN DETAIL AT PARAPET CORNER
A121 1 1/2" = 1'-0"



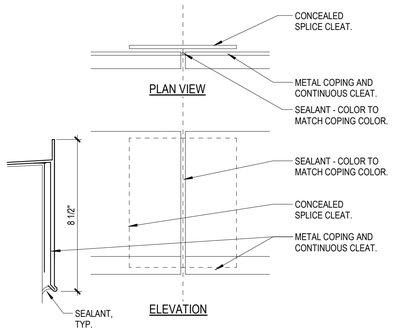
5 THRU WALL OVERFLOW SCUPPER METAL PANEL
A121 1 1/2" = 1'-0"



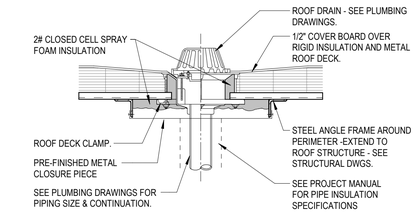
4 TYPICAL FLASHING & DAM DETAIL
1 1/2" = 1'-0"



3 TYPICAL ROOF CURB DETAIL
1 1/2" = 1'-0"



2 METAL COPING SPLICE DETAIL
A301 3" = 1'-0"



1 SINGLE ROOF DRAIN DETAIL
3/4" = 1'-0"

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REVISION SCHEDULE		
REVISION NUMBER	REVISION DATE	REVISION DESCRIPTION
2	09/30/2022	2023 Q4

CONSULTANTS

TOMMY CAR WASH SYSTEMS
QUOTE: XXXXX
VERSION NUMBER: XX
PROGRAM: 2023-Q1-T3-R24

ROOF PLAN
TOMMY CAR WASH SYSTEMS
TOMMY EXPRESS TT130-T3-R24-Q1
ADDRESS, CITY, STATE ZIP

Issued By:
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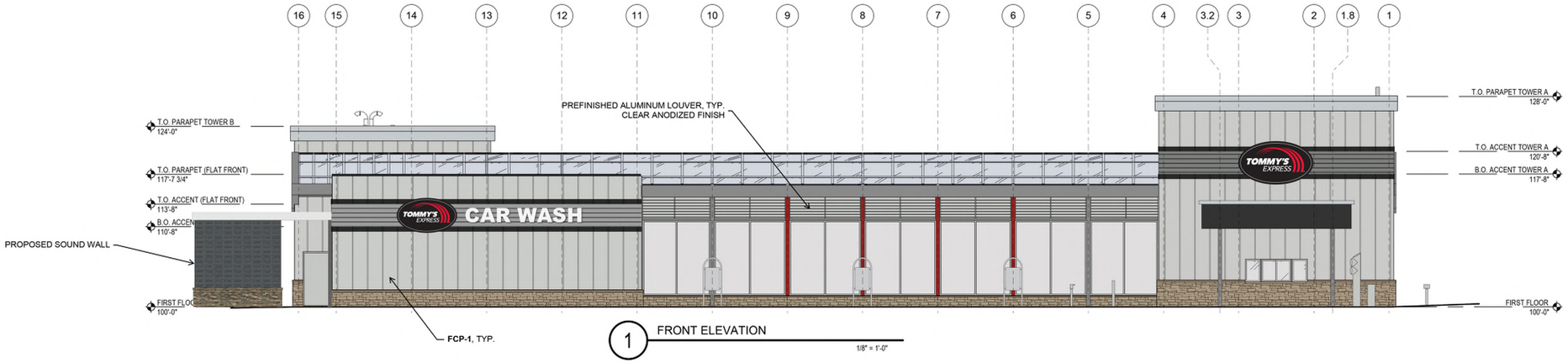
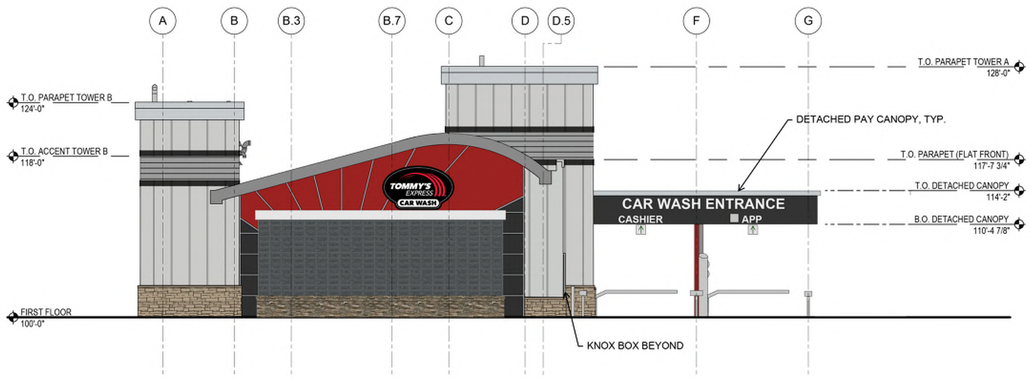


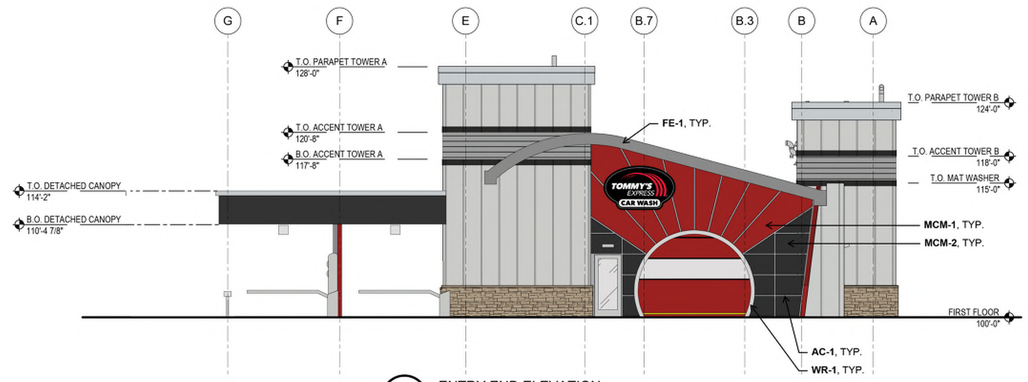
1 FRONT ELEVATION

1/8" = 1'-0"



2 EXIT END ELEVATION

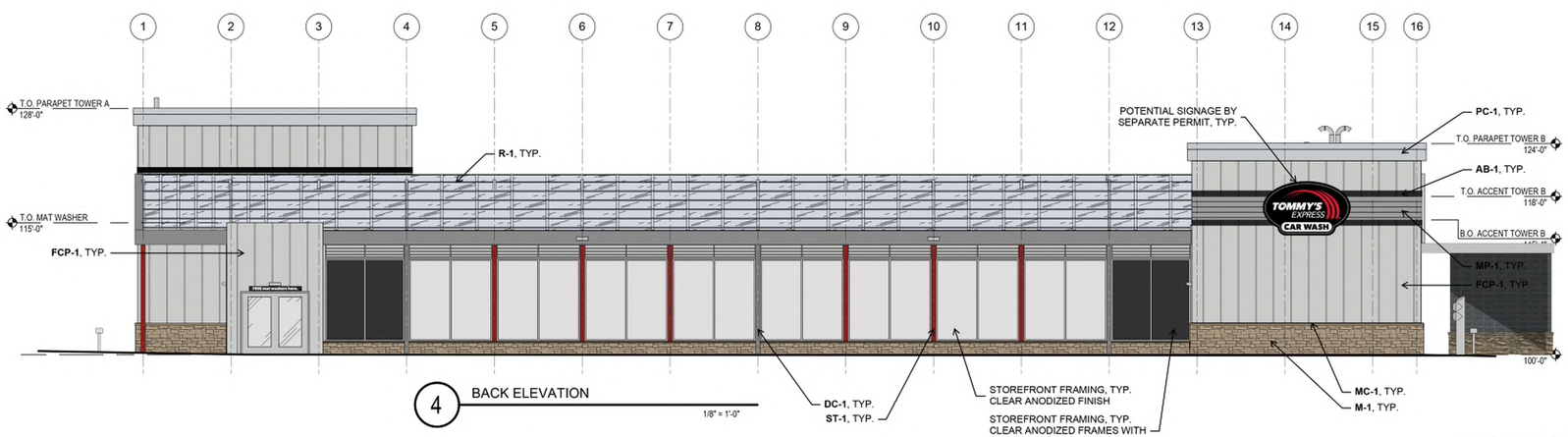
1/8" = 1'-0"



3 ENTRY END ELEVATION

1/8" = 1'-0"

TAG	MATERIAL	MFR.	DESCRIPTION	MFR. COLOR
ST-1	STRUCTURAL STEEL	PROSPIANT	5-STAGE POWDER COATED	RAL 3001
MP-1	PREFINISHED PROFILED MCM, TOWER BANDING	ATAS	BELVEDERE 7.2" RIB PANEL	SILVERSMITH
FCP-1	FIBER CEMENT PANEL BOARD	JAMES HARDIE (OR EQUIV)	VERTICAL SIDING	SW7064 PASSIVE
M-1	CULTURED STONE VENEER, KNEE WALL	ELDORADO STONE	STACKED STONE	CASTAWAY (MORTAR COLOR TO MATCH)
MC-1	WAINSCOT SILLS CAP (FOR KNEE WALL)	ELDORADO STONE	SPLIT-EDGE WAINSCOT SILL	GREY SKY
AB-1	PREFINISHED MCM, TOWER BANDING	ATAS	FLAT SHEET AND COIL	BLACK
PC-1	PREFINISHED MCM, TOWER FASCIA	ARCONIC	REYNOBOND COMPOSITE PANEL	BRIGHT SILVER METALLIC
MCM-1	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	RAL 3001
MCM-2	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	EBONY
AC-1	PREFINISHED MCM, END WALL REVEALS	TUBELITE	200 SERIES CURTAINWALL	CLEAR ANODIZED
DC-1	PREFINISHED MCM, DOWNSPOUT COVERS	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
WR-1	PREFINISHED MCM, GARAGE DOOR WRAPS	CITADEL	ENVELOPE 2000 SYSTEM	CLEAR SATIN ANODIZED
FE-1	PREFINISHED MCM, ROOF FASCIA	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
R-1	ACRYLIC ROOF SYSTEM	ACRYLITE	HEATSTOP HIGH IMPACT MULTI-SKIN	WZO11 - COOL BLUE WHITE



4 BACK ELEVATION

1/8" = 1'-0"

NOT FOR CONSTRUCTION
FOR REFERENCE ONLY
NOT TOMMY APPROVED

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REVISION SCHEDULE

VERSION	DATE	DESCRIPTION

TOMMY CAR WASH SYSTEMS

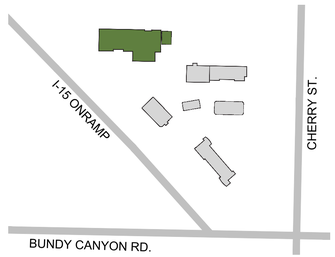
TOMMY'S EXPRESS CAR WASH
EXTERIOR ELEVATIONS

P4047 WILDOMAR, CALIFORNIA

10

11/28/2023

1/8" = 1'-0"



KEY PLAN
(NOT TO SCALE)

NOTE:
1. RTU PLACEMENT IS CONCEPTUAL AND IS SUBJECT TO CHANGE

HOTEL
84 KEYS
±45,571 SF (±12,607 SF FOOTPRINT)
4 STORIES

ELECTRICAL ROOM
±67 SF

CANOPY ABOVE

177'-9"
14'-11" 41'-6" 14'-10" 41'-6" 18'-4" 46'-8" 30'-6"
63'-6"
25'-9" 12'-0" 25'-9" 27'-1"
20'-6" 25'-10" 22'-2" 22'-3" 90'-9"
29'-2" 41'-5" 27'-2"
97'-9" 65'-7"
163'-4"

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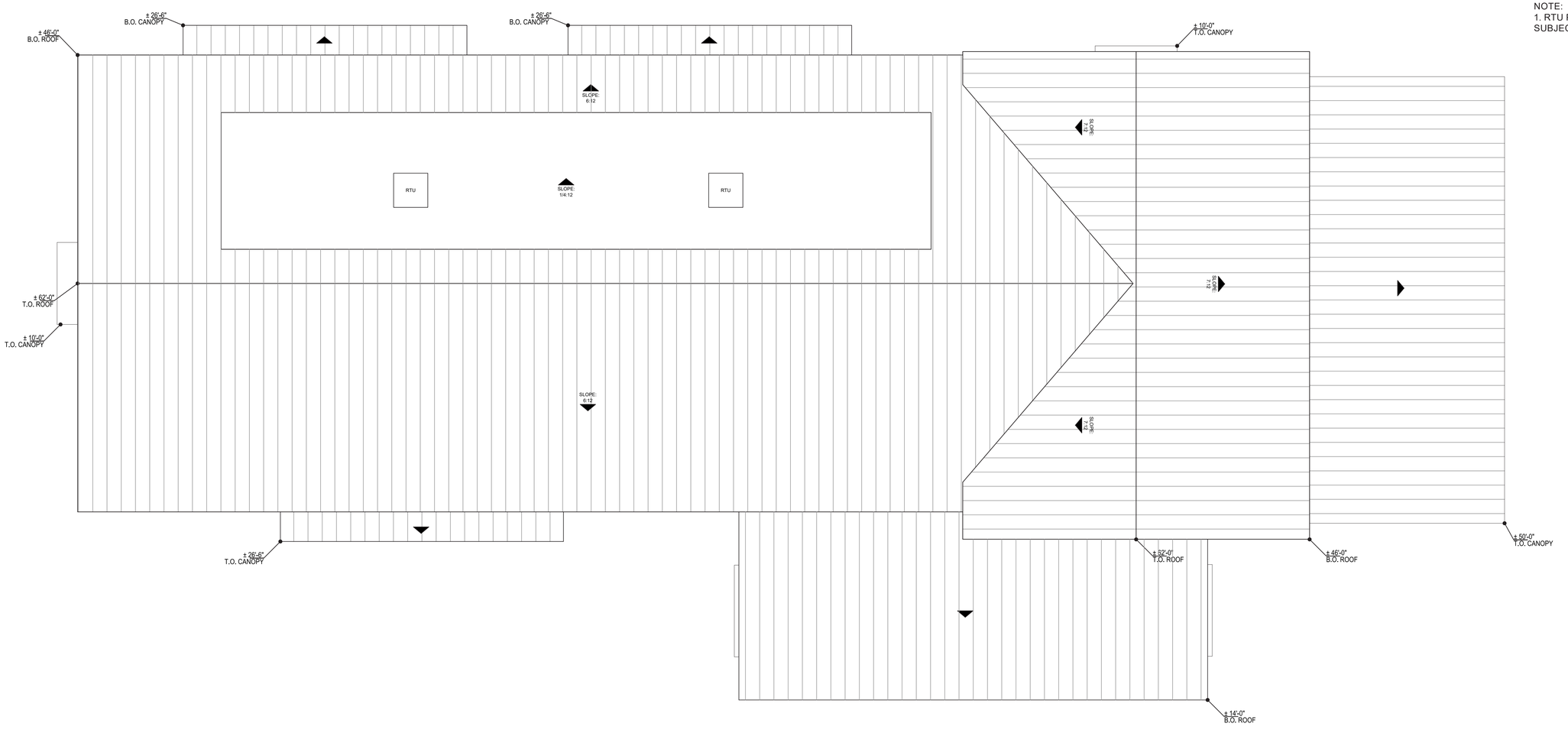
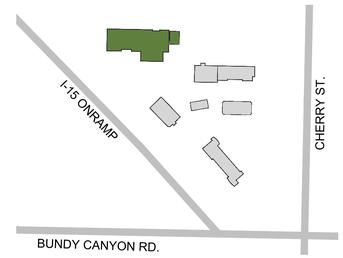
WILDOMAR, CA
2022-0521

ENTITLEMENT SUBMITTAL
OCTOBER 3, 2024

0 4 8 16
SCALE: 1/8" = 1'

CONCEPTUAL PLANS
HOTEL - FIRST FLOOR





KEY PLAN
(NOT TO SCALE)

NOTE:
1. RTU PLACEMENT IS CONCEPTUAL AND IS SUBJECT TO CHANGE

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CHERRY OUTPOST
WILDOMAR, CA
2022-0521

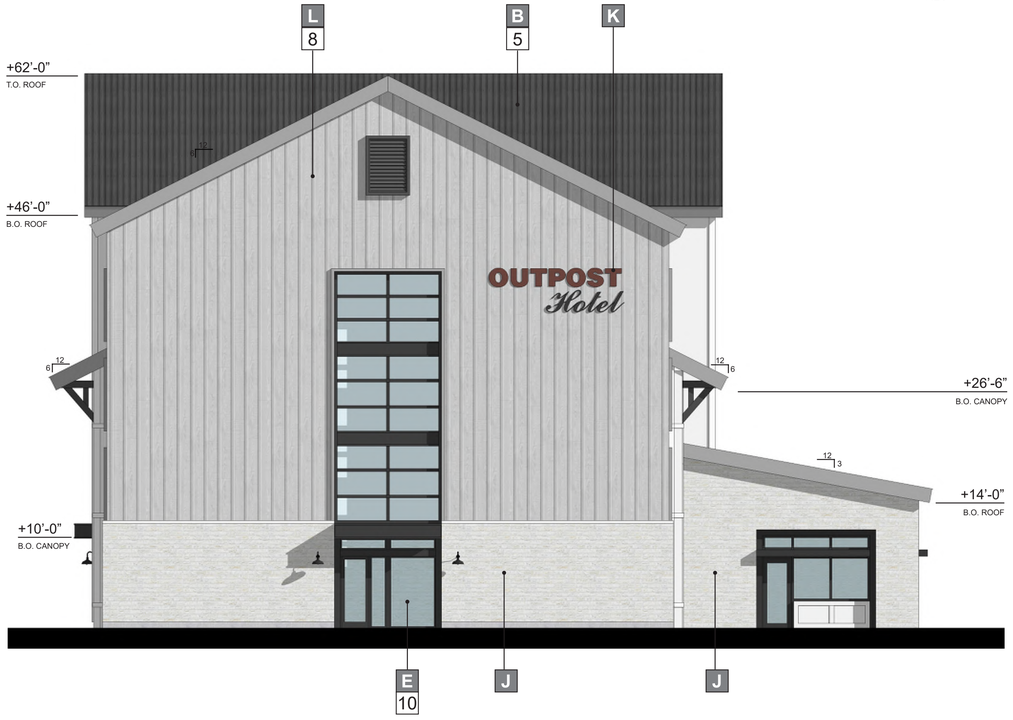
ENTITLEMENT SUBMITTAL
OCTOBER 3, 2024

0 4 8 16
SCALE: 1/8" = 1'

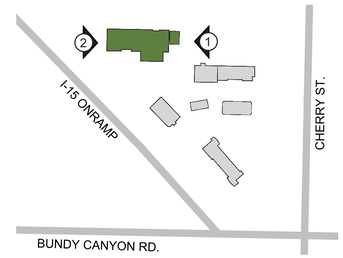
CONCEPTUAL PLANS
HOTEL - ROOF PLAN



1 EAST ELEVATION (FRONT)



2 WEST ELEVATION (REAR)



KEY PLAN
(NOT TO SCALE)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
D	**DOOR**	K	**SIGNAGE**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"	13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

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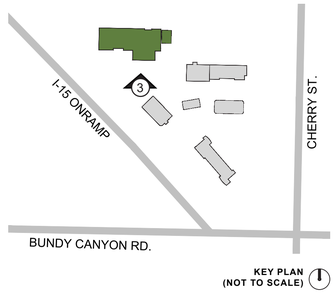
SCALE: 1/8" = 1'

CONCEPTUAL ELEVATIONS
HOTEL



KEY PLAN
(NOT TO SCALE)



3 SOUTH ELEVATION (RIGHT)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH	G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
B	**STANDING SEAM METAL ROOF**	H	**BOARD AND BATTEN**
C	**METAL CANOPY**	J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
D	**DOOR**	K	**SIGNAGE**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"	L	**HARDIE BOARD SIDING**
F	**ARCHITECTURAL TRIM/COPING**	M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"	7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"	13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"	8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"	14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"	9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"	15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"	10	ARCADIA-AC-2 "CLEAR"		
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"	11	ARCADIA-AB-7 "STANDARD DARK BRONZE"		
6	**PAINT**: TENANT BRAND COLOR	12	PRECAST CONCRETE BASE		

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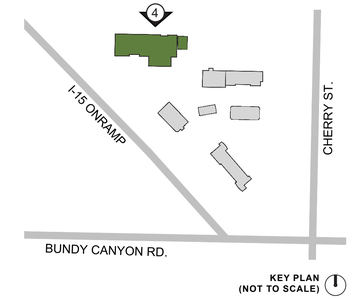
CONCEPTUAL ELEVATIONS
HOTEL



KEY PLAN
(NOT TO SCALE)



4 NORTH ELEVATION (LEFT)

NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

MATERIALS

A	**STUCCO:** OMEGA-20/30 SAND FINISH
B	**STANDING SEAM METAL ROOF**
C	**METAL CANOPY**
D	**DOOR**
E	**STOREFRONT**: ARCADIA-AC-2 "CLEAR"
F	**ARCHITECTURAL TRIM/COPING**
G	**WOOD-LOOK ALUMINUM**: KNOTWOOD "BEACHWOOD"
H	**BOARD AND BATTEN**
J	**BRICK:** BELDEN - AMBASSADOR "GLACIER WHITE VELOUR"
K	**SIGNAGE**
L	**HARDIE BOARD SIDING**
M	**STONE**

COLORS & FINISHES

1	**PAINT**: DUNN EDWARDS-DE6183 "HOME PLATE"
2	**PAINT**: DUNN EDWARDS-DET637 "SEAGULL WAIL"
3	**PAINT**: DUNN EDWARDS-DET648 "WHITE PICKET FENCE"
4	**PAINT**: DUNN EDWARDS-DET629 "FADE TO BLACK"
5	**PAINT**: DUNN EDWARDS-DEA002 "BLACK"
6	**PAINT**: TENANT BRAND COLOR
7	**PAINT**: DUNN EDWARDS-DE6385 "BLACK BEAN"
8	**PAINT**: DUNN EDWARDS-DE6382 "FORMAL GRAY"
9	**PAINT**: DUNN EDWARDS-DET620 "BARNWOOD GRAY"
10	ARCADIA-AC-2 "CLEAR"
11	ARCADIA-AB-7 "STANDARD DARK BRONZE"
12	PRECAST CONCRETE BASE
13	**STONE:** CREATIVE MINES CRAFT ORCHARD LIMESTONE, "TIMBERWOLF"
14	**STONE:** CREATIVE MINES CRAFT SPLIT MODULAR, "LUNAR"
15	**PAINT:** DUNN EDWARDS-DET 697 "NOMAD"

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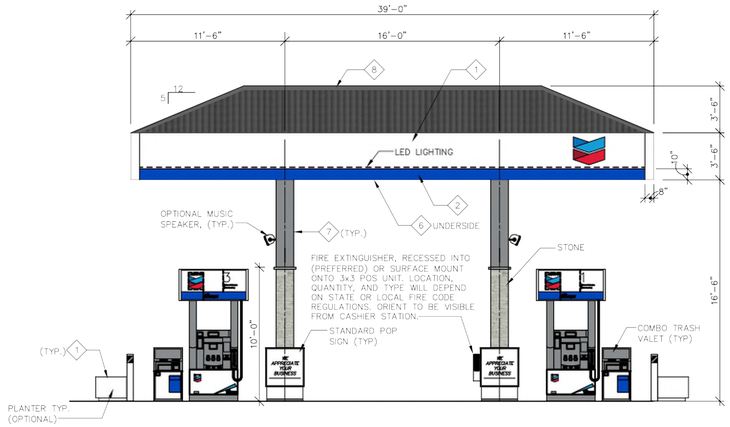
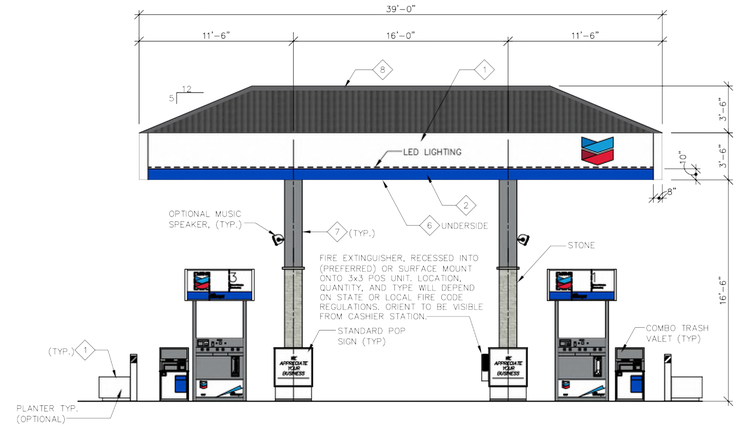
CONCEPTUAL ELEVATIONS
HOTEL



01 – **GAS CANOPY ELEVATION - FACING CHERRY**
SCALE: 3/16"=1'-0"

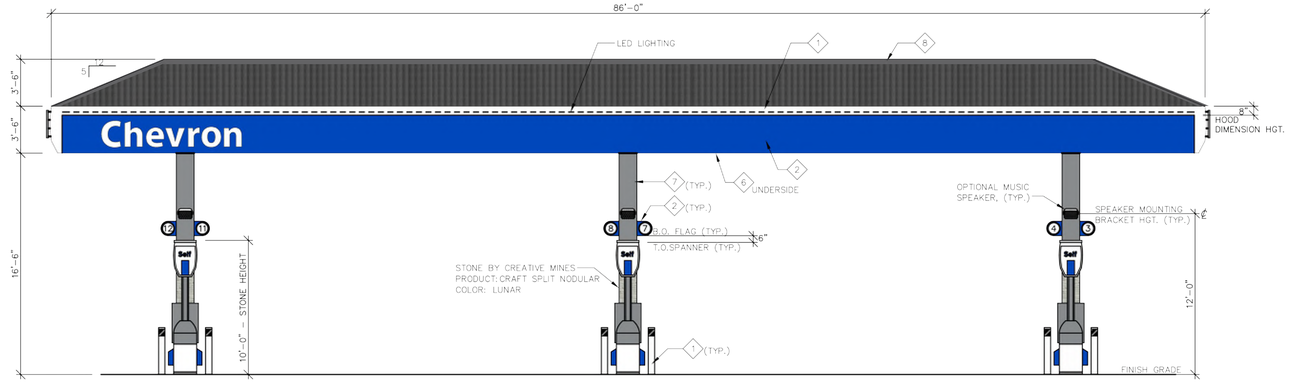


02 – **GAS CANOPY ELEVATION - FACING 1-15 FWY**
SCALE: 3/16"=1'-0"

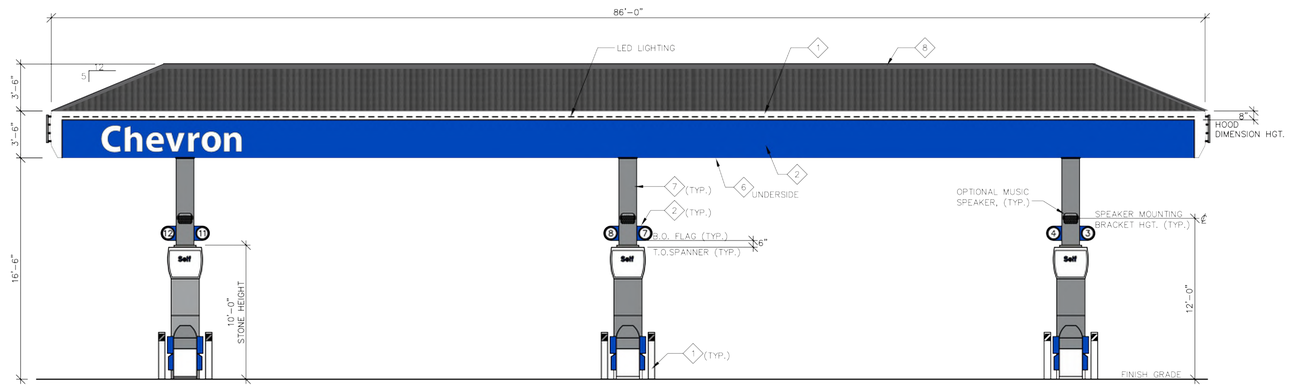
GENERAL NOTES

1. Do not scale off this drawing.
2. This drawing is the property of the Chevron Property & Facilities Optimization (P&FO) & must not be used, copied or reproduced in whole or in part without prior written permission.
3. [B] Under-Canopy light fixture, LSI Encore, Low Profile, 320W Metal Halide

   ◂ [A] Under-Canopy light fixture, LSI Focus, 100W Metal Halide
4. Refer to Hallmark 20/20 Image Guidelines for additional information as to design and image.



01 – **GAS CANOPY ELEVATION - FACING BUNDY CANYON**
SCALE: 3/16"=1'-0"

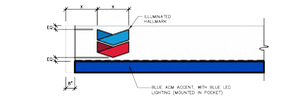


01 – **GAS CANOPY ELEVATION - FACING C - STORE**
SCALE: 3/16"=1'-0"

COLOR LEGEND

	COLOR	PMS MATCH	FILM (VINYL)
1	CVX WHITE (WH-835-S)	WHITE	ARLON WHITE #2
2	RETAIL OUTDOOR BLUE	PMS 293	N/A
3	CVX LIGHT GRAY (GY-450)	PMS 428	ARLON CUSTOM LIGHT GRAY
4	CVX DARK GRAY (GY-210)	PMS 431	ARLON CUSTOM DARK GRAY
5	CHEVRON RED	PMS 186	ARLON RED #3094E (TRANSLUCENT)
6	DECK WHITE	DECK WHITE	N/A
7	CVX SILVER FLAKE	PMS 877	ARLON CUSTOM SILVER
8	STANDING SEAM METAL ROOF	PAINT: DUNN EDWARDS – DEA002 "BLACK"	

ALL PAINT TO BE V.O.C. COMPLIANT URETHANE



HALLMARK DETAIL
SCALE: 3/8"=1'-0"



WORDMARK DETAIL
SCALE: 3/8"=1'-0"

NOTE:
DIMENSIONS SHOWN ARE FOR A 42" CANOPY FASCIA. REFER TO THE MOST CURRENT VERSION OF THE CHEVRON HALLMARK 20/20 IMAGE GUIDELINES FOR THE SIZE OF THE HALLMARK AND WORDMARK THAT ARE APPROPRIATE FOR VARIOUS FASCIA HEIGHTS.

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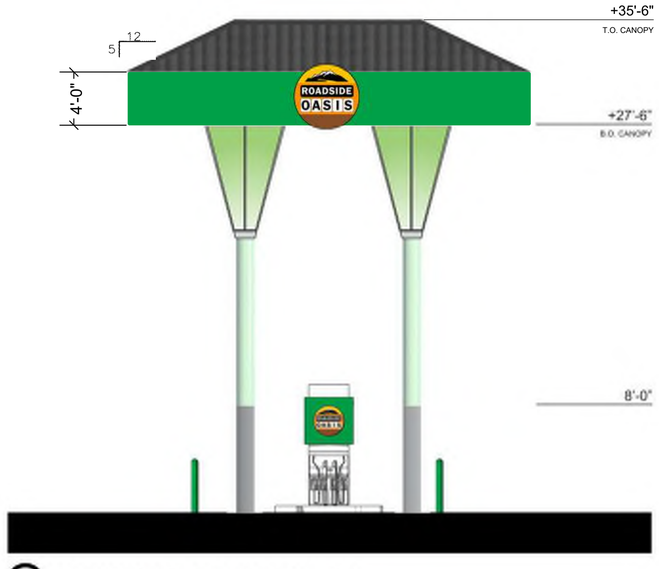
GASOLINE CANOPY ELEVATION

WILDOMAR - FOLEY
BUNDY CANYON ROAD / CHERRY STREET
WILDOMAR, CA

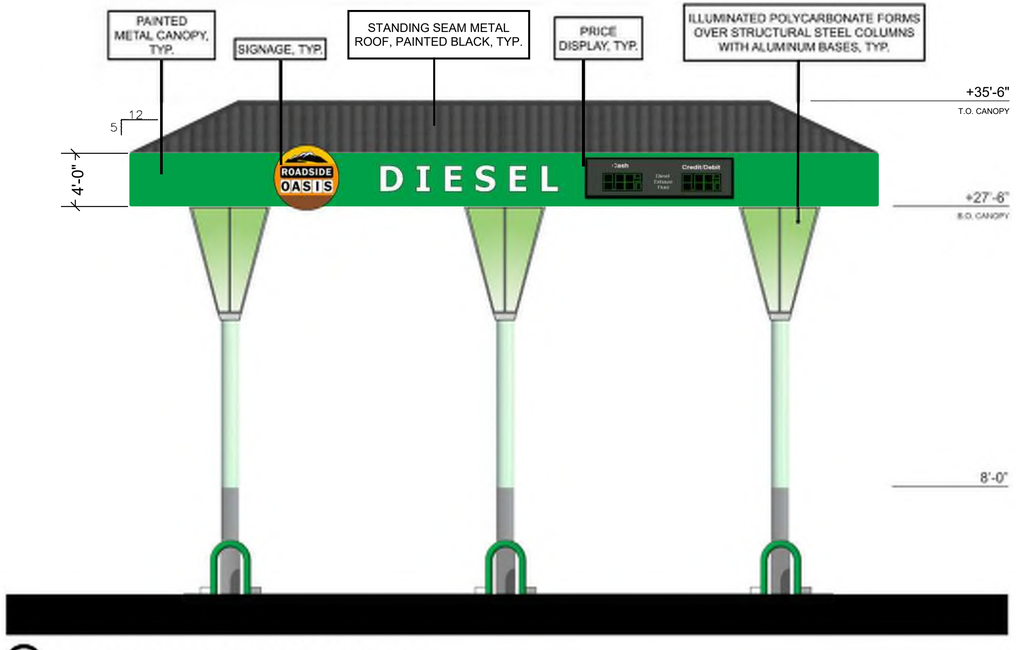
REVISION
A - - - - - - - -
SEAL

DATE 07-05-22 | JOB NO 000.000
SCALE AS SHOWN | DRAWN BY JH
CUP
DRAWING NO.
18

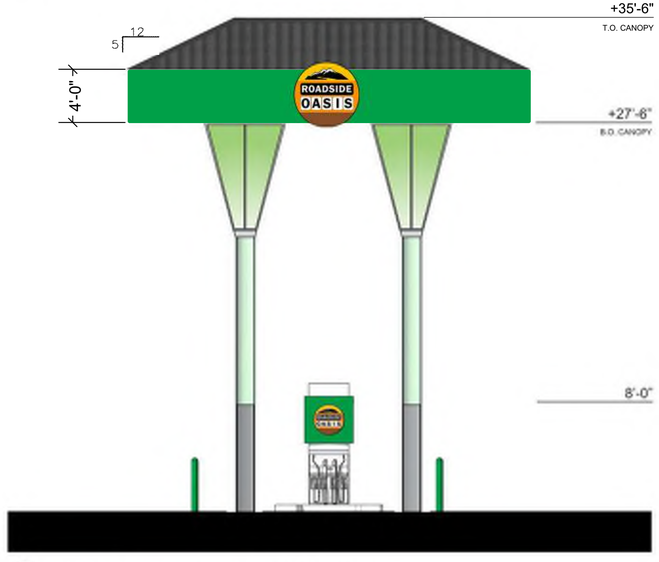
NPD: P:\Cypress Th~ Sandalwood\CUP\A2_2.DWG, jamma hurap, PLOTTED: 07-05-22 15:48:38



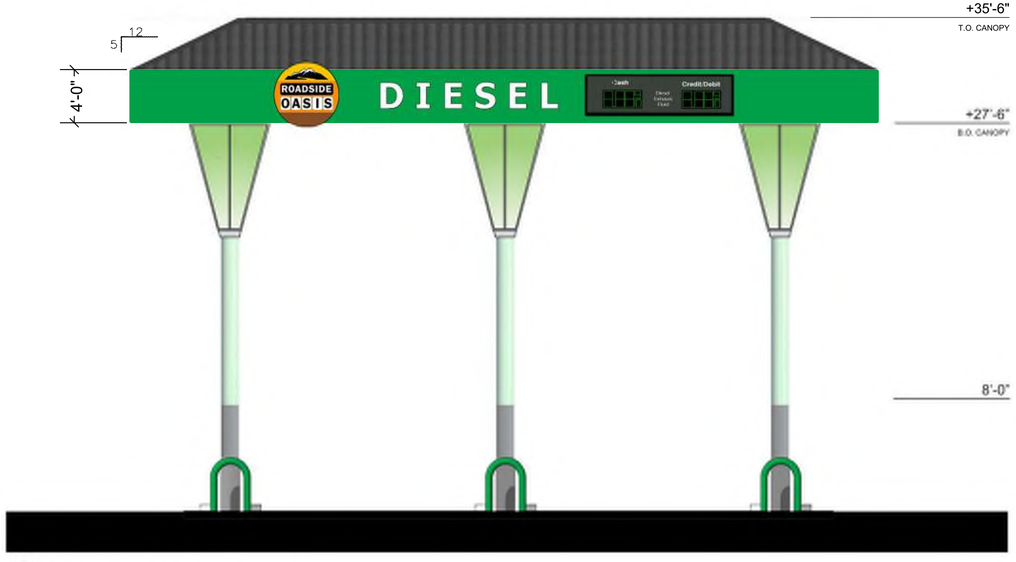
1 ELEVATION FACING CHERRY ST.



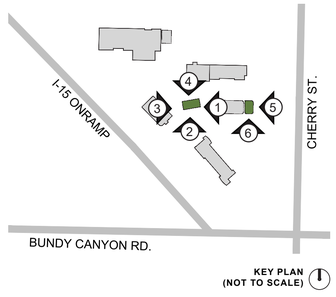
2 ELEVATION FACING BUNDY CANYON RD.



3 ELEVATION FACING INTERSTATE 15



4 ELEVATION FACING C-STORE



NOTE:
1. SIGNAGE IS CONCEPTUAL AND WILL BE UNDER A SEPARATE PERMIT.

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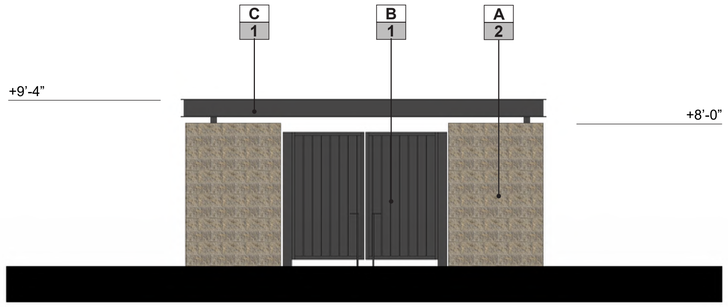
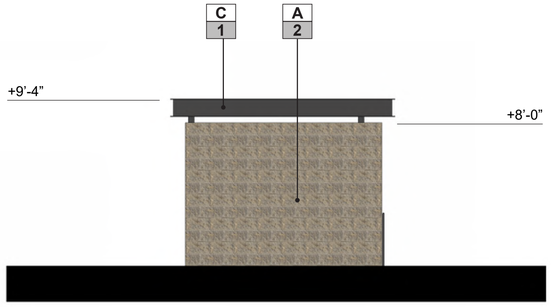
0 4 8 10'-8"
SCALE: 3/16" = 1'-0"

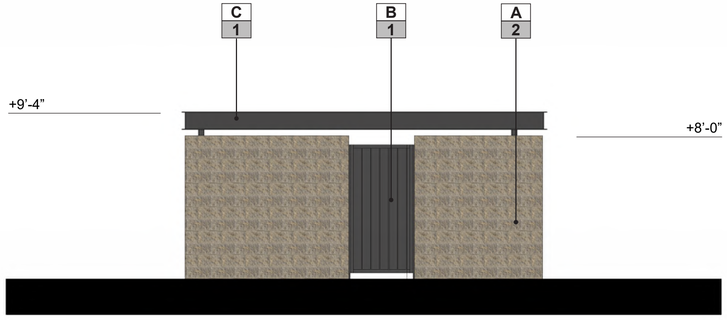
CONCEPTUAL ELEVATIONS
DIESEL CANOPY



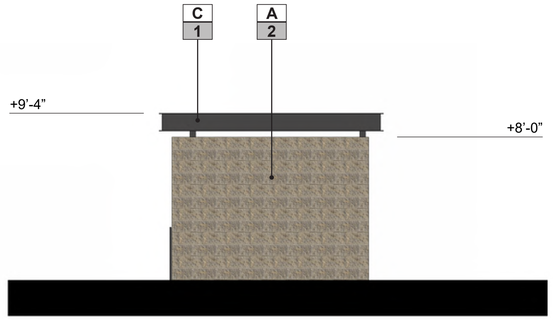
1 FRONT ELEVATION



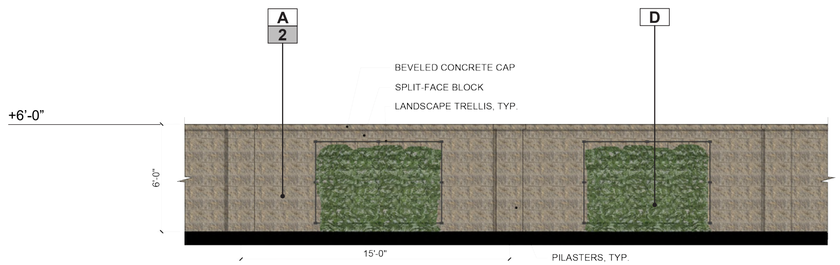
2 SIDE ELEVATION



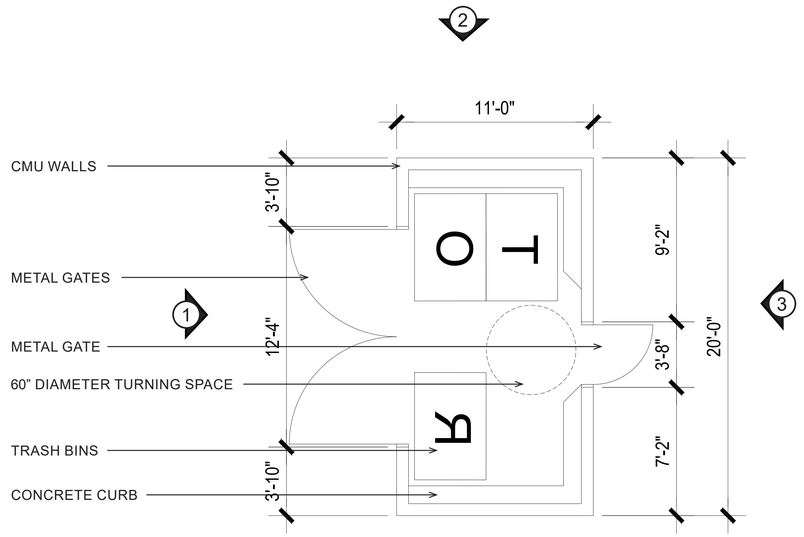
3 REAR ELEVATION



4 SIDE ELEVATION



5 SOUND WALL ELEVATION



MATERIALS				COLORS & FINISHES	
A	**CMU BLOCK**	C	**METAL ROOF**	1	**PAINT:** DUNN EDWARDS - DE6385 - BLACK BEAN
B	**METAL GATE**	D	**TRELLIS**	2	**CMU BLOCK:** SPLITFACE BLOCK, ORCO "NATURAL GRAY"

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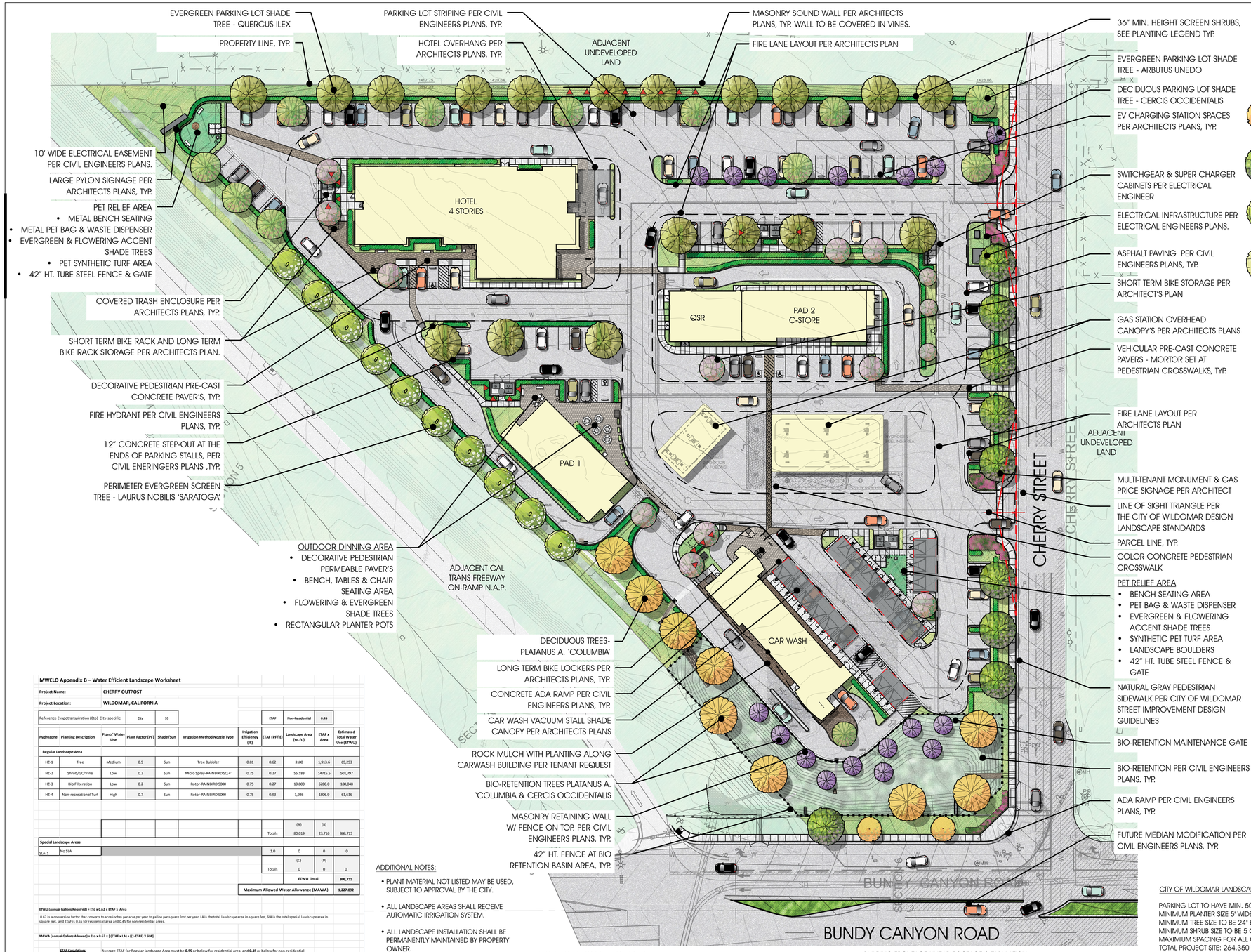
TRASH ENCLOSURE CONCEPTUAL
FLOOR PLAN AND ELEVATIONS
SOUND WALL ELEVATION



PLANT PALETTE

SUNSET ZONE 18

Symbol	Botanical Name	Common Name	WUCOLS REGION 4	SIZE
TREES				
	Arbutus unedo Per City of Wildomar Approved Tree List	Strawberry Tree	Mod	36" BOX
	Cercidium 'Desert Museum' Per City of Wildomar Approved Tree List	Desert Museum Palo Verde	Mod	36" BOX
	Cercis occidentalis Per City of Wildomar Approved Tree List	Western Redbud	Mod Located in basin	36" BOX 15 Gal
	Koelreuteria paniculata Per City of Wildomar Approved Tree List	Golden Rain Tree	Mod	24" BOX
	Lagerstroemia i. 'Muskogee' Per City of Wildomar Approved Tree List	Muskogee Crape Myrtle	Mod	36" BOX
	Larus nobilis 'Saratoga' Per City of Wildomar Approved Tree List	Sweet Bay	Mod	24" BOX
	Platanus a. 'Columbia' Per City of Wildomar Approved Tree List	Columbia Plane Tree	Mod Located in basin	24" BOX 15 Gal
	Quercus ilex Per City of Wildomar Approved Tree List	Holly Live Oak	Mod	24" BOX

Symbol	Botanical Name	Common Name	WUCOLS	SIZE	SPACING
SHRUBS/ GROUNDCOVERS - 53,833 S.F.					
	Agave 'Blue Glow'	Blue Glow Agave	Low	5 GAL	24" O.C.
	Alyogyne huegelii	Blue Hibiscus	Low	1 GAL	24" O.C.
	Bouteloua g. 'Blonde Ambition'	Blue Grama	Low	5 GAL	36" O.C.
	Callistemon v. 'Little John'	Dwarf Bottlebrush	Low	5 GAL	36" O.C.
	Cistus purpureus	Purple-Flowered Rockrose	Low	5 GAL	48" O.C.
	Dalea greggii	Trailing Indigo Bush	Low	5 GAL	48" O.C.
	Dasylirion wheeleri	Desert Spoon	Low	5 GAL	48" O.C.
	Dianella r. 'Little Rev'	Little Rev Flax Lily	Low	5 GAL	24" O.C.
	Furcreaea f. 'Mediopicta'	Variegated Giant False Agave	Low	5 GAL	54" O.C.
	Lantana montevidensis	Trailing Lantana	Low	1 GAL	24" O.C.
	Luecophyllum f. 'Compacta'	Compact Texas Ranger	Low	5 GAL	36" O.C.
	Myoporum parvifolium	Myoporum	Low	1 GAL	24" O.C.
	Penstemon h. 'Margarita BOP'	Foothill Beardtounge	Low	5 GAL	24" O.C.
	Rosmarinus o. 'Huntington Carpet'	Creeping Rosemary	Low	5 GAL	36" O.C.
	Santolina charnaecyparissus	Lavender Cotton	Low	5 GAL	36" O.C.
	Virbina rigita	Slender Vervain	Low	1 GAL	24" O.C.
	Westringia f. 'Morning Light'	Morning Light Westringia	Low	5 GAL	36" O.C.
BIO-SWALE PLANTINGS - 18,972 S.F.					
	Carex divulsa	European Grey Sedge	Low	5 GAL	24" O.C.
	Leymus c. 'Canyon Prince'	Canyon Prince Wild Rye	Low	5 GAL	36" O.C.
	Juncus p. 'Elk Blue'	Elk Blue California Gray Rush	Low	5 GAL	24" O.C.
ACCENT PLANTINGS - 1,915 S.F					
	Achillea m. 'Paprika'	Paprika Yarrow	Low	5 GAL	24" O.C.
	Aeonium 'Zwartkop'	Black Rose Aeonium	Low	5 GAL	36" O.C.
	Aloe polyphylla	Spiral Aloe	Low	5 GAL	36" O.C.
	Aloe striata	Coral Aloe	Low	5 GAL	48" O.C.
	Senecio mandraliscae	Blue Chalksticks	Low	5 GAL	36" O.C.
SCREEN SHRUBS					
	Myrtus c. 'Compacta'	Dwarf Myrtle	Mod	15 GAL	36" O.C.
	Pittosporum t. 'Wheeler's Dwarf'	Wheeler's Dwarf Japanese Pittosporum	Mod	15 GAL	54" O.C.
	Prunus c. 'Compacta'	Compact Cherry Laurel	Mod	15 GAL	48" O.C.
	Westringia f. 'Morning Light'	Morning Light Westringia	Low	15 GAL	36" O.C.
SCREEN VINES - 22 QTY					
	Clytostoma callistegioides	Lavender Trumpet Vine	Mod	5 GAL	PER PLAN
▼	Macfadyena unguis-cati	Cat's Claw	Mod	5 GAL	PER PLAN
	Parthenocissus tricuspidata	Boston Ivy	Mod	5 GAL	PER PLAN
FUTURE MEDIAN RENOVATION PLANTING - 770 S.F.					
	Carex divulsa	Euorpean Grey Sedge	Low	5 GAL	24" O.C.
	Lantana montevidensis	Purple Trailing Lantana	Low	1 GAL	48" O.C.

MWELO Appendix B – Water Efficient Landscape Worksheet

Project Name: CHERRY OUTPOST

Project Location: WILDOMAR, CALIFORNIA

Reference Evapotranspiration (Eto) City-specific:	City	55	ETAF	Non-Residential	0.45

Hydrozone	Planting Description	Plants' Water Use	Plant Factor (PF)	Shade/Sun	Irrigation Method Nozzle Type	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area (sq.ft.)	ETAF x Area	Estimated Total Water Use (ETWU)
Regular Landscape Area										
HZ-1	Tree	Medium	0.5	Sun	Tree Bubbler	0.81	0.62	3100	1,933.6	65,253
HZ-2	Shrub/SGC/Vine	Low	0.2	Sun	Micro Spray-RAINBIRD SQ.4'	0.75	0.27	55,183	14715.5	501,797
HZ-3	Bio Filteration	Low	0.2	Sun	Rotor-RAINBIRD 5000	0.75	0.27	19,800	5280.0	180,048
HZ-4	Non-recreational Turf	High	0.7	Sun	Rotor-RAINBIRD 5000	0.75	0.93	1,936	1806.9	61,616
							Totals	(A) 80,019	(B) 23,736	808,715
Special Landscape Areas										
SLA-1	No SLA						1.0	0	0	0
							Totals	(C) 0	(D) 0	0
									ETWU Total	**808,715**
									Maximum Allowed Water Allowance (MAWA)	**1,227,892**

ETWU (Annual Gallons Required) = Eto x 0.62 x ETAF x Area

0.62 is a conversion factor that converts to acre-inches per acre per year to gallon per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is 0.55 for residential area and 0.45 for non-residential areas.

MAWA (Annual Gallons Allowed) = Eto x 0.62 x [(ETAF x LA) + ((1-ETAF) X SLA)]

ETAF Calculations Average ETAF for Regular landscape Area must be **0.55** or below for residential area, and **0.45** or below for non-residential areas.

Regular Landscape Areas		All Landscape Areas	
Total ETAF x Area (B)	23716	Total AETAF x Area (B+D)	**23716**
Total Area (A)	80019	Total Area (A+C)	**80,019**
Average ETAF (B/A)	**0.30**	Sitewide ETAF (B+D) / (A+C)	**0.30**

ADDITIONAL NOTES:

- PLANT MATERIAL NOT LISTED MAY BE USED, SUBJECT TO APPROVAL BY THE CITY.
- ALL LANDSCAPE AREAS SHALL RECEIVE AUTOMATIC IRRIGATION SYSTEM.
- ALL LANDSCAPE INSTALLATION SHALL BE PERMANENTLY MAINTAINED BY PROPERTY OWNER.
- WATER PURVAYOR: ELSINORE VALLEY MUNICIPAL WATER DISTRICT
- WATER TYPE: POTABLE

UTILITY LOCATION COORDINATION NOTES:

ALL WET AND DRY UTILITY LOCATIONS TO BE COORDINATED WITH OWNERSHIPS ARCHITECTURE AND ENGINEERING TEAM TO AVOID REQUIRED TREE AND UTILITY SCREENING CONFLICTS.

HIGH FIRE ZONE NOTE:

DUE TO PROJECT FALLING WITHIN THE FUTURE VERY HIGH FIRE HAZARD SEVERITY ZONE, LANDSCAPE PLAN FOLLOWS ALL FIRE CODE STANDARDS. NO FUEL MOD PLAN IS REQUIRED AT THE MOMENT.

BUILDING FRONTAGE LINEAR FOOTAGE & TABULATION:

- CAR WASH L.F.: 194'-8"
- PAD 1 L.F.: 99'-0"
- HOTEL L.F.: 114'-7"

TOTAL L.F.: 408'-3"

(1) 15 GALLON TREE PER 30 L.F. OF BUILDING FRONTAGE ON-SITE: 14 TREES REQUIRED

CITY OF WILDOMAR LANDSCAPE NOTES & TABULATIONS:

PARKING LOT TO HAVE MIN. 50% SHADING - SEE PARKING LOT SHADE PLAN L-2
MINIMUM PLANTER SIZE 5' WIDE
MINIMUM TREE SIZE TO BE 24" BOX
MINIMUM SHRUB SIZE TO BE 5 GALLON
MAXIMUM SPACING FOR ALL GROUNDCOVER SHRUBS 12"-24" O.C.
TOTAL PROJECT SITE: 264,350 S.F.
TOTAL RECREATION / LEISURE AREA (MIN. 5% TOTAL SITE): 13,262 S.F. (5%)
(1) PARKING LOT SHADE TREE SHALL BE PER EVERY (3) PARKING STALLS
TOTAL NEW LANDSCAPE SQUARE FOOTAGE: 54,414 S.F.
TOTAL BIO-FILTRATION AREA: 19,925 S.F.
TOTAL SLOPE AREA AT BIO-FILTRATION AREA: 11,498 S.F.
(1) 15 GALLON TREE PER 700 S.F. OF SLOPE AREA AT BIO-FILTRATION AREA: 16 TREES REQUIRED
TOTAL PARKING STALLS: 175
1 TREE FOR EVERY 3 PARKING STALLS: 58 REQUIRED TREES
TOTAL PARKING LOT TREES: 49
TOTAL TREES ON SITE: 88
ALL SITE TREES AND SHRUBS SHALL BE SELECTED FROM THE CITY OF WILDOMAR CLIMATE APPROVED PLANT LIST

VICINITY MAP



N.T.S.

CONCEPTUAL LANDSCAPE PLAN

CHERRY OUTPOST

WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

0' 20' 40' 80' 120'
SCALE: 1" = 40'

CDPC PROJECT NO. 22113

September 13, 2024

conceptual design + planning company
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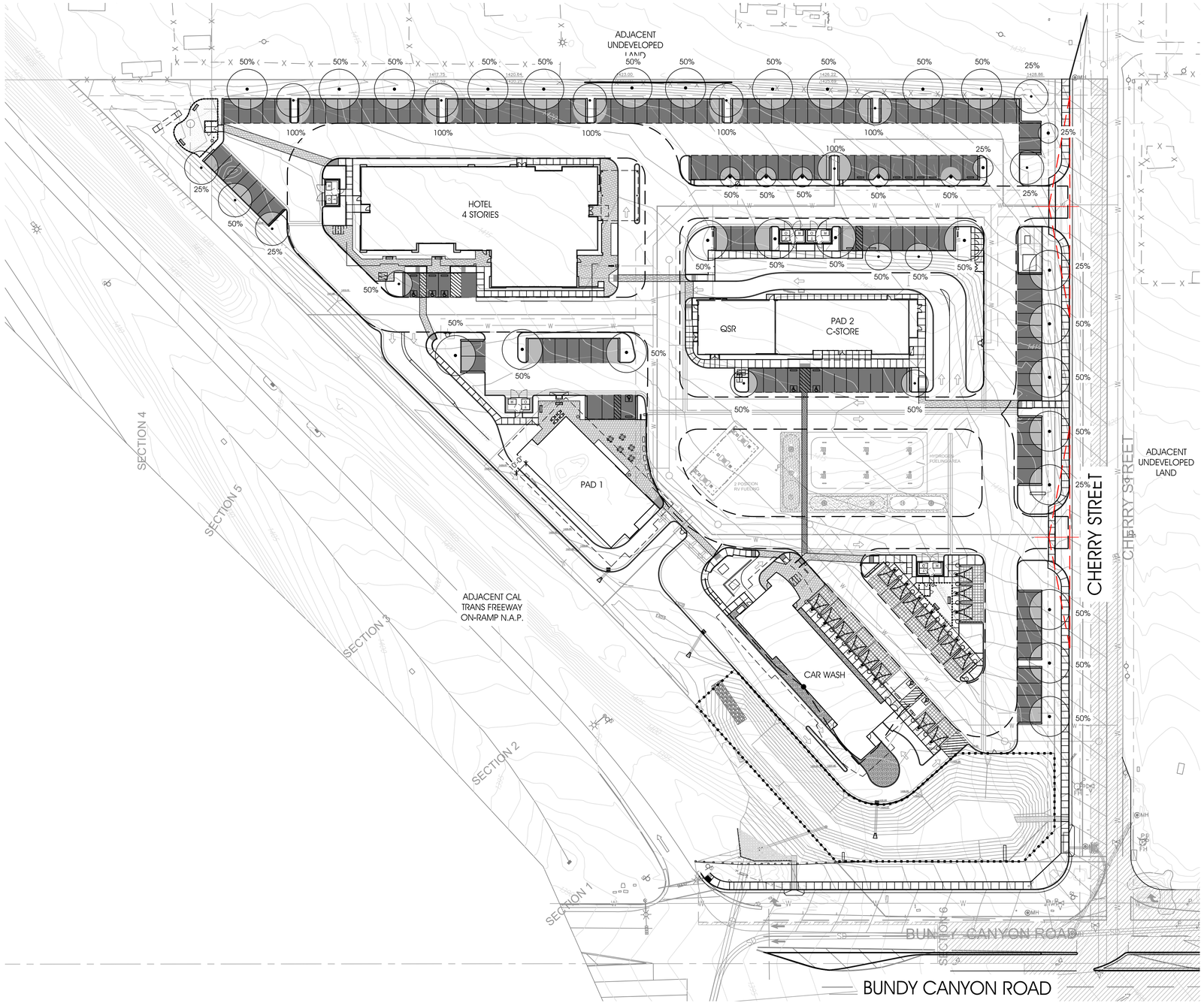
L-1



PARKING LOT SHADE LEGEND

Symbol

- PARKING LOT MANEUVERABLE VEHICULAR AREA
- PARKING LOT TREE CANOPY SHADE COVERAGE
- OVERHEAD SHADE STRUCTURES AT CAR WASH

PARKING AREA SHADE CALCULATION

Date 08/19/24

Project Name: Cherry Outpost

Botanical Name / Canopy diameter at maturity	Quantity @ Full shade (Sq. Ft.)	Quantity @ 3/4 shade (Sq. Ft.)	Quantity @ 1/2 shade (Sq. Ft.)	Quantity @ 1/4 shade (Sq. Ft.)	Total (Sq. Ft.)
Arbutus u. 'Marina'	6 @ 491	0 @ 368	1 @ 246	4 @ 123	3,684
25'					
Cercis occidentallis	0 @ 176	0 @ 236	5 @ 88	2 @ 44	528
15'					
Koelrueteria paniculata	0 @ 706	0 @ 236	6 @ 354	2 @ 177	2,478
30'					
Lagerstroemia i. ;Muskogee'	0 @ 314	0 @ 236	5 @ 157	0 @ 79	785
20'					
Quercus ilex	0 @ 706	0 @ 236	18 @ 354	0 @ 177	6,372
30'					
Tree Sub Total	6	0	35	8	

		TOTAL TREE SHADE AREA	13,847.0
Surfaced Area	Parking Area 24,948	Total Surfaced	29,531
	Covered Stalls (garages, carports, etc.) 4,583		
		Shade Area Required (50% of parking areas)	14,766
		If applicable, TOTAL AUXILIARY SHADE* =	4,583
		TOTAL SHADE PROVIDED =	18,430
		PERCENT SHADE =	62.4%

*NOTE: Auxililary shade is the total parking area under covered stalls (carports, garages, vaccum stalls etc.) not the total covered area.

SHADE AREAS (Sq Ft)

Diameter	100%	75%	50%	25%
35'	962	722	481	240
30'	706	530	354	177
25'	491	368	246	123
20'	314	236	157	79
15'	176	132	88	44

VICINITY MAP



N.T.S.

ktgy

CONCEPTUAL PARKING LOT SHADE PLAN

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

0' 20' 40' 80' 120'
SCALE:1"=40'

CDPC PROJECT NO. 22113

September 13, 2024

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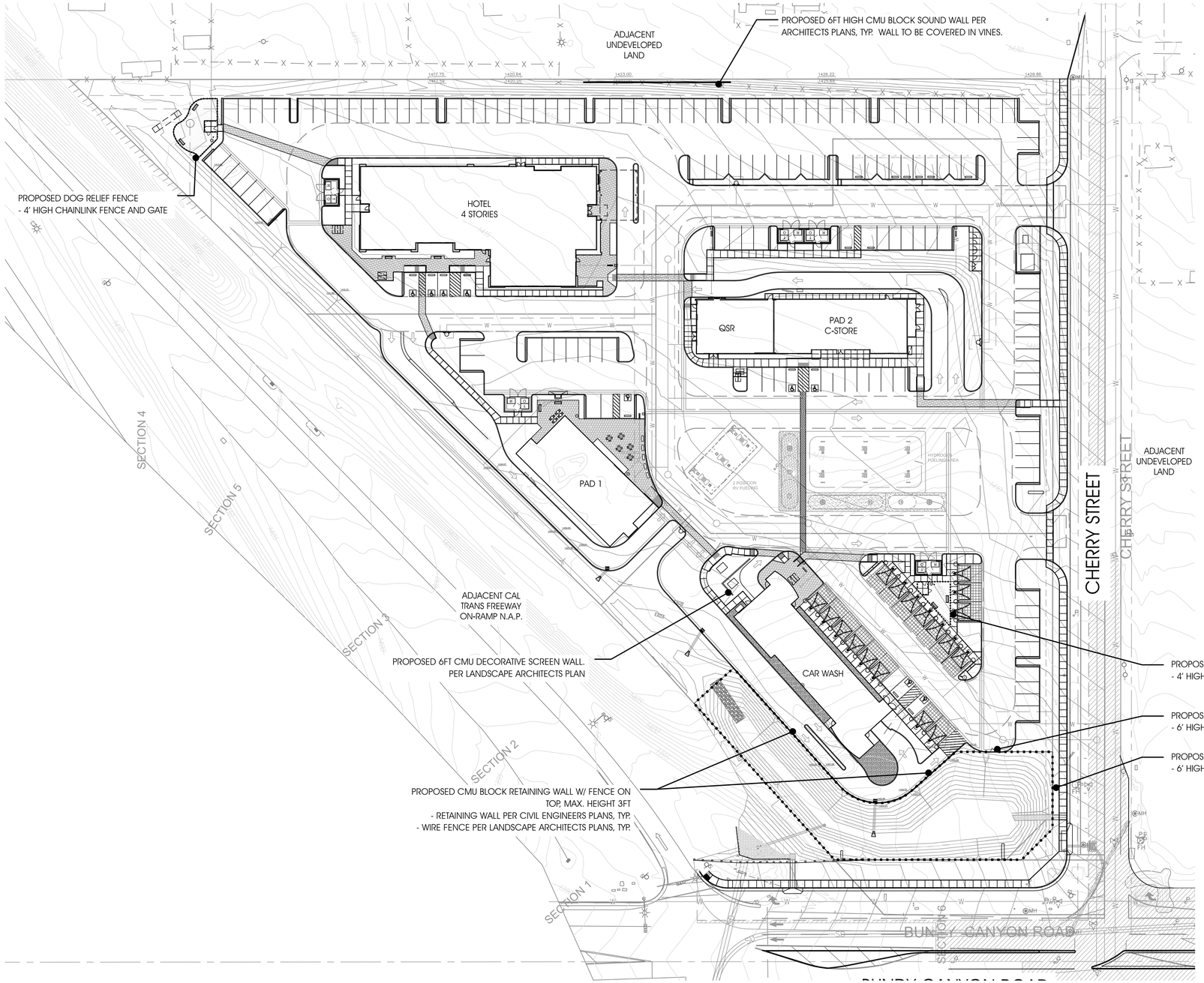
L-2



WALL AND FENCE LEGEND

4FT CHAINLINK FENCE AT DOG RELIEF AREAS
- VINYL-COATED
- COLOR: BLACK

6FT WIRE FENCE AND POST AT BIO BASIN
- GALVANIZED CABLE WIRE
- 3" POST COLOR: BLACK

3FT RETAINING WALL WITH 3FT WIRE FENCE AND POST AT BIO BASIN
- RETAINING WALL CMU SPLIT FACE BLOCK FINISH
- COLOR: NATURAL GREY
- GALVANIZED CABLE WIRE
- 3" POST COLOR: BLACK

6FT DECORATIVE SCREEN WALL
- CMU BURNISHED BLOCK FINISH
- COLOR: WHEAT

6FT SOUND WALL PER ARCHITECT'S PLAN
- CMU SPLIT FACE BLOCK FINISH
- COLOR: NATURAL GREY

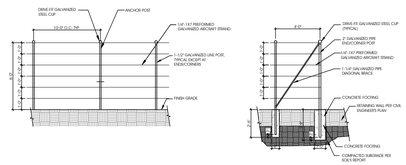
1. All metal parts of fences shall be galvanized new materials, and all posts shall be fitted with drive-fit cups.

2. Lightweight metal inserts shall be sheet metal tube3 with I.D. 3/4" greater than post O.D. Grout posts with neat grout of one part cement to two parts water or, if approved by the Engineer, with sulphur.

3. Cables shall be stretched and fastened with 2 cable clamps of each anchor post at 16 feet on center. Nuts shall be welded to clamps or covered with any epoxy putty (J.B. Weld or equal) to prevent removal.

4. Anchor posts shall be guyed with 3/8" steel truss rods as shown.

5. Pipe for fence shall conform to ASTM A-120. Galvanizing shall comply with ASTM A-123.



PROPOSED 6FT FENCE AT BIO RETENTION BASIN AREA

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WALL AND FENCE PLAN

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

0' 20' 40' 80' 120'
SCALE:1"=40'
CDPC PROJECT NO. 22113
September 13, 2024

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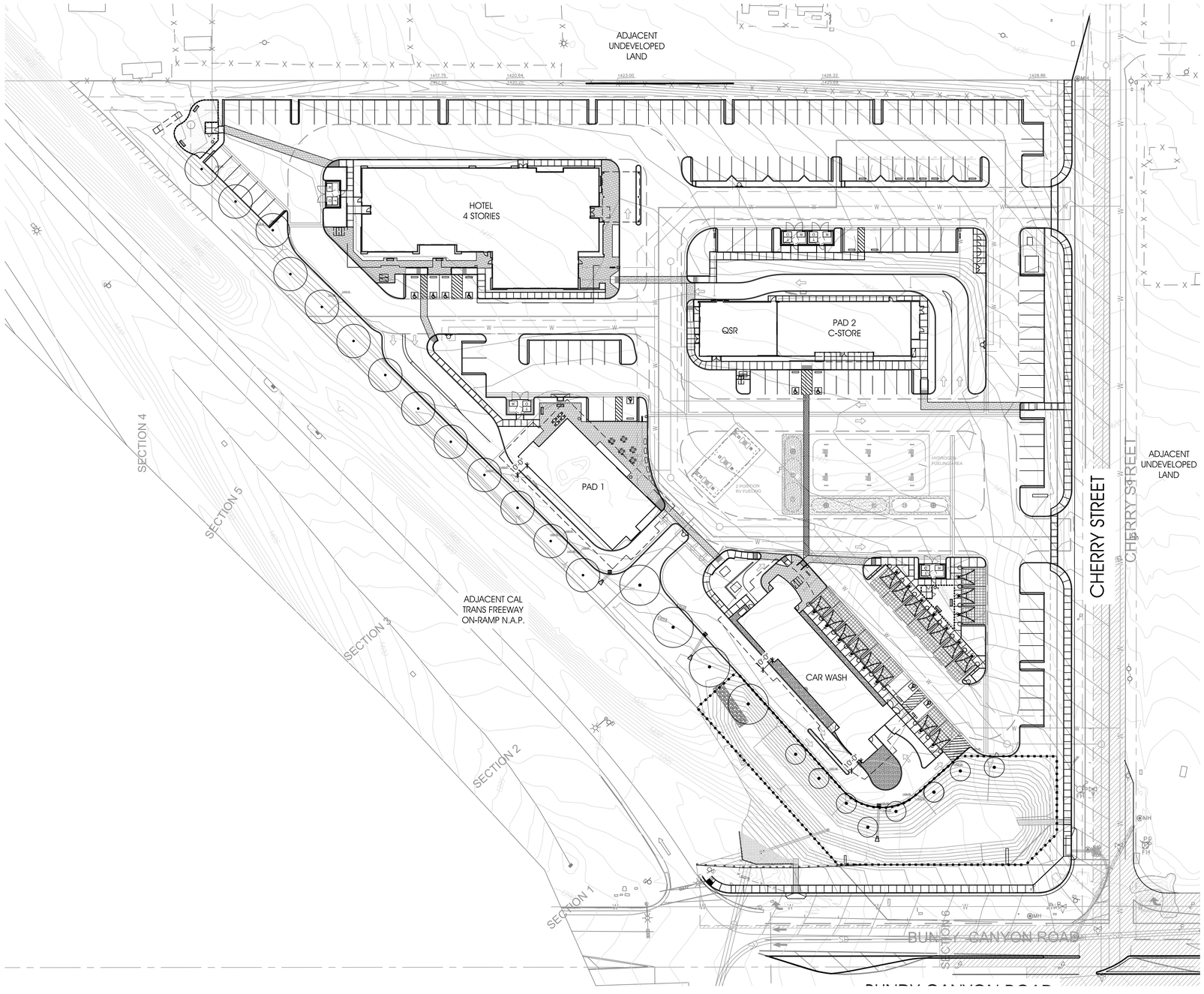

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TOTAL L.F.: 408'-3"

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ktgy

SCREENING TREE PLAN

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

0' 20' 40' 80' 120'
SCALE: 1" = 40'
CDPC PROJECT NO. 22113

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TREES


Arbutus u. 'Marina'
Marina Strawberry Tree


Cercidium 'Desert Museum'
Desert Museum Palo Verde


Cercis occidentalis
Western Redbud


Koelrueteria paniculata
Golden Rain Tree


Lagerstroemia i. 'Muskogee'
Muskogee Crape Myrtle


Laurus nobilis 'Saratoga'
Sweet Bay


Platanus a. 'Columbia'
Columbia Plane Tree


Quercus ilex
Holly Live Oak

SHRUBS & GROUNDCOVERS


Agave 'Blue Glow'
Blue Glow Agave


Alyogyne huegelii
Blue Hibiscus


Bouteloua g. 'Blonde Ambition'
Blue Gama Grass


Callistemon v. 'Little John'
Little John Bottlebrush


Cistus purpureus
Purple-Flowered Rockrose


Dalea greggii
Trailing Indigo Bush


Dasylirion wheeleri
Desert Spoon


Dianella r. 'Little Rev'
Little Rev Flax Lily


Furcreaea f. 'Mediopicta'
Varigated Giant False Agave


Lantana montevidensis
Trailing Lantana


Leucophyllum f. 'Compacta'
Compact Texas Ranger


Myoporum parvifolium
Myoporum


Penstemon h. 'Margarita BOP'
Foothill Beardtougne


Rosmarinus o.
'Huntington Carpet'
Creeping Rosemary


Santolina chamaecyparissus
Lavender Cotton


Virbina rigita
Slender Vervain


Westringia f. 'Morning Light'
Morning Light Westringia

BIO-SWALE PLANTS


Carex divulsa
Berkeley Sedge


Juncus p. 'Elk Blue'
Elk Blue California Gray Rush


Leymus c. 'Canyon Prince'
Canyon Prince Wild Rye

ACCENT PLANTS


Achillea m. 'Paprika'
Paprika Yarrow


Aeonium 'Zwartkop'
Black Rose Aeonium


Aloe polyphylla
Spiral Aloe


Aloe striata
Coral Aloe


Senecio mandraliscae
Blue Chalksticks

SCREEN SHRUBS


Myrtus c. 'Compacta'
Dwarf Myrtle


Pittosporum t. 'Silver Sheen'
Silver Sheen Kohuhu


Prunus c. 'Compacta'
Compact Cherry Laurel


Westringia f. 'Morning Light'
Morning Light Westringia

SCREEN VINES


Clytostoma callistegioides
Lavender Trumpet Vine


Macfadyena unguis-cati
Cat's Claw


Parthenocissus tricuspidata
Boston Ivy

ktgy

CONCEPTUAL PLANTING PALETTE IMAGERY

CHERRY OUTPOST
WILDOMAR, CALIFORNIA

J & T INVESTMENTS
CORONA, CALIFORNIA

CDPC PROJECT NO. 22113

August 20, 2024

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SHEET INDEX

1 CONCEPTUAL GRADING PLAN
2 CONCEPTUAL UTILITY PLAN
3 EASEMENT PLAN
4 CHERRY STREET CENTERLINE PROFILE
5 STRIPING PLAN

LEGEND

(E)	EXISTING
FG	FINISH GRADE
FF	FINISH FLOOR
FS	FINISH SURFACE
NAP	NOT A PART
SF	SQUARE FOOTAGE
TF	TOP OF FOOTING
TW	TOP OF WALL
0000.00XX / 0000.00XX	PROPOSED ELEVATION
	PROPERTY LINES
	INTERIOR LOT LINES
(0000)	EXISTING CONTOUR LINE AND ELEVATION
0000	PROPOSED CONTOUR LINE AND ELEVATION
	PROPOSED RETAINING WALL

NOTES:

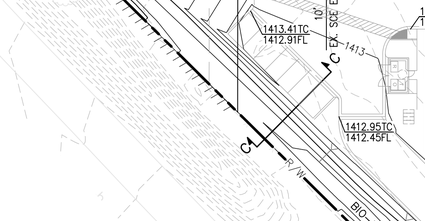
1. ALL FENCING AND WALLS SHALL BE BUILT PER THE LANDSCAPE PLANS
2. DRIVEWAYS SHALL BE COMMERCIAL DRIVEWAYS
3. ONSITE LIGHTING SHALL BE PRIVATE AND PER SEPARATE PLANS

EARTHWORK QUANTITIES:

CUT = 14,060 CY
FILL = 9,900 CY
NET EXPORT = 4,160 CY

GRADING NOTE:

PRECISE GRADING OF EACH PARCEL WILL BE PER THEIR SPECIFIC SITE REQUIREMENTS.



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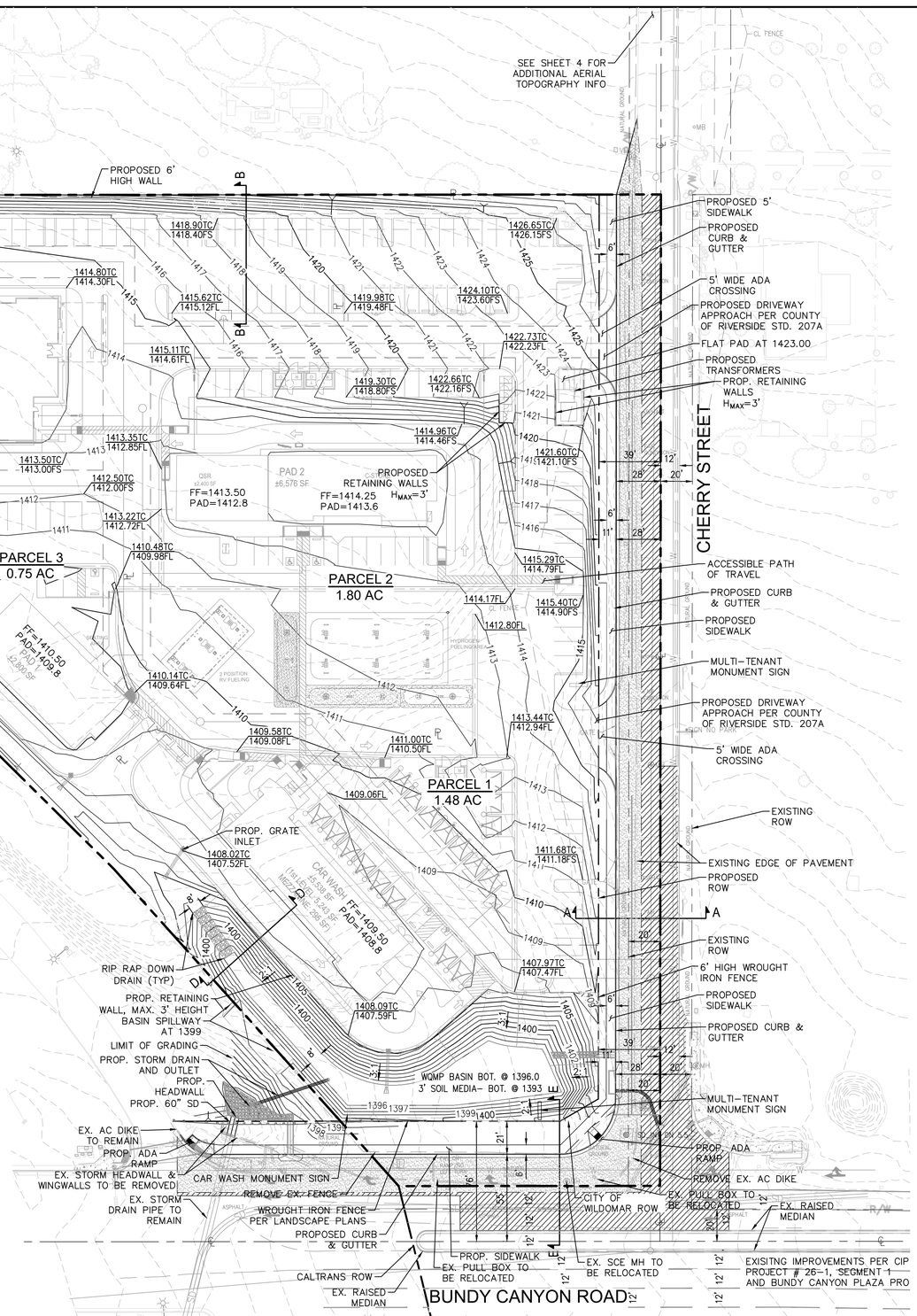
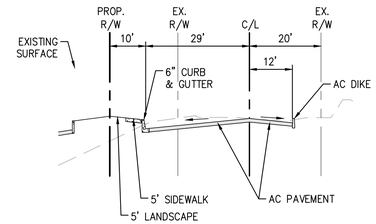
NTS





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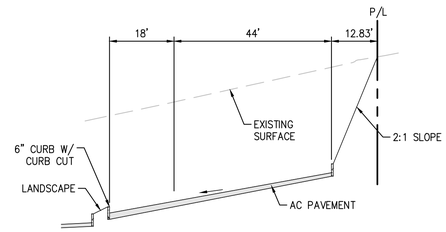

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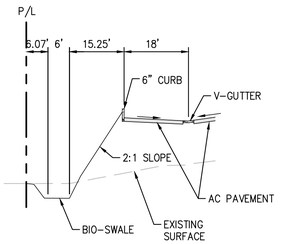
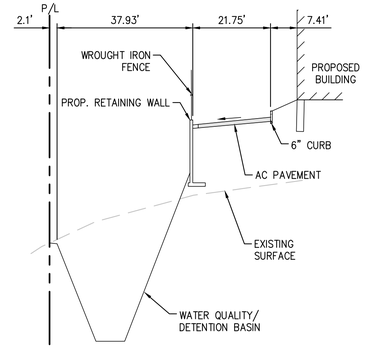


C SECTION C-C
NTS



D SECTION D-D
NTS

0 40' 80'
SCALE: 1" = 40'

PAR22–0145

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TWO WORKING DAYS BEFORE YOU DIG
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NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design hereon. In the event of discrepancies arising after city acceptance or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for acceptance by the city.

MARK	BY	DATE	REVISIONS	APPR.	DATE
				CITY	
			ENGINEER		

CITY OF WILDOMAR
ACCEPTED BY:
Date:
JASON B. FARAG, Director of Public Works/ City Engineer, PE 86560
ACCEPTANCE AS TO CONFORMANCE WITH APPLICABLE CITY STANDARDS AND PRACTICES

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p: 714.560.8200
www.tait.com
ENGINEERING ENVIRONMENTAL BUILDING LAND
Orange County San Luis Obispo Sacramento Riverside Denver Boise Dallas Atlanta

BENCHMARK: SEE ABOVE
Elevation =
Datum = NGVD29
BENCHMARK #

SCALE:
H: As Noted V: As Noted

PP xx-xxxx TM xxxxx PR. No. xx-xxxx

CITY OF WILDOMAR
CHERRY OUTPOST
CONCEPTUAL GRADING PLAN

SHEET No. 1
OF 5 SHTS

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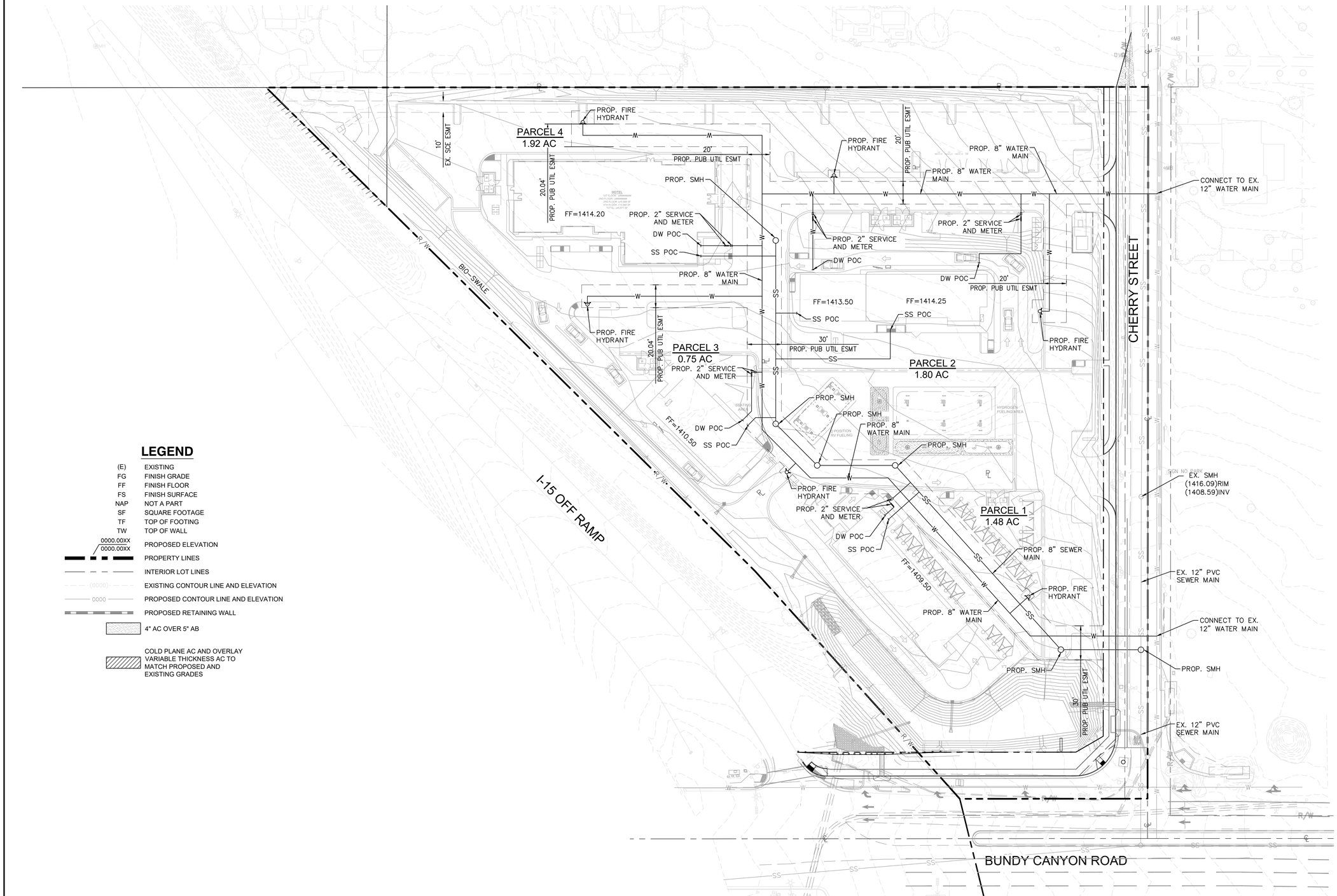

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	PROPERTY LINES
	INTERIOR LOT LINES
(0000)	EXISTING CONTOUR LINE AND ELEVATION
0000	PROPOSED CONTOUR LINE AND ELEVATION
	PROPOSED RETAINING WALL
	4" AC OVER 5" AB
	COLD PLANE AC AND OVERLAY VARIABLE THICKNESS AC TO MATCH PROPOSED AND EXISTING GRADES

0 40' 80'
SCALE: 1" = 40'

PAR22-0145

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Elevation =
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BENCHMARK #

SCALE:
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PP xx-xxxx TM xxxxx PR. No. xx-xxxx

CITY OF WILDOMAR
CHERRY OUTPOST
CONCEPTUAL UTILITY PLAN

SHEET No. 2
OF 5 SHTS

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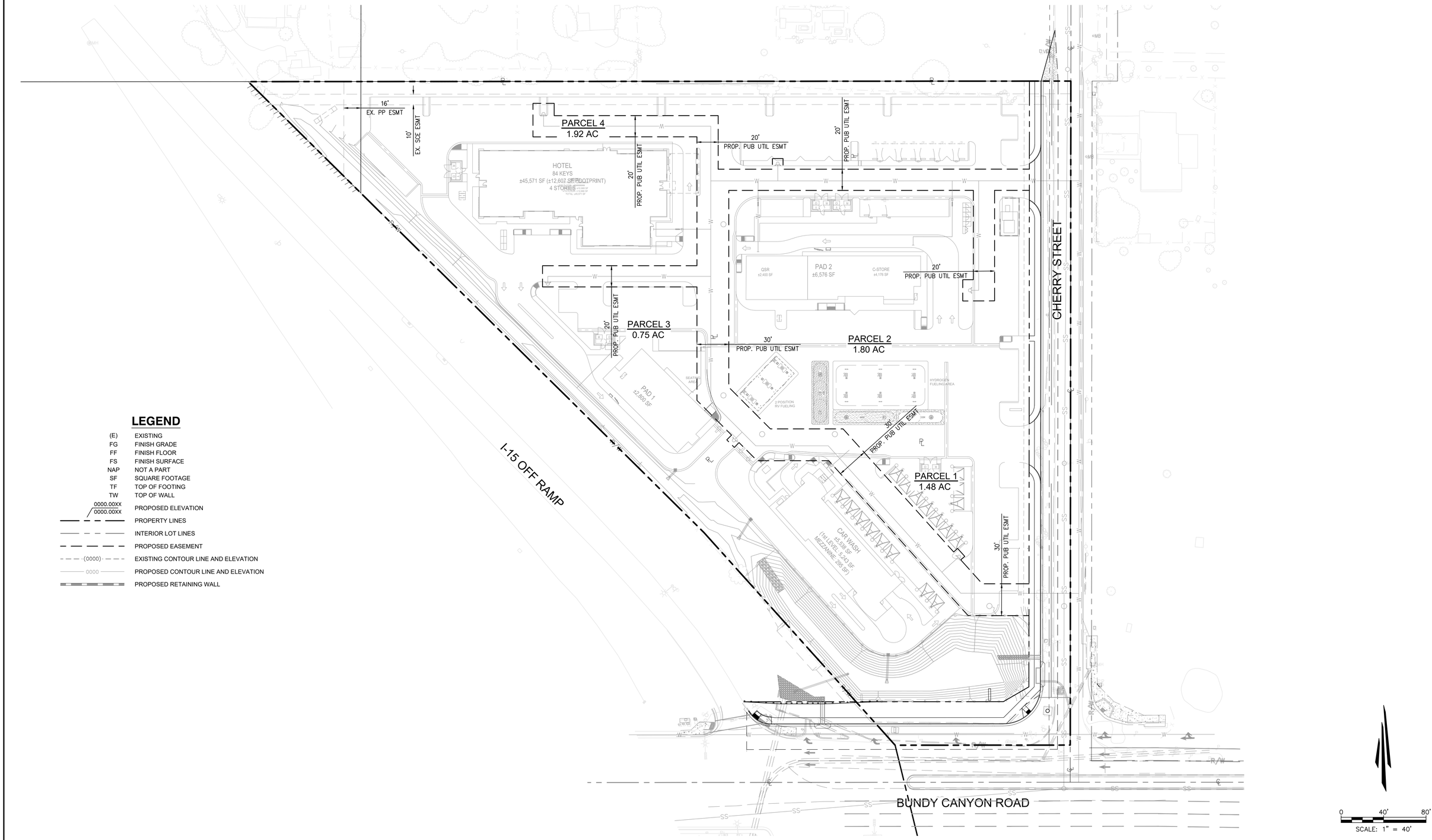

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CHERRY OUTPOST
EASEMENT PLAN

SHEET No. 3
OF 5 SHTS

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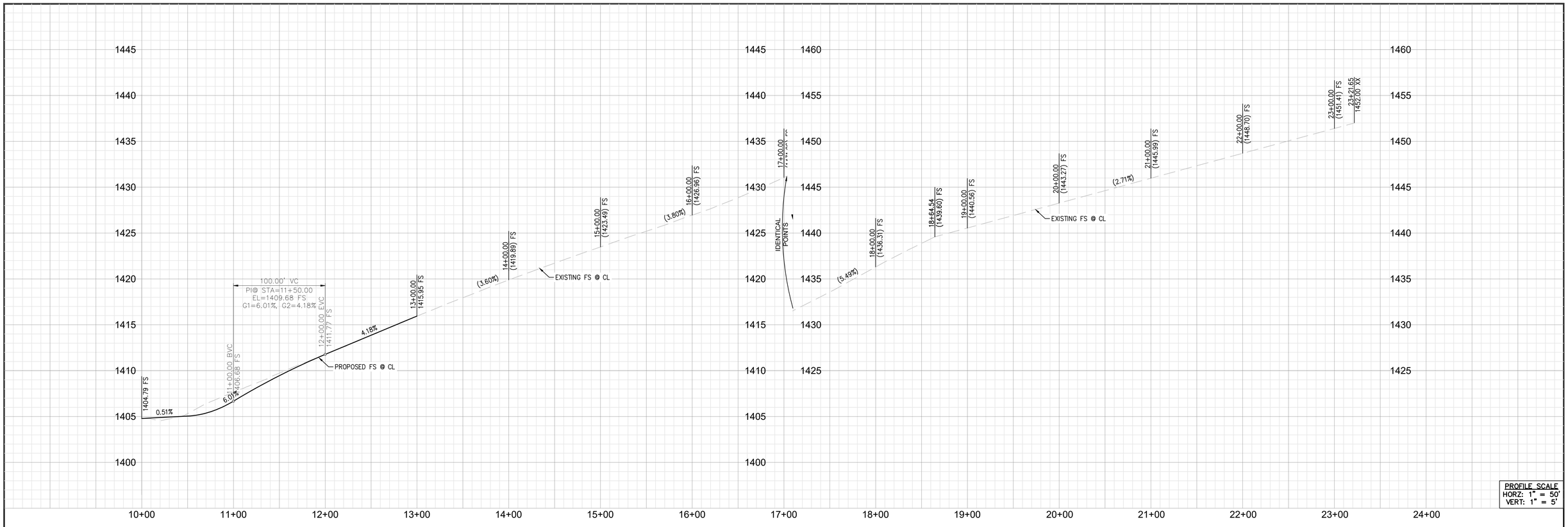
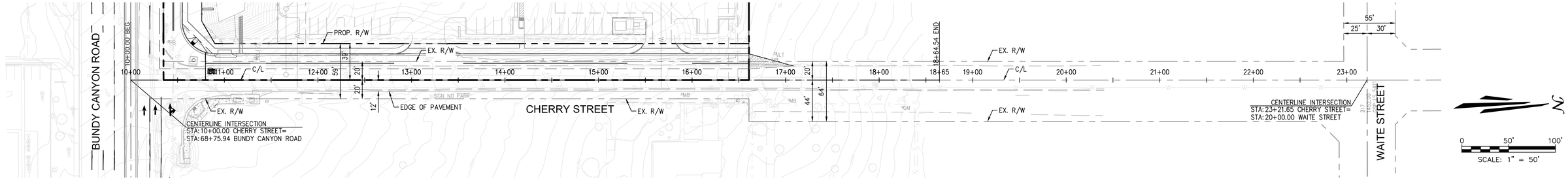
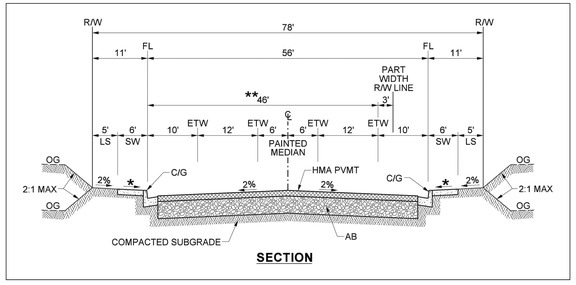






SECTION

INDUSTRIAL COLLECTOR STREET SECTION PER RIVERSIDE COUNTY STD. 111 - TYPCIAL STREET SECTION ON CHERRY STREET

PAR22–0145

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-422-4133
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design hereon. In the event of discrepancies arising after city acceptance or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for acceptance by the city

MARK	BY	DATE	REVISIONS	APPR.	DATE

ENGINEER | CITY

CITY OF WILDOMAR
ACCEPTED BY:
Date:
JASON B. FARAG, Director of Public Works/ City Engineer, PE 86560
ACCEPTANCE AS TO CONFORMANCE WITH APPLICABLE CITY STANDARDS AND PRACTICES

TAIT & ASSOCIATES
Since 1964
701 North Parkcenter Drive
Santa Ana, CA 92705
p: 714.560.8200
www.tait.com
ENGINEERING ENVIRONMENTAL BUILDING LAND
Orange County San Luis Obispo Sacramento Riverside Denver Boise Dallas Atlanta

BENCHMARK: SEE ABOVE
Elevation =
Datum = NGVD29
BENCHMARK #

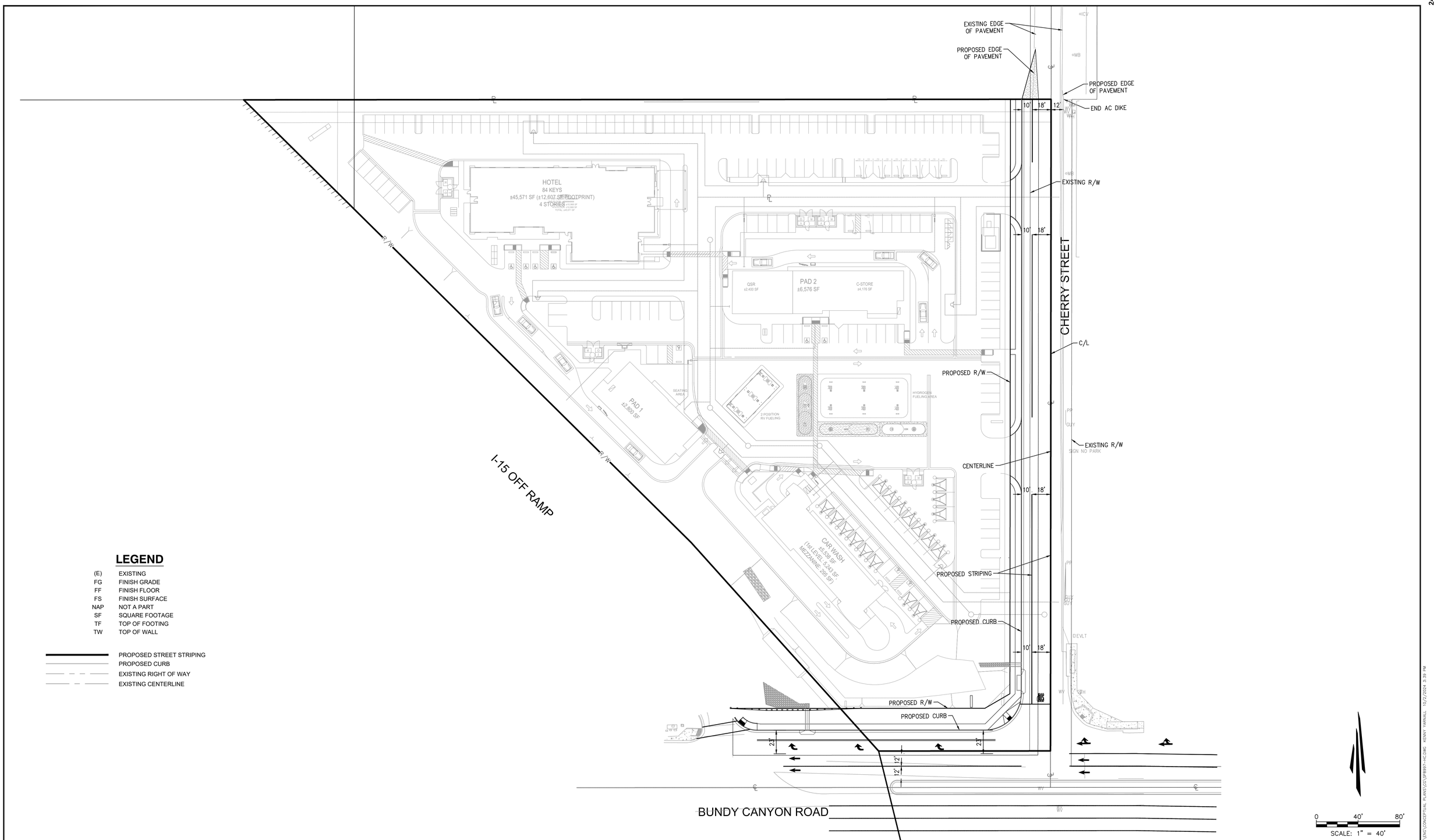
SCALE:
H: As Noted V: As Noted

PP xx-xxxx TM xxxxx PR. No. xx-xxxx

CITY OF WILDOMAR
CHERRY OUTPOST
CHERRY STREET CENTERLINE PROFILE

SHEET No. 4
OF 5 SHTS

I:\JOBS\WILDOMAR\PROJECT - WILDOMAR-CHERRY OUTPOST\PLANS\CONSTRUCTION PLANS\PLOT\PROJECT-SHEET RENEY MARSHALL 10/5/2022 3:46 PM



LEGEND

(E)	EXISTING
FG	FINISH GRADE
FF	FINISH FLOOR
FS	FINISH SURFACE
NAP	NOT A PART
SF	SQUARE FOOTAGE
TF	TOP OF FOOTING
TW	TOP OF WALL

PROPOSED STREET STRIPING
PROPOSED CURB
EXISTING RIGHT OF WAY
EXISTING CENTERLINE

PAR22–0145

DIGALERT
DIAL BEFORE YOU DIG — TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-422-4133
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

NOTE:
WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

The private engineer signing these plans is responsible for assuring the accuracy and acceptability of the design hereon. In the event of discrepancies arising after city acceptance or during construction, the private engineer shall be responsible for determining an acceptable solution and revising the plans for acceptance by the city.

MARK	BY	DATE	REVISIONS	APPR.	DATE
ENGINEER				CITY	

CITY OF WILDOMAR
ACCEPTED BY:
Date:
JASON B. FARAG, Director of Public Works/ City Engineer, PE 86560
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Orange County · San Luis Obispo · Sacramento · Riverside · Denver · Boise · Dallas · Atlanta

BENCHMARK: SEE ABOVE
Elevation =
Datum = NGVD29
BENCHMARK #

SCALE:
H: As Noted V: As Noted

PP xx-xxxx TM xxxxx PR. No. xx-xxxx

CITY OF WILDOMAR
CHERRY OUTPOST
STRIPING PLAN

SHEET No. 5
OF 5 SHTS

K:\DRAWINGS\SP\SP8997 – WILDOMAR–CHERRY OUTPOST\ENG\CONCEPTUAL PLANS\GX\SP8997–HC.DWG KENNY YARNALL 10/2/2024 3:39 PM

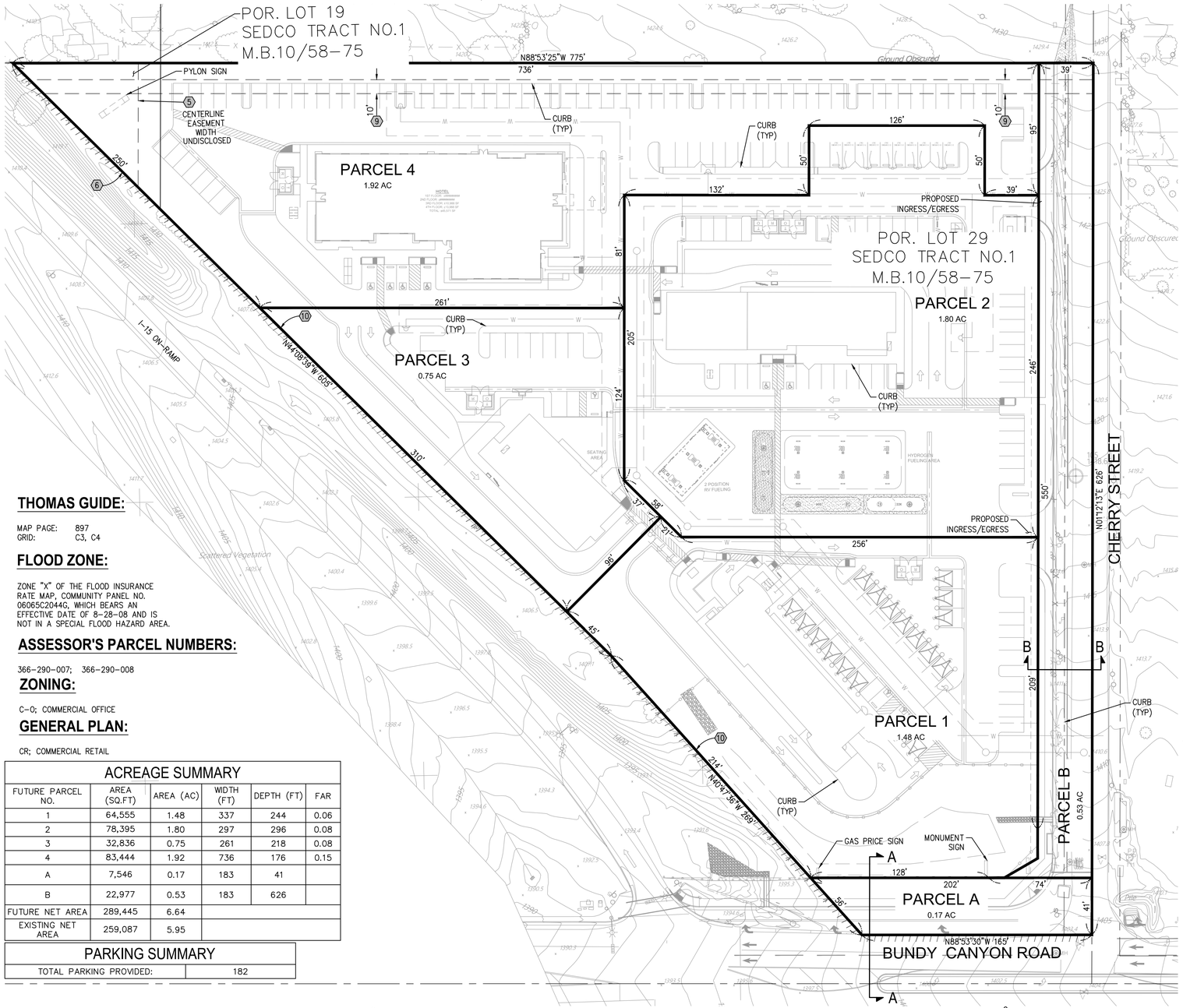
TENTATIVE PARCEL MAP NO. 38828

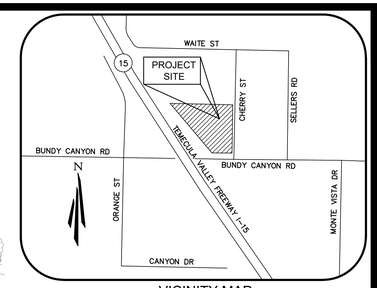
CHERRY OUTPOST

IN THE CITY OF WILDOMAR

COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

TAIT & ASSOCIATES, INC. JULY, 2024





VICINITY MAP

N.T.S.

LEGEND:

- PROPOSED PARCEL AREA
- EXISTING LOT/PARCEL LINE
- EXISTING EASEMENT LINE
- CENTERLINE
- (PTR) PRELIMINARY TITLE REPORT
- RESTRICTED/RELINQUISHED ACCESS RIGHTS

N

GRAPHIC SCALE

0' 20' 40' 80' 160'

(IN FEET)
1 inch = 40 ft.
CONTOUR INTERVAL = 1-FOOT

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN IS SITUATED IN THE STATE OF CALIFORNIA, COUNTY OF RIVERSIDE, CITY OF WILDOMAR AND DESCRIBED AS FOLLOWS:

PARCEL 1:

THAT PORTION OF LOT 29 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT A TWO INCH IRON PIPE MARKING THE NORTHEAST CORNER OF SAID LOT 29; THENCE ALONG THE EASTERLY LINE OF SAID LOT 29, SOUTH 01° 11'58" WEST(RECORD SOUTH 00° 37'20"WEST) 133.12 FEET; THENCE COURSE "A"NORTH 35° 22'37"WEST, 20.59 FEET; THENCE COURSE "B" NORTH 44°14'20" WEST, 55.90 FEET; THENCE COURSE "C"NORTH 33° 56'00"WEST, 94.44 FEET TO THE NORTHERLY LINE OF SAID LOT29, DISTANT ALONG SAID NORTHERLY LINE NORTH 88°52'14"WEST (RECORD NORTH 89°26'10"WEST) 105.44 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTHERLY LINE SOUTH 88° 52'14"EAST (RECORD SOUTH 89° 26'10"EAST) 106.44 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

PARCEL 2:

ALL THAT PORTION OF LOT 19 OF SEDCO TRACT NO. 1, IN THE CITY OF WILDOMAR,COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 10, PAGES 58 THROUGH 75 INCLUSIVE OF MAPS, RIVERSIDE COUNTY RECORDS, LYING NORTHEASTERLY OF THE STATE HIGHWAY, AS CONVEYED TO THE STATE OFCALIFORNIA BY DEED RECORDED APRIL 20, 1955 IN BOOK 1725. PAGE 467, OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

EXCEPTING THEREFROM THAT PORTION AS DESCRIBED IN THE DEED TO THE COUNTY OF RIVERSIDE, RECORDED FEBRUARY 20.1970 AS FILE NO. 18792, OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED MARCH 30, 1978 AS FILE NO. 59661, OF OFFICIAL RECORDS.

APN: 366–290–007; 366–290–008

NOTES:

1. COVENANTS, CONDITIONS AND RESTRICTIONS SHALL BE PREPARED TO ADDRESS THE SITE ACCESS, COMMON PARKING, MAINTENANCE, CROSS LOT UTILITY LATERALS, SIGNAGE AND WATER QUALITY MAINTENANCE.
2. THE BOUNDARY SHOWN HEREON IS BASED FROM EITHER RECORD INFORMATION OR CALCULATED RECORD INFORMATION.
3. J & T MANAGEMENT, THE RECORD OWNER OF THE ABOVE DESCRIBED PROPERTY, HEREBY CONSENTS TO THE FILING OF THIS TENTATIVE PARCEL MAP.
4. RECIPROCAL ACCESS SHALL BE PROVIDED AND RESERVED ON THE FINAL MAP OR BY SEPARATE INSTRUMENT.
5. ACCESS RIGHTS SHALL BE RESTRICTED/RELINQUISHED FROM BUNDY CANYON ROAD (PARCEL A).

THOMAS GUIDE:

MAP PAGE: 897
GRID: C3, C4

FLOOD ZONE:

ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 06065C2044G, WHICH BEARS AN EFFECTIVE DATE OF 8–28–08 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

ASSESSOR'S PARCEL NUMBERS:

366–290–007; 366–290–008

ZONING:

C–0; COMMERCIAL OFFICE

GENERAL PLAN:

CR; COMMERCIAL RETAIL

ACREAGE SUMMARY					
FUTURE PARCEL NO.	AREA (SQ.FT)	AREA (AC)	WIDTH (FT)	DEPTH (FT)	FAR
1	64,555	1.48	337	244	0.06
2	78,395	1.80	297	296	0.08
3	32,836	0.75	261	218	0.08
4	83,444	1.92	736	176	0.15
A	7,546	0.17	183	41	
B	22,977	0.53	183	626	
FUTURE NET AREA	289,445	6.64			
EXISTING NET AREA	259,087	5.95			

PARKING SUMMARY	
TOTAL PARKING PROVIDED:	182

UTILITY PURVEYORS:

WATER/SEWER
ELSINORE VALLEY MWD
951–674–3146

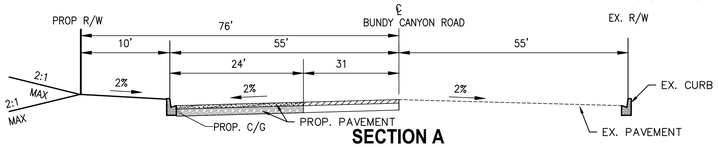
GAS
SOCAL GAS MURRIETA
800–423–1391

ELECTRICITY
SOUTHERN CALIFORNIA EDISON
800–611–1911

CABLE/TELPHONE
FRONTIER
951–723–0736

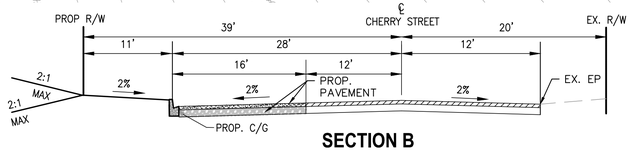
SPECTRUM
951–406–1690

CROWN CASTLE
724–416–2973



SECTION A

N.T.S.



SECTION B

N.T.S.

EASEMENT:

1 WATER RIGHTS, CLAIMS OR TITLE TO WATER IN, ON OR UNDER THE LAND, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.

2 OWNERSHIP OF, OR RIGHTS TO, MINERALS OR OTHER SUBSTANCES, SUBSURFACE AND SURFACE, OF WHATSOEVER KIND, INCLUDING, BUT NOT LIMITED TO COAL, ORES, METALS, LIGNITE, OIL, GAS, GEOTHERMAL RESOURCES, BRINE, URANIUM, CLAY, ROCK, SAND AND GRAVEL IN, ON, UNDER AND THAT MAY BE PRODUCED FROM THE LAND, TOGETHER WITH ALL RIGHTS, PRIVILEGES, AND IMMUNITIES RELATING THERETO, WHETHER THE OWNERSHIP OR RIGHTS ARISE BY LEASE, GRANT, EXCEPTION, CONVEYANCE, RESERVATION OR OTHERWISE, AND WHETHER OR NOT APPEARING IN THE PUBLIC RECORDS OR LISTED IN SCHEDULE B. STEWART TITLE GUARANTY COMPANY AND ITS ISSUING AGENT MAKE NO REPRESENTATION AS TO THE PRESENT OWNERSHIP OF ANY SUCH INTERESTS. THERE MAY BE LEASES, GRANTS, EXCEPTIONS, OR RESERVATIONS OF INTERESTS THAT ARE NOT LISTED.

3 EASEMENT AND RIGHTS INCIDENTAL THERETO FOR UTILITIES TO SUPERIOR MUTUAL WATER CO., AS SET FORTH IN A DOCUMENT RECORDED SEPTEMBER 22, 1913, IN BOOK 379, PAGE 385 OF DEEDS.
EASEMENT NOT LOCATEABLE FROM RECORD

4 THE RIGHT TO ENTER UPON SAID LOT 29 TO SINK WELLS, TO ESTABLISH AND MAINTAIN PUMPING PLANTS AND TO DEVELOP WATER FOR IRRIGATION AND DOMESTIC USE, WITH THE PERPETUAL RIGHT TO ENTER FOR SUCH PURPOSES; ALSO RIGHT OF WAY THROUGH AND ACROSS ANY PORTION OF SAID PROPERTY FOR SURFACE OR UNDERGROUND PIPE LINES, WITH PERPETUAL RIGHT OF ENTRY UPON SAID PROPERTY FOR THE CONSTRUCTION, MAINTENANCE, RENEWAL AND REPAIR OF SAID PIPE LINES; ALSO, RIGHT OF WAY THROUGH AND ACROSS ANY PORTION OF SAID PROPERTY FOR THE CONSTRUCTION OF POLE LINES FOR TRANSMISSION OF ELECTRIC POWER WITH PERPETUAL RIGHT OF ENTRY FOR THE CONSTRUCTION, MAINTANENCE, RENEWAL AND REPAIR OF SAID TRANSMISSION LINES, AS CONVEYED TO SOUTH ELSINORE MUTUAL WATER COMPANY, A CORPORATION.

⑤ EASEMENT AND RIGHTS INCIDENTAL THERETO FOR PUBLIC UTILITIES EASEMENT TO CALIFORNIA ELECTRIC POWER COMPANY, ITS SUCCESSORS AND ASSIGNS, AS SET FORTH IN A DOCUMENT RECORDED APRIL 1, 1947, IN BOOK 824, PAGE 313, OF OFFICIAL RECORDS. CENTERLINE SHOWN, NO WIDTH STATED IN DEED.

⑥ RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED NOVEMBER 8, 1954, IN BOOK 1652, PAGE 64 AS INSTRUMENT NO. 58198 OF OFFICIAL RECORDS.

7 RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED APRIL 20, 1955 IN BOOK 1725, PAGE 467 AS INSTRUMENT NO. 25787 OF OFFICIAL RECORDS.

8 RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED DECEMBER 13, 1955, IN BOOK 1833, PAGE 333 AS INSTRUMENT NO. 78835 OF OFFICIAL RECORDS.

⑨ EASEMENT AND RIGHTS INCIDENTAL THERETO FOR PUBLIC UTILITIES EASEMENT TO GENERAL TELEPHONE COMPANY OF CALIFORNIA, A CORPORATION, THEIR SUCCESSORS AND ASSIGNS, AS SET FORTH IN A DOCUMENT RECORDED NOVEMBER 28, 1969 AS INSTRUMENT NO. 122501 OF OFFICIAL RECORDS.

⑩ RIGHTS OF ACCESS TO OR FROM THE PUBLIC ROAD OR STREET, HIGHWAY OR FREEWAY ADJACENT TO THE LAND, AS RELINQUISHED OR SEVERED IN DEED RECORDED MARCH 30, 1978 AS INSTRUMENT NO. 59661 OF OFFICIAL RECORDS.

11 TAXES AND/OR ASSESSMENTS RESULTING FROM THE LAND LYING FULLY OR PARTIALLY WITHIN THE BOUNDARIES OF A COMMUNITY FACILITY DISTRICT AS DISCLOSED BY THE COMMUNITY FACILITIES DISTRICT MAP, RECORDED JULY 28,1999 AS INSTRUMENT NO. 1999–337077 OF OFFICIAL RECORDS.

12 DEED OF TRUST RECORDED JULY 18, 2012 AS INSTRUMENT NO. 2012–0335242 O.R.

13 ANY FACTS, RIGHTS, INTERESTS OR CLAIMS WHICH WOULD BE DISCLOSED BY AN INSPECTION OF THE LAND.

14 RIGHTS OF TENANTS IN POSSESSION WHETHER OR NOT RECORDED IN THE PUBLIC RECORDS.

15 RIGHTS OF PARTIES IN POSSESSION WHETHER OR NOT RECORDED IN THE PUBLIC RECORDS.

UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN–SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

UNAUTHORIZED CHANGES & USES:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

NO.	DESCRIPTION	REVISIONS	BY	DATE

TAIT & ASSOCIATES
ENGINEERING ENVIRONMENTAL BUILDING LAND
Orange County Sacramento Denver Dallas
San Luis Obispo Riverside Boise Atlanta
Since 1964
4143 East County Road 16
Loveland, CO 80537
p: 970.613.1447
www.tait.com

TENTATIVE MAP

CHERRY OUTPOST
J & T MANAGEMENT
139 RADIO ROAD
CORONA, CA 92879

DRAWN: KG
DATE: 07/02/24
CHECKED:
DATE:
REVISION #:
DATE:
JOB NO: SP89897

1 OF 1

5/15/2019 Internal Review #1

Oct 03, 2024 – 7:42am by lyarnell K:\Drawings\SP\SP8997 – Wildomar–Cherry Outpost\Survey\Office\Tentative Map\SP8997–TPM.dwg

2453

CHERRY OUTPOST

SIGN PACKAGE

09.19.2024

REQUISITE CHECKLIST

ALL REQUIREMENTS MUST BE MET BEFORE BEING RELEASED TO PRODUCTION

X	☐	SURVEY
X	☐	ALL VECTOR AND / OR HIGH RESOLUTION ART *DATE CHECKED (Designer name): *Joe Example 11.16.21*
X	☐	ALL PAINT / VINYL / PRINT COLORS (CMYK or PMS) / ALL STONE, BRICK, VENEER, AND FINISHES

ART CONFIRMED BY

DESIGNER NOTES

RED LINE OVER TITLE BLOCK ON DRAWING PAGES INDICATES DRAWING IS NOT READY FOR PRODUCTION - ALL TBD ITEMS MUST BE RESOLVED.

A INTRODUCTION

The intent of this sign criteria is to provide the guidelines necessary to achieve a visually coordinated, balanced and appealing sign environment, harmonious with the architecture of the project, while maintaining provisions for individual graphic expression.

Performance of this sign criteria shall be rigorously enforced and any nonconforming sign shall be removed by the tenant or his sign contractor at their expense, upon demand by the Landlord.

Exceptions to these standards shall not be permitted without approval from the Landlord and will require approval of a modification to the sign program application by the City.

Accordingly, the Landlord will retain full rights of approval for any sign used in the center.

No sign shall be installed without the written Landlord approval and the required City permits.

All City sign regulations must be complied with.

B LANDLORD/TENANT REQUIREMENTS

1. Each Tenant shall submit to Landlord for written approval, three (3) copies of the detailed shop drawings of this proposed sign, indicating conformance with the sign criteria herein outlined.

2. The Landlord shall determine and approve the availability and position of a Tenant name on any ground sign(s).

3. The Tenant shall pay for all signs, related materials and installation fees (including final inspection costs).

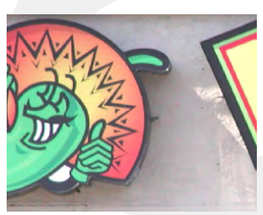
4. The Tenant shall obtain all necessary permits.

5. The Tenant shall be responsible for fulfillment of all requirements of this sign criteria.

6. It is the responsibility of the Tenant's sign company to verify all conduit and transformer locations and service access prior to fabrication.

7. Should a sign be removed, it is the Tenant's responsibility to patch all holes, paint surface to match the existing color, and restore surface to original condition.












JONES SIGN
Your Vision. Accomplished.
WWW.JONESSIGN.COM

JOB #: 284580_R26
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

REV.	DATE	BY	DESCRIPTION
21	04.02.24	JC	REVISED SIGN 'M' DESIGN LAYOUT
22	04.05.24	JC	ADDED NEW SITE PLAN, GAS & DIESEL CANOPY ELEVATIONS; REVISED SIGN 'M' DESIGN LAYOUT
23	04.08.24	JC	REVISED SIGN 'M' & 'P' DESIGN LAYOUTS
24	04.09.24	JC	REVISED SIGN 'M' LAYOUT
25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
1.0

This is an original, unpublished drawing by Jones Sign Co., Inc. It is for your personal use in conjunction with a project being planned for you by JONES SIGN. It is not to be shown to anyone outside of your organization, nor is it to be used, reproduced, copied or exhibited in any fashion. Use of this design or the salient elements of this design in any sign done by any other company, without the express written per JONES SIGN, is forbidden by law and carries a civil forfeiture of up to 25% of the purchase price of the sign. JONES SIGN will endeavor to closely match colors, including PMS, where specified. We cannot guarantee exact matches due to varying compatibility of surface materials and paints used. All sizes and dimensions are illustrated for client's conception of project and are not to be understood as being exact size or e

C GENERAL SIGN CONSTRUCTION REQUIREMENTS:

1. All signs and their installation shall comply with all City sign regulation, local building and electrical codes.

2. All electrical signs will be fabricated by a U.L. approved sign company, according to U.L. specifications and bear U.L. Label.

3. Sign company to be fully licensed with the City and State and shall have full Workman's Compensation and general liability insurance.

4. All penetrations of building exterior surfaces are to be sealed waterproof in color and finish to match existing exterior.

5. Internal illumination to be LEDs, installed and labeled in accordance with the "National Board of Fire Underwriters Specifications".

6. Painted surfaces to have a satin finish. Only paint containing acrylic polyurethane products may be used.

7. Logo and letter heights shall be as specified and shall be determined by measuring the normal capital letter of a type font exclusive of swashes, ascenders, and descenders.

8. All sign fabrication work shall be of excellent quality. All logo images and type-styles shall be accurately reproduced. Lettering that approximates type-styles will not be acceptable. The Landlord reserves the right to reject any fabrication work deemed to be below standard.

9. All lighting must match the exact specification of the approved working drawings. No exposed conduits or raceways will be allowed.

10. Signs must be made of durable rust–inhibiting materials that are appropriate and complimentary to the building.

11. Color coatings shall exactly match the colors specified on the approved plans.

12. Joining of materials (e.g., seams) shall be finished in way as to be unnoticeable. Visible welds shall be continuous and ground smooth. Rivets, screws, and other fasteners that extend to visible surfaces shall be flush, filled, and finished so as to be unnoticeable.

13. Finished surfaces of metal shall be free from oil canning and warping. All sign finishes shall be free from dust, orange peel, drips, and runs and shall have a uniform surface conforming to the highest standards of the industry.

14. In no case shall any manufacturer’s label be visible from the street from normal viewing angles.

15. Exposed raceways are not permitted.

16. Exposed junction boxes, lamps, tubing or neon crossovers of any type are not permitted.

JONES SIGN
Your Vision. Accomplished.
WWW.JONESSIGN.COM

JOB #: **284580_R26**
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

REV.	DATE	BY	DESCRIPTION
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25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
2.0

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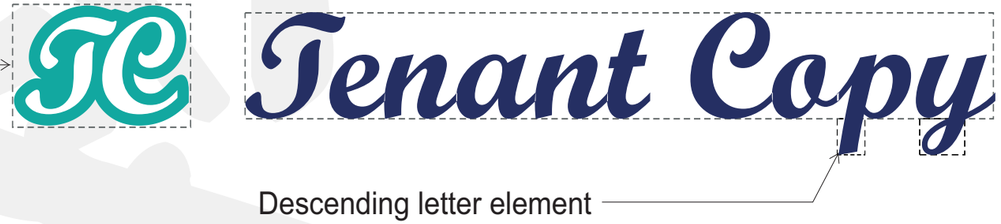
D TENANT SIGNAGE SPECIFICATIONS:

The intent of this criteria is to insure a standardized uniform style throughout the center while encouraging the creativity of typographical and iconic elements to develop interest and style. Signs must be architecturally compatible with the entire center.

In order to allow creativity and artistic designs, ascending and descending shapes will be allowed to extend beyond the envelope limits provided that the overall allocated square footage is not exceeded. In other words, these areas shall be calculated individually and added to the “boxed” area for the main sign body. (See diagram below)



Descender: (The part of the lowercase letters, such as g, p, and y, which extends below the other lowercase letters)

Irregular shaped icons & logos should be considered in sign design for increased visual impact.



JONES SIGN Your Vision. Accomplished. WWW.JONESSIGN.COM	JOB #: 284580_R26 DATE: 03.20.2023 DESIGNER: J. CASTILLO SALES REP: J. HADAYA PROJ MGR:	CLIENT APPROVAL DATE LANDLORD APPROVAL DATE

REV.	DATE	BY	DESCRIPTION
21	04.02.24	JC	REVISED SIGN 'M' DESIGN LAYOUT
22	04.05.24	JC	ADDED NEW SITE PLAN, GAS & DIESEL CANOPY ELEVATIONS; REVISED SIGN 'M' DESIGN LAYOUT
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25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER 3.0

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E PROHIBITED SIGNS:

1. Signs constituting a Traffic Hazard:
No person shall install or maintain, or cause to be installed or maintained, any sign which simulates or imitates in size, color, lettering or design any traffic sign or signal, or which makes use of the words "STOP", "LOOK", "DANGER" or any words, phrases, symbols, or characters in such a manner as to interfere with, mislead or confuse traffic.

2. Signs in Proximity to Utility Lines:
Signs which have less horizontal or vertical clearance from authorized communication or energized electrical power lines that are prescribed by the laws of the State of California are prohibited.

3. Signs painted directly on a building surface will not be permitted.

4. Wall signs may not project above the top of a parapet, the roof line at the wall, or roof line.

5. There shall be no signs that are flashing, moving or audible.

6. No sign shall project above or below the sign-able area. The sign-able area is defined in the attached exhibit for tenants.

7. Vehicle Signs:
Signs on or affixed to trucks, automobiles, trailers, or other vehicles which are use for advertising, identity, or provide direction to a specific use or activity not related to its lawful activity are prohibited.(i.e. Delivery trucks with tenant signage is OK!)

8. Light Bulb Strings:
External displays, other than temporary decorative holiday lighting which consists of unshielded light bulbs are prohibited. An exception may be granted by the Landlord when the display is an integral part of the design character of the activity to which it relates.

9. Banners, Pennants & Balloons Used for Advertising Purposes:
Temporary flags, banners, or pennants, or a combination of same constituting an architectural feature which is an integral part of the design character of a project may be permitted subject to Municipal Code requirements, Landlord's, and City approval.

10. Billboard Signs are not permitted.

11. The use of permanent “sale” signs are prohibited. The temporary use of these signs are limited to a thirty-day period and is restricted to signs affixed to the interior of windows which do not occupy more that 20% of the window area. Each business is permitted a total of not more than ninety (90) days of temporary window sale signs per calendar year.

12. No standard plex faced cabinet construction allowed.

F ABANDONMENT OF SIGNS:

Any tenant sign left after thirty (30) days from vacating premises shall become the property of Landlord.

G INSPECTION:

Landlord reserves the right to hire an independent electrical engineer at the Tenant's sole expense to inspect the installation of all Tenant's signs and to require the Tenant to have any discrepancies and/or code violations corrected at the Tenant's expense.

H MAINTENANCE:

It is the Tenant's responsibility to maintain their signs in proper working and clean conditions at all times . Otherwise, landlord reserves the right to hire his own contractor, make the necessary corrections, and bill tenant should it be deemed necessary.

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CLIENT APPROVAL DATE

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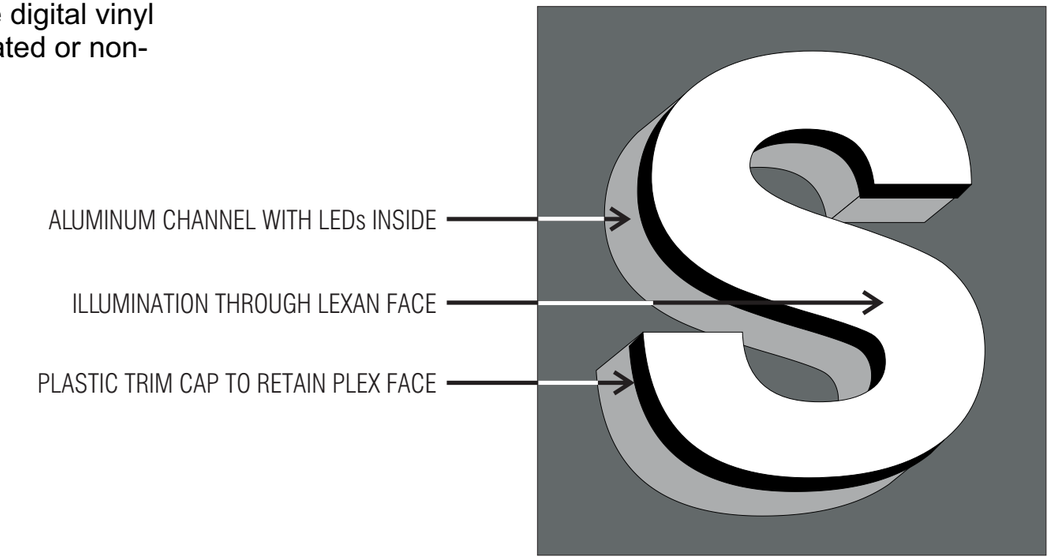
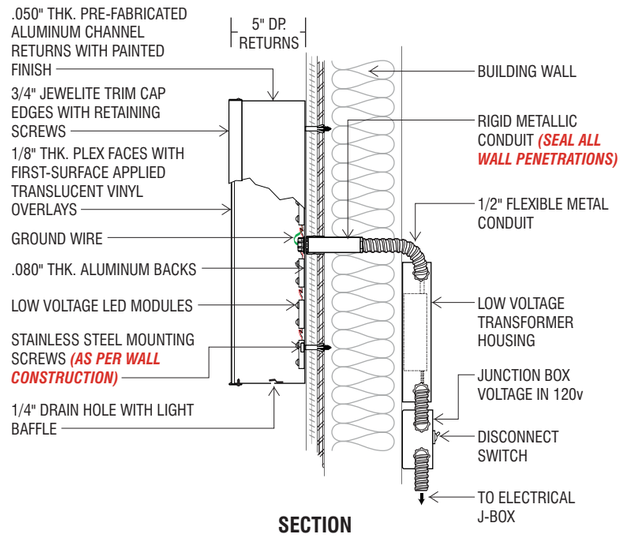
SIGN CONSTRUCTION

Illuminated PLEX-FACED CHANNELS
with THRU-FACE ILLUMINATION.
Use standard aluminum construction with Matthews (or equivalent) satin acrylic polyurethane finish.
Faces use any color of translucent Lexan with any color of trim cap.
Illuminate with any color of LEDs.
Paint aluminum channel any color.

NOTE: All signs may utilize digital vinyl printing on faces of illuminated or non-illuminated surfaces.



EXAMPLE OF LEXAN FACED CHANNEL



SECTION

SIGN TO BE UL APPROVED AND BEAR UL LABEL

PLEX FACED CHANNEL LETTERS WITH LED ILLUMINATION

NOTE:
THIS SIGN IS INTENDED TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 600 OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER APPLICABLE LOCAL CODES. THIS INCLUDES PROPER GROUNDING AND BONDING OF THE SIGN.

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PROJ MGR:

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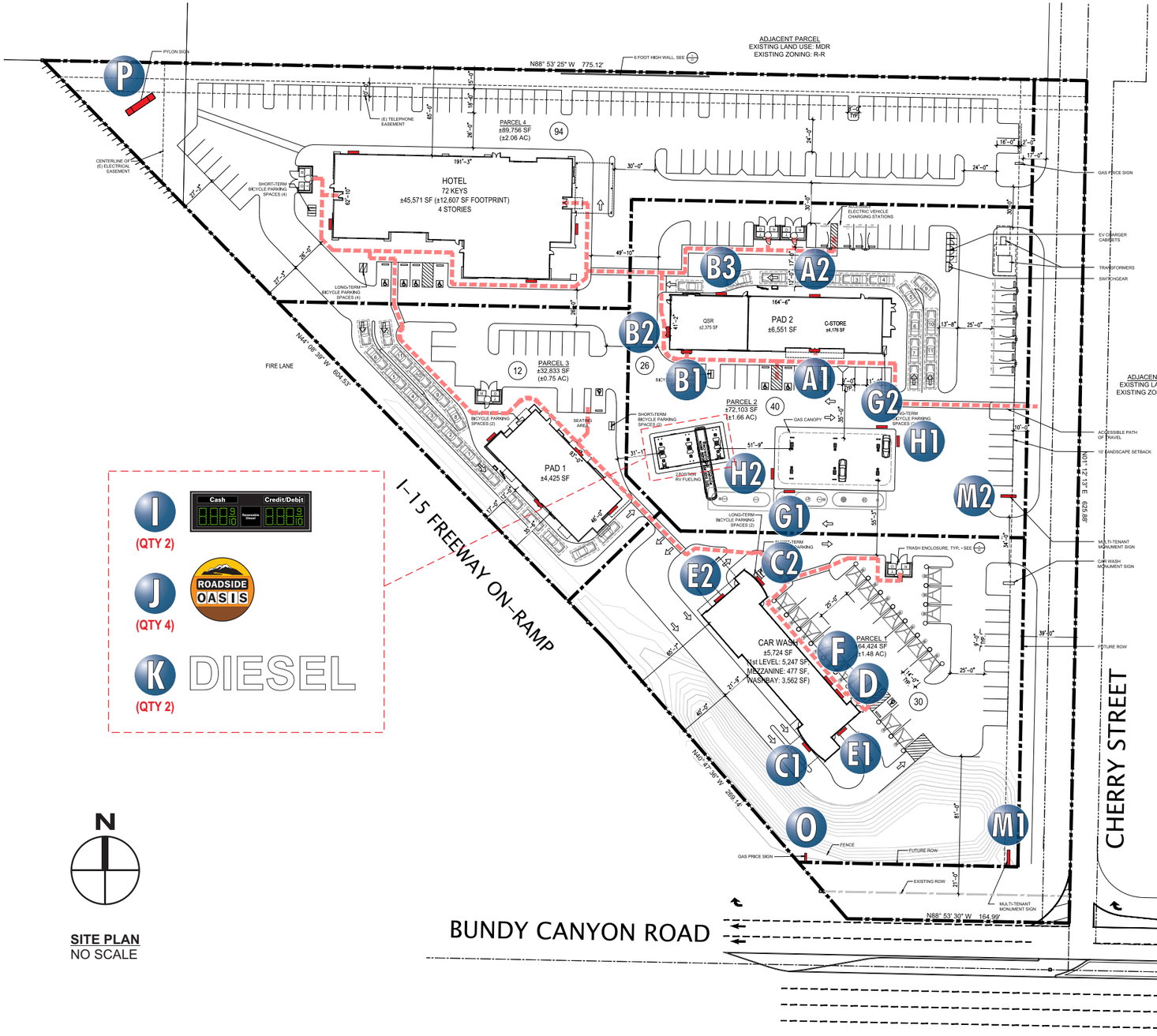


SITE PLAN
NO SCALE

(I) (QTY 2)

(J) (QTY 4)

(K) (QTY 2) DIESEL

(A) (QTY 2)



(B) (QTY 3)



(C) (QTY 2) (D) (QTY 1) (E) (QTY 2)



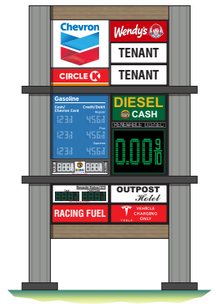
(F) CAR WASH

(G) (QTY 2) Chevron

(H) (QTY 2)



(M) QTY 2



(O)



(P)



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MAXIMUM 70%
OF ADJACENT SURFACE

70% OF ADJACENT
SURFACE OR 4'-0" MAX
(WHICHEVER IS LESS)

PAD TENANT

SIZE: 1.0 SQUARE FOOT OF SIGN AREA PER LINEAR FOOT OF LEASED PREMISES.
MAXIMUM OF 150 SQUARE FEET TOTAL PER ELEVATION.
• FRONT ELEVATION: SIGN SHALL NOT EXCEED 10% OF THE SURFACE AREA
• SIDE ELEVATIONS: SIGNS SHALL NOT EXCEED 10% OF THE SURFACE AREA
• REAR ELEVATION: SIGN SHALL NOT EXCEED 5% OF THE SURFACE AREA
MATERIALS: VARIETY OF TYPES PER SIGN CRITERIA, SINGLE TYPE OF CONSTRUCTION ALLOWED.
ILLUMINATION: YES
COPY: TENANT NAME AND / OR LOGO
HEIGHT: 4'-0" MAX OR SEVENTY PERCENT OF ADJACENT SURFACE *(WHICHEVER IS LESS)*
LENGTH: SEVENTY PERCENT OF ADJACENT SURFACE
TYPEFACE: CUSTOM LOGO AND TYPE OK
COLORS: CUSTOM COLORS OK
SECONDARY SIGNS: NO



RETAIL TENANT - NORTHEAST ELEVATION - FRONT
SCALE: 1/8" = 1'-0"

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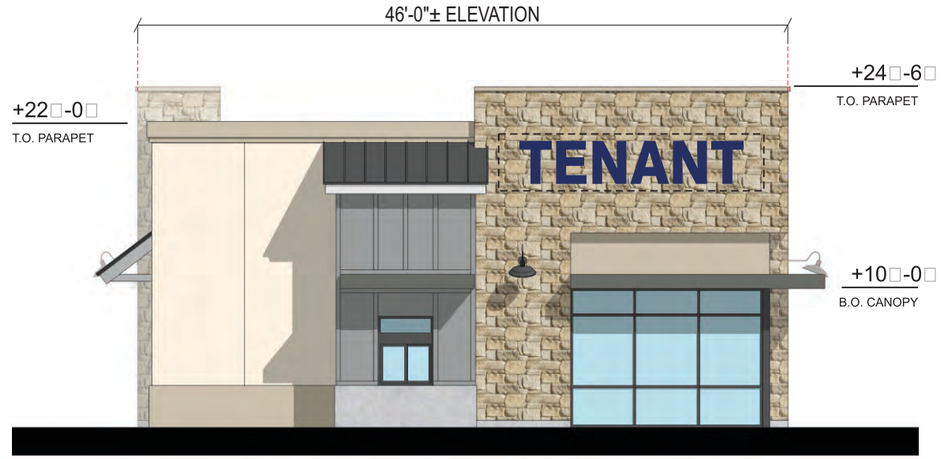
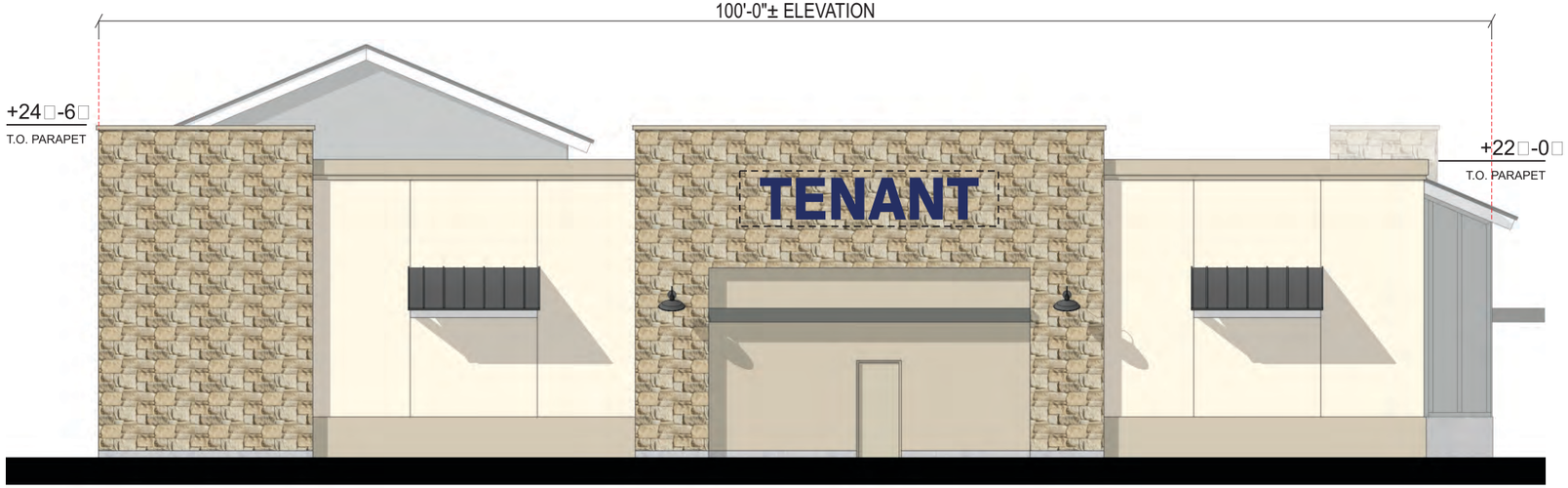
RETAIL TENANT - NORTHWEST ELEVATION
SCALE: 3/32" = 1'-0"



RETAIL TENANT - SOUTHEAST ELEVATION
SCALE: 3/32" = 1'-0"



RETAIL TENANT - SOUTHWEST ELEVATION
SCALE: 3/32" = 1'-0"

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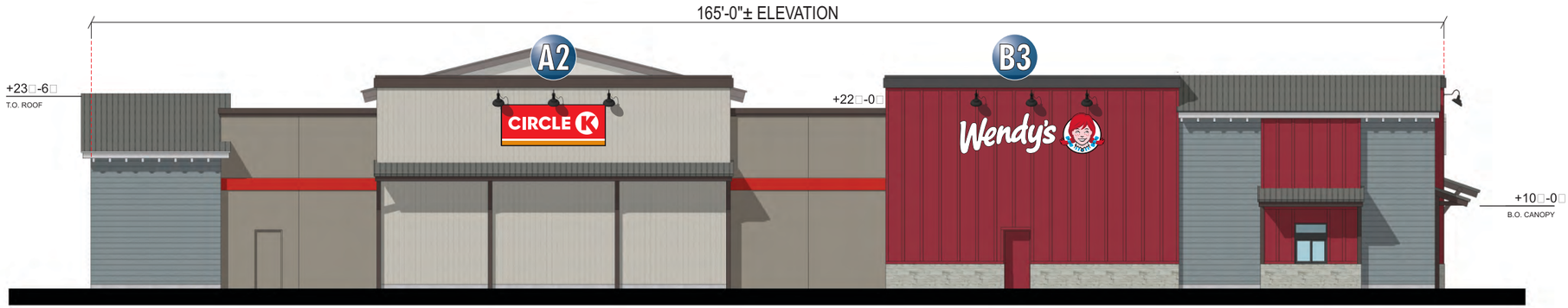
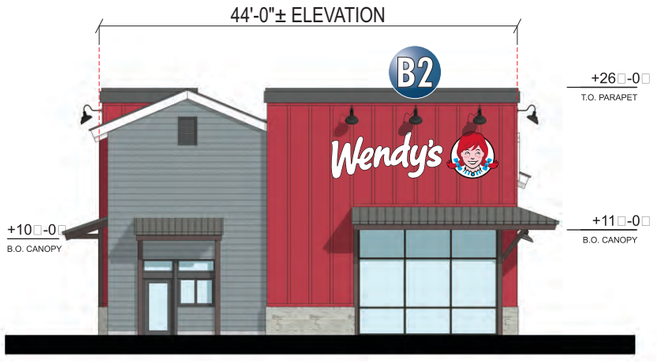
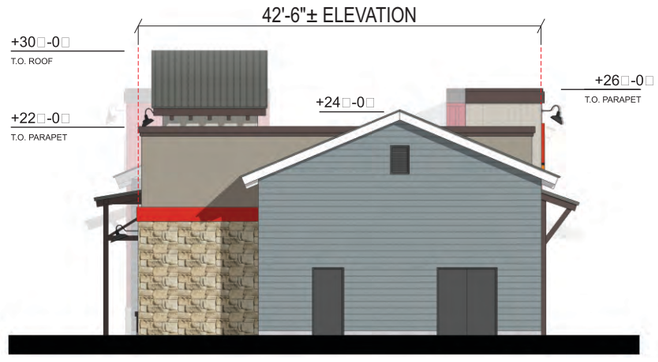
CONVENIENCE STORE / FAST FOOD - SOUTH ELEVATION
SCALE: 1/16" = 1'-0"



CONVENIENCE STORE / FAST FOOD - NORTH ELEVATION
SCALE: 1/16" = 1'-0"



CONVENIENCE STORE / FAST FOOD - WEST ELEVATION
SCALE: 1/16" = 1'-0"



CONVENIENCE STORE / FAST FOOD - EAST ELEVATION
SCALE: 1/16" = 1'-0"

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CHERRY OUTPOST

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2463

A S/F INTERNALLY-ILLUMINATED CABINET SIGN DISPLAY (Qty 2)

SQUARE FOOTAGE: 63.49

FIELD SURVEY REQUIRED



SIDE VIEW **FRONT VIEW** **SIDE VIEW**

MATERIAL INFORMATION

ITEM	DESCRIPTION
1	.177" x 66" x 158 3/8" CLEAR MODIFIED ACRYLIC
2	3M VINYL
3	ALUMINUM

DECORATION INFORMATION

ITEM	DESCRIPTION	
A	WHITE PLASTIC WET PAINT	
B	3M VINYL 3630-33 RED	PMS 485
C	3M VINYL 3630-3540 TANGERINE	PMS 144

DECORATION APPLICATIONS

ITEM	DESCRIPTION	
A	SECOND SURFACE BACK SPRAY	
B	SECOND SURFACE VINYL	PMS 485
C	SECOND SURFACE VINYL	PMS 144

GENERAL NOTES

1.TOLERANCE (UNLESS NOTED)
- GRAPHICS +/-1/8" • FACE SIZE + 1/16"-¼"
- CABINET +/- 1/8" • VINYL OVERLAP + 1/8"+/ 1/16"
- ALL COPY LEVEL UNLESS NOTED OTHERWISE

2. VIEWING DISTANCE 25' TO 50' UNLESS NOTED OTHERWISE
3. PMS COLOR CALLOUT INDICATES USE OF SPRAYLAT MIX SYSTEM
4. NO DEVIATION OR MATERIAL SUBSTITUTION WITHOUT ECN.
5. ALL ELECTRICAL SIGNS TO COMPLY WITH UL 48



SIMULATED NIGHT VIEW

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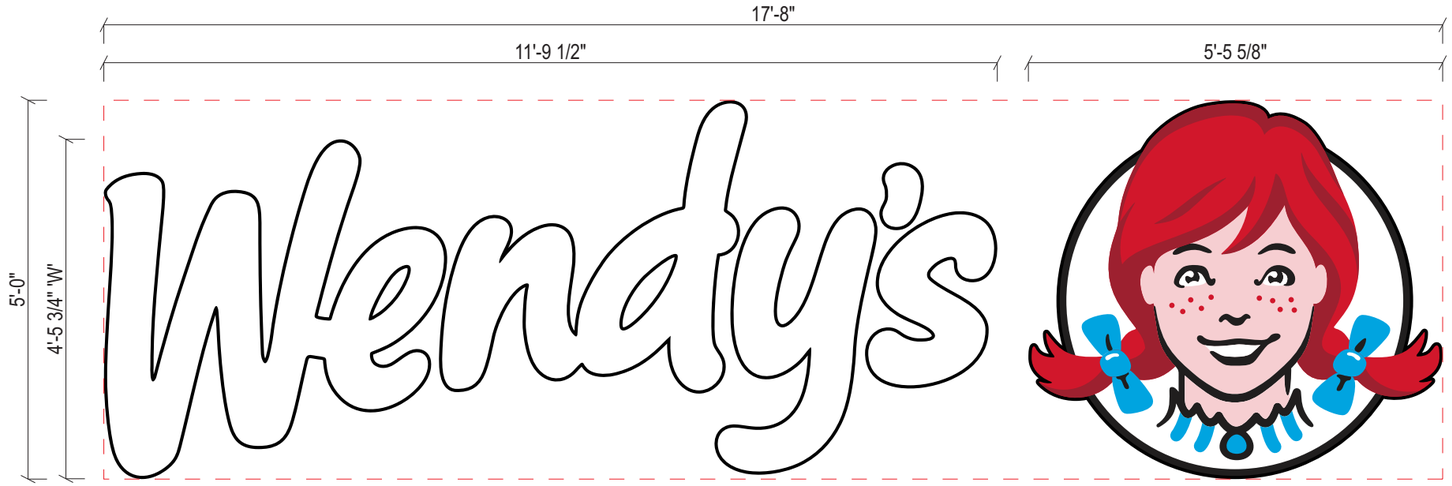
B NEW INTERNALLY-ILLUMINATED PLEX FACE CHANNEL LOGO & LETTER DISPLAY (Qty 3)

SQUARE FOOTAGE: 88.35

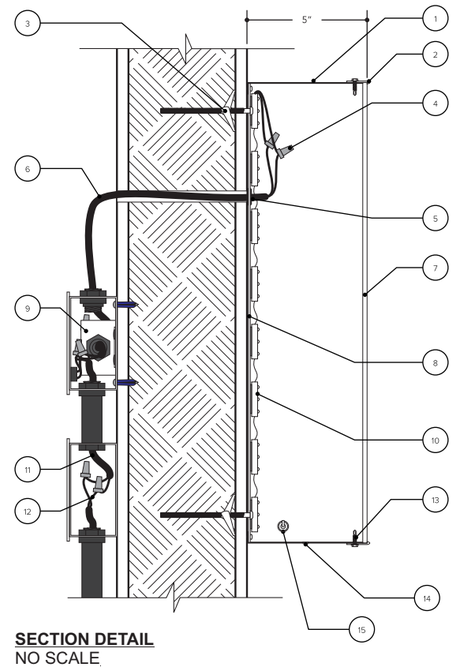
FIELD SURVEY REQUIRED



FRONT VIEW
SCALE: 1/2" = 1'-0"



END VIEW
SCALE: 1/2" = 1'-0"



SECTION DETAIL
NO SCALE

SPECIFICATIONS

5" DEEP LED ILLUMINATED ALUMINUM CHANNEL LETTERS. LETTERS WILL HAVE 3/16" THICK WHITE TRANSLUCENT ACRYLIC FACES W/ BLACK TRIM W/ SATIN BLACK PAINTED RETURNS. THE COLOR LOGO WILL BE A FULL COLOR DIGITAL PRINT ON HP TRANSLUCENT WHITE VINYL MOUNTED ONTO THE FACE OF THE ACRYLIC.

FAB/INSTALLATION DETAILS:

1. 5" DEEP, .060" THICK ALUMINUM RETURNS.
2. TRIM CAP.
3. 1/4-20x 4" SCREWS AND TOGGLES. (MIN. FOUR (4) PER LETTER.
4. WIRE NUT CONNECTION FROM SECONDARY FEED TO LEDS. (CLASS 2 LOW VOLTAGE).
5. RUBBER GROMMET.
6. SECONDARY FEED (CLASS 2 LOW VOLTAGE) FROM POWER SUPPLY TO LETTER.
7. 3/16" THICK TRANSLUCENT ACRYLIC FACE.
8. .063" THICK WHITE ENAMEL COATED ALUMINUM BACKER.
9. 12V POWER SUPPLY WITH ALUMINUM SERVICE BOX.
10. CLASS 2 LED LIGHTING.
11. PRIMARY TO POWER SUPPLY.
12. TO DEDICATED CIRCUIT, AC 100-240V 50/60HZ.
13. #8 X1/2" SCREWS (MIN. FOUR (4) PER CHARACTER).
14. DRAIN HOLES (MIN ONE (1) PER LOWEST POINT(S) PER CHARACTER).
15. DISCONNECT SWITCH. COMPLIES W/ ARTICLE 600.6 CALIFORNIA ELECTRICAL CODE.

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JOB #: **284580_R26**
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

REV.	DATE	BY	DESCRIPTION
21	04.02.24	JC	REVISED SIGN 'M' DESIGN LAYOUT
22	04.05.24	JC	ADDED NEW SITE PLAN, GAS & DIESEL CANOPY ELEVATIONS; REVISED SIGN 'M' DESIGN LAYOUT
23	04.08.24	JC	REVISED SIGN 'M' & 'P' DESIGN LAYOUTS
24	04.09.24	JC	REVISED SIGN 'M' LAYOUT
25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
11.0

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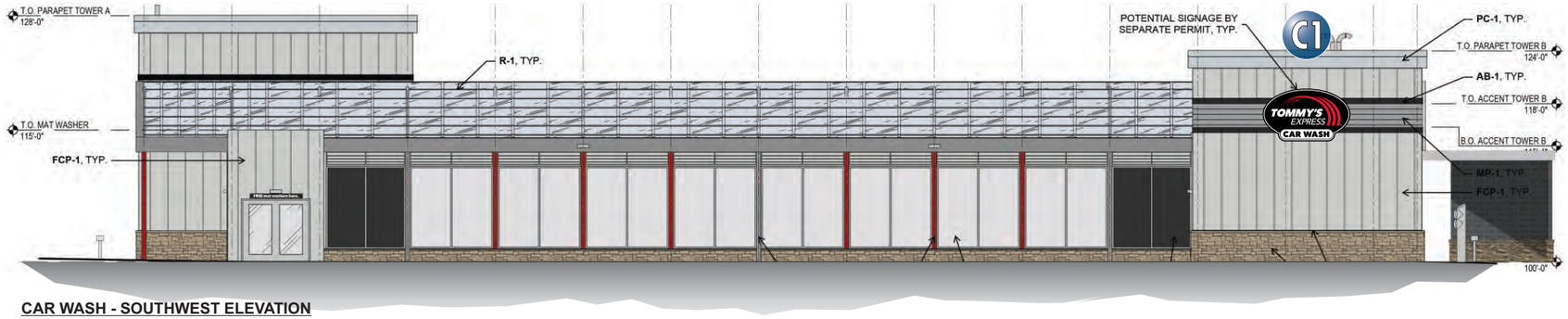
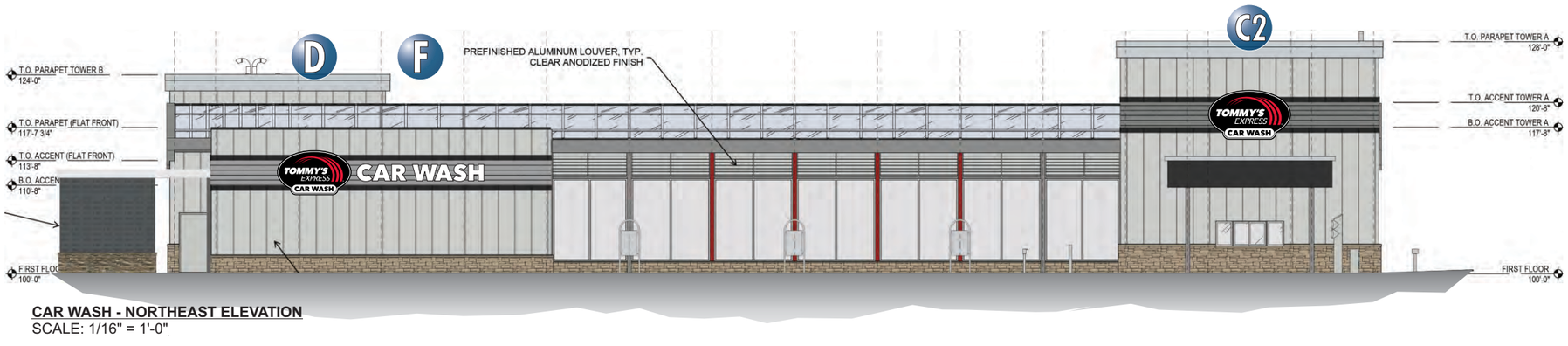


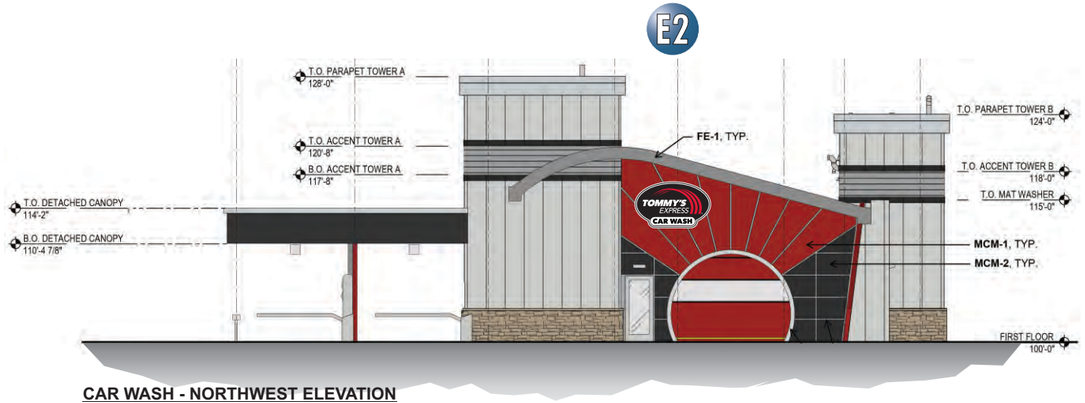
CAR WASH - SOUTHWEST ELEVATION
SCALE: 1/16" = 1'-0"



CAR WASH - NORTHEAST ELEVATION
SCALE: 1/16" = 1'-0"



CAR WASH - SOUTHEAST ELEVATION
SCALE: 1/16" = 1'-0"



CAR WASH - NORTHWEST ELEVATION
SCALE: 1/16" = 1'-0"

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DATE: 03.20.2023
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SALES REP: J. HADAYA
PROJ MGR:

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26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY
CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
12.0

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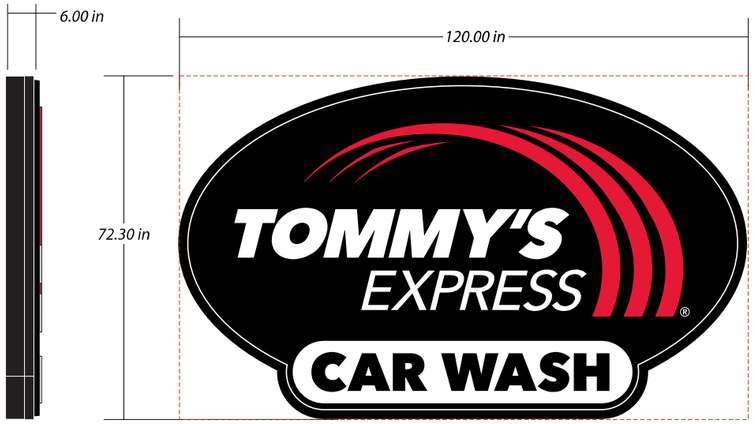
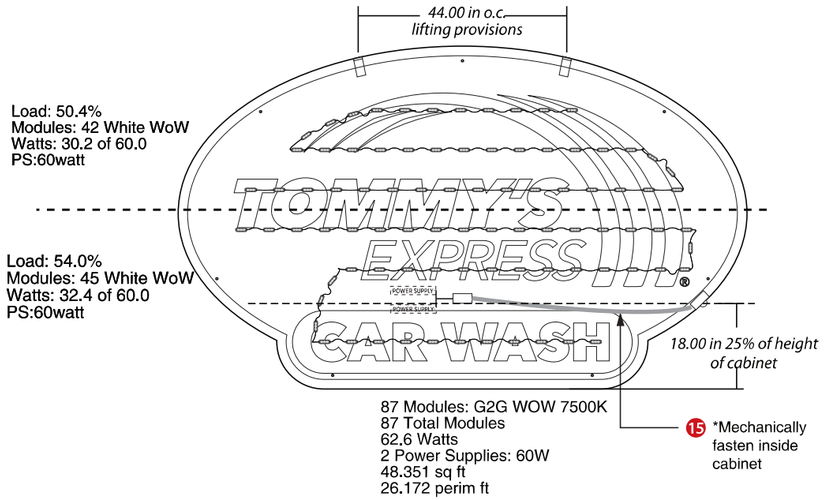
C NEW S/F INTERNALLY-ILLUMINATED CABINET SIGN DISPLAY (Qty 2)

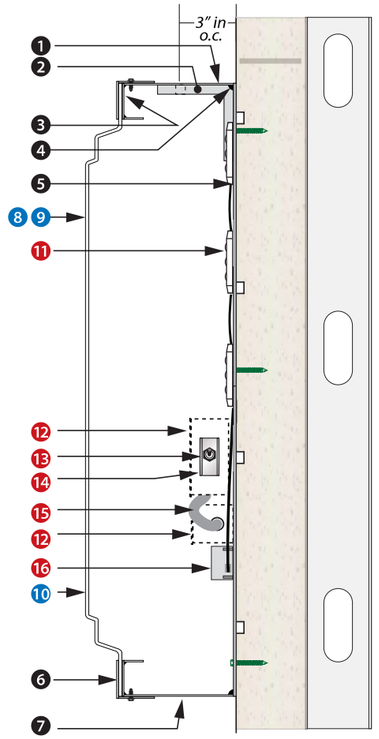
SQUARE FOOTAGE: 60.25

FIELD SURVEY REQUIRED



FRONT VIEW
SCALE: 3/8" = 1'-0"



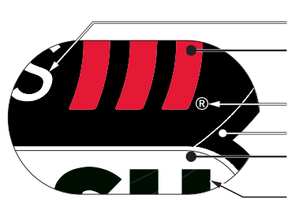


Side View (not to scale)

CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	4"x 4"x .50"x 1.875" ALUM. ANGLE
	.625"-11 TAP, WELD TO BACK, 44"O.C.
3	2" - .100" ROUTED ALUM. FLANGE
4	WELDED CONSTRUCTION
5	.100" ALUM. BACK / SUPPORTS-GUSSETS
6	.100" - 2" X 2" RETAINER
7	WEEP HOLES
	CABINET /RETAINER PAINT COLORS
	MAP BLACK (GLOSS)

ITEM	FACE
8	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
9	SUBSURFACE PAINT
10	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
11	LED: G2G WHITE WOW
12	ELECT. BOX (PART #EL-BOX-4SSLEK) 2X REQ.
13	20A TOGGLE SWITCH (EL-SW-SW20)
14	LOCKING PLATE (EL-SW-LOCKING PLATE)
15	MC CABLE* (EL-COND-AL-.375FLX)
16	POWER SUPPLY: 2X 60W (1.12 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL



Face Details

.50" emboss, back paint Grip Flex White

.50" emboss, back paint Grip Flex to match PMS 186

Not embossed, paint Grip Flex White

2.5" Flange, 71.80" x 119.50" trim, 68.30" x 116" v.o.

.50" emboss (oval only), back paint Grip Flex White

Back paint Grip Flex Black (Not Embossed)

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JOB #: 284580_R26
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

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26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
13.0

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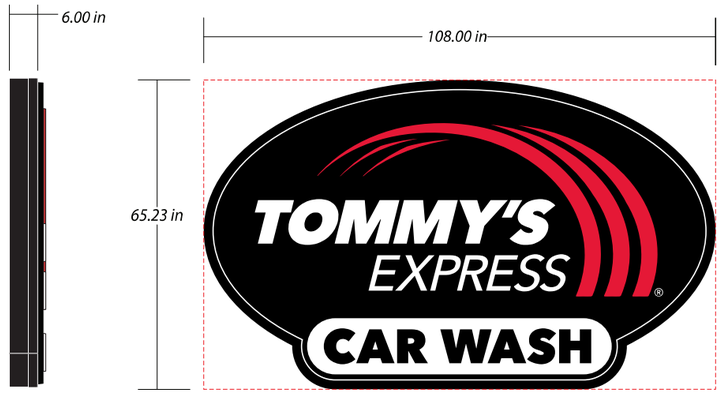
2467

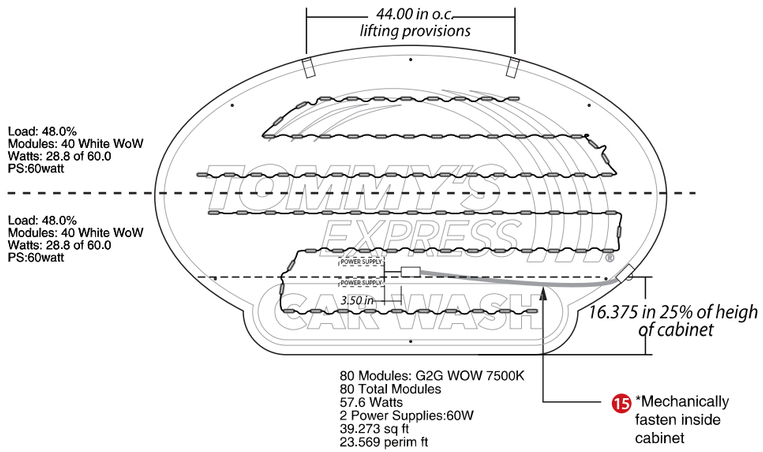
D NEW S/F INTERNALLY-ILLUMINATED CABINET SIGN DISPLAY (Qty 1)

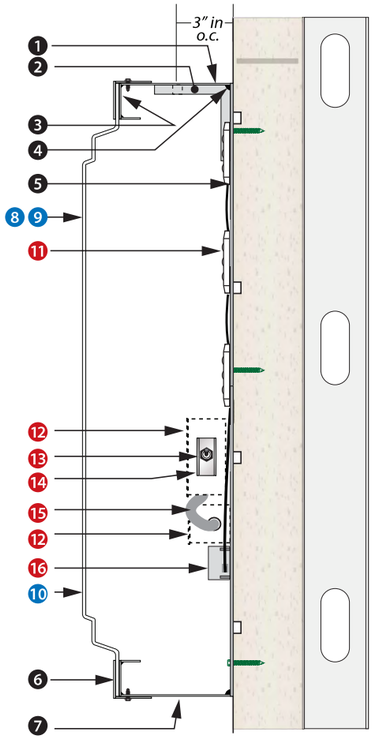
SQUARE FOOTAGE: 48.92

FIELD SURVEY REQUIRED



FRONT VIEW
SCALE: 3/8" = 1'-0"



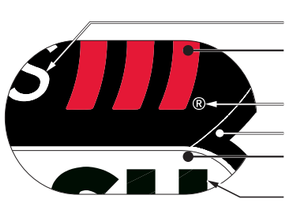


Side View (not to scale)

CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	4"x 4"x .50"x 1.875" ALUM. ANGLE
	.625"-11 TAP, WELD TO BACK, 44"O.C.
3	2" - .100" ROUTED ALUM. FLANGE
4	WELDED CONSTRUCTION
5	.100" ALUM. BACK / SUPPORTS-GUSSETS
6	.100" - 2" X 2" RETAINER
7	WEEP HOLES
	CABINET /RETAINER PAINT COLORS
	MAP BLACK (GLOSS)

ITEM	FACE
8	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
9	SUBSURFACE PAINT
10	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
11	LED: G2G WHITE WOW
12	ELECT. BOX (PART #EL-BOX-4SSLEK) 2X REQ.
13	20A TOGGLE SWITCH (EL-SW-SW20)
14	LOCKING PLATE (EL-SW-LOCKING PLATE)
15	MC CABLE* (EL-COND-AL-.375FLX)
16	POWER SUPPLY: 2X 60W (1.12 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL



.50" emboss, back paint Grip Flex White
.50" emboss, back paint Grip Flex to match PMS 186
Not embossed, paint Grip Flex White
2.5" Flange, 71.80" x 119.50" trim, 68.30" x 116" v.o.
.50" emboss (oval only), back paint Grip Flex White
Back paint Grip Flex Black (Not Embossed)

Face Details

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JOB #: **284580_R26**
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

REV.	DATE	BY	DESCRIPTION
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25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
14.0

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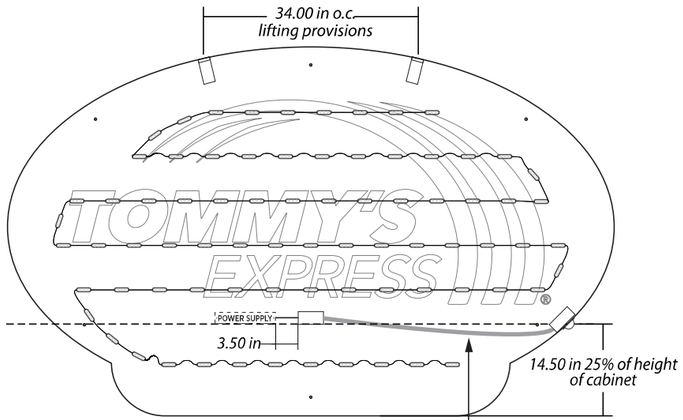
NEW S/F INTERNALLY-ILLUMINATED CABINET SIGN DISPLAY (Qty 2)

SQUARE FOOTAGE: 38.89

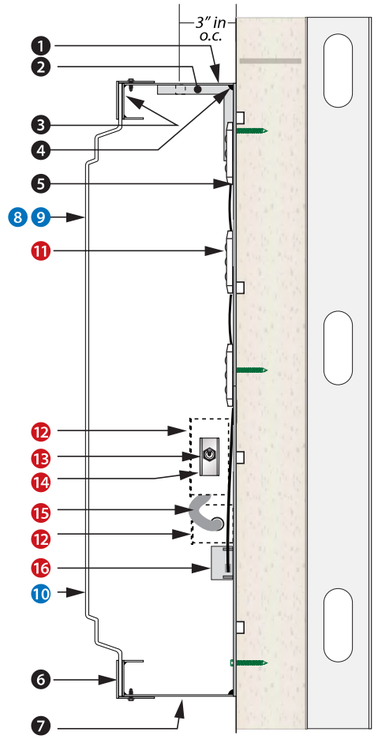
FIELD SURVEY REQUIRED



FRONT VIEW
SCALE: 3/8" = 1'-0"



Load: 92.4%
Modules: 77 White WoW
Watts: 55.4 of 60.0
PS:60watt
21 Perim. ft.

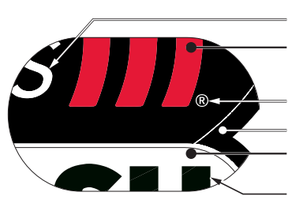


Side View (not to scale)

CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	4"x4"x.50"x1.875" ALUM. ANGLE
	.625"-11 TAP, WELD TO BACK, 44"O.C.
3	2" - .100" ROUTED ALUM. FLANGE
4	WELDED CONSTRUCTION
5	.100" ALUM. BACK / SUPPORTS-GUSSETS
6	.100" - 2" X 2" RETAINER
7	WEEP HOLES
	CABINET /RETAINER PAINT COLORS
	MAP BLACK (GLOSS)

ITEM	FACE
8	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
9	SUBSURFACE PAINT
10	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
11	LED: G2G WHITE WOW
12	ELECT. BOX (PART #EL-BOX-4SSLEK) 2X REQ.
13	20A TOGGLE SWITCH (EL-SW-SW20)
14	LOCKING PLATE (EL-SW-LOCKING PLATE)
15	MC CABLE* (EL-COND-AL-.375FLX)
16	POWER SUPPLY: 2X 60W (1.12 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL



Face Details

.50" emboss, back paint Grip Flex White
.50" emboss, back paint Grip Flex to match PMS 186
Not embossed, paint Grip Flex White
2.5" Flange, 71.80" x 119.50" trim, 68.30" x 116" v.o.
.50" emboss (oval only), back paint Grip Flex White
Back paint Grip Flex Black (Not Embossed)

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25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
15.0

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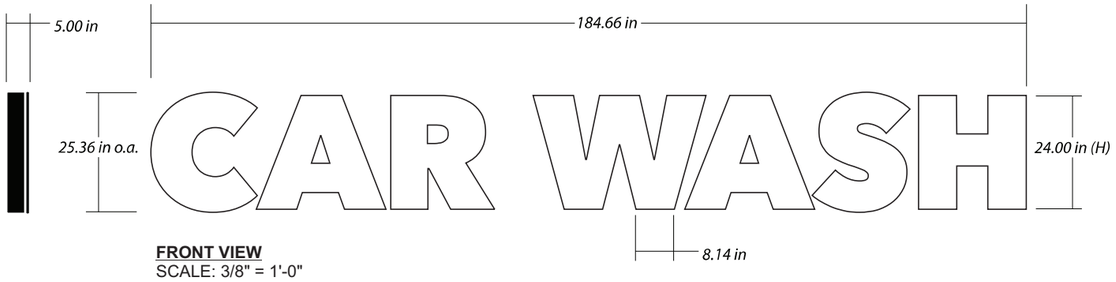
F NEW INTERNALLY-ILLUMINATED PLEX FACE CHANNEL LETTER DISPLAY (Qty 1)

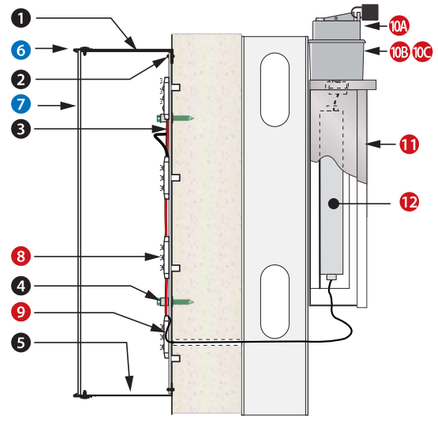
SQUARE FOOTAGE: 30.78

FIELD SURVEY REQUIRED



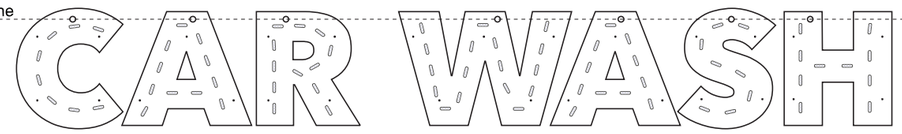
FRONT VIEW
SCALE: 3/8" = 1'-0"

C	A	R	W	A	S	H
8 mods	11 mods	12 mods	17 mods	11 mods	8 mods	10 mods
5.8 w	7.9 w	8.6 w	12.2 w	7.9 w	5.8 w	7.2 w
3.4 mod/ft²	4.1 mod/ft²	4.3 mod/ft²	4.2 mod/ft²	4.1 mod/ft²	3.4 mod/ft²	3.4 mod/ft²
2.346 sq ft	2.652 sq ft	2.811 sq ft	4.033 sq ft	2.652 sq ft	2.368 sq ft	2.945 sq ft
8.395 perim ft	8.997 perim ft	9.793 perim ft	14.435 perim ft	8.997 perim ft	9.121 perim ft	10.565 perim ft



JEWELITE CHANNEL LETTERS	
ITEM	CABINET STRUCTURE
1	5" - .040" PREPAINTED BLACK SIDEWALLS
2	STAPLED CONSTRUCTION
3	3mm ACM PANEL
4	.25-20 INSERT W/FASTENER
5	WEEP HOLES
ITEM	FACE / RETAINER
6	1" BLACK JEWELITE / BLACK JEWELITE SCREW
7	.125" WHITE PLEX FACE (7328)
ITEM	ELECTRICAL: 120V
8	G2G WHITE WOW LED (77)
9	SLEEVED LED CABLE
10A	LOCKING COVER (EL-COVER-PTC100GY)
10B	ELECTRICAL BOX (EL-BOX-IH3-ILM)
10C	120V/20A SWITCH (EL-SW-CS120-2)
11	POWER SUPPLY BOX
12	POWER SUPPLY: 1X 60W (.56 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL

Electrical exit plane



Load: 92.4%
Modules: 77 White G2G WOW
Watts: 55.4 of 60.0
PS:60watt
19.807 sq ft
70.303 perim ft

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JOB #: 284580_R26
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

REV.	DATE	BY	DESCRIPTION
21	04.02.24	JC	REVISED SIGN 'M' DESIGN LAYOUT
22	04.05.24	JC	ADDED NEW SITE PLAN, GAS & DIESEL CANOPY ELEVATIONS; REVISED SIGN 'M' DESIGN LAYOUT
23	04.08.24	JC	REVISED SIGN 'M' & 'P' DESIGN LAYOUTS
24	04.09.24	JC	REVISED SIGN 'M' LAYOUT
25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
16.0

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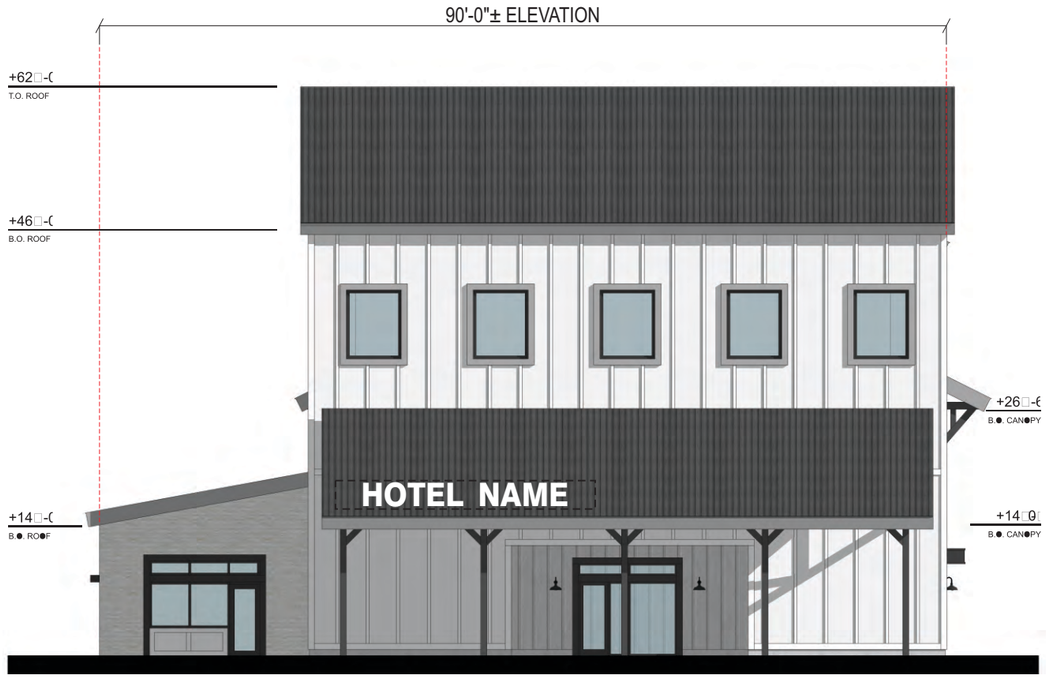
MAXIMUM 70%
OF ADJACENT SURFACE

70% OF ADJACENT
SURFACE OR 6'-0" MAX
(WHICHEVER IS LESS)

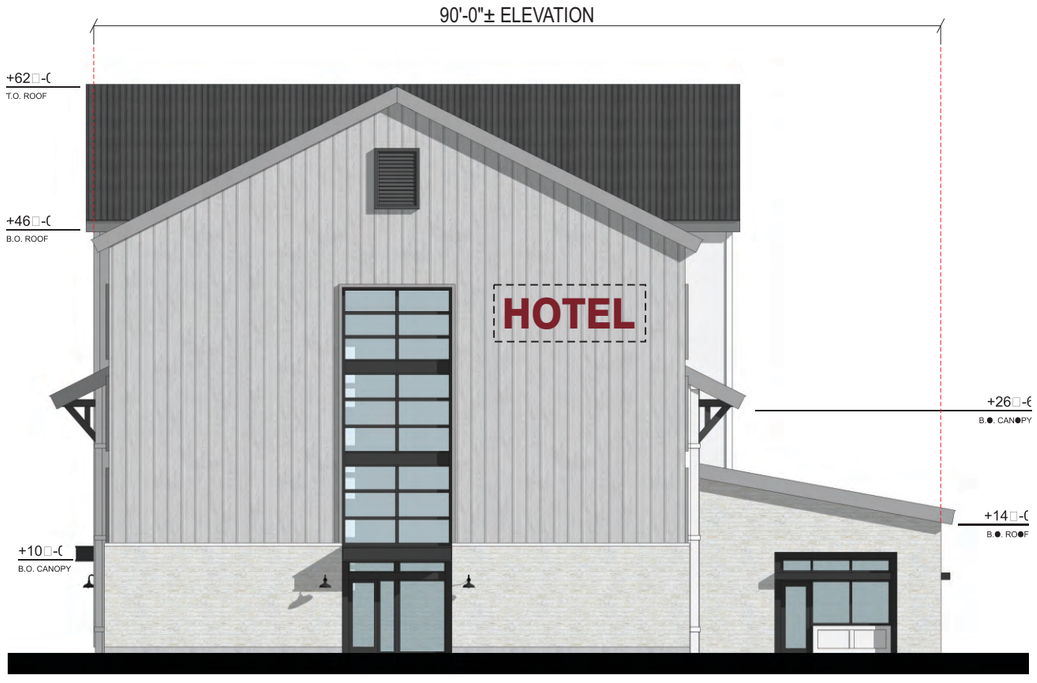
HOTEL NAME

SIZE: 1.0 SQUARE FOOT OF SIGN AREA PER LINEAR FOOT OF LEASED PREMISES.
MAXIMUM OF 350 SQUARE FEET TOTAL PER ELEVATION.
- FRONT ELEVATION: SIGN SHALL NOT EXCEED 10% OF THE SURFACE AREA
- SIDE ELEVATIONS: SIGNS SHALL NOT EXCEED 10% OF THE SURFACE AREA
- REAR ELEVATION: SIGN SHALL NOT EXCEED 5% OF THE SURFACE AREA

MATERIALS: VARIETY OF TYPES PER SIGN CRITERIA, SINGLE TYPE OF CONSTRUCTION ALLOWED.
ILLUMINATION: YES
COPY: TENANT NAME AND / OR LOGO
HEIGHT: SEVENTY PERCENT OF ADJACENT SURFACE
LENGTH: SEVENTY PERCENT OF ADJACENT SURFACE
TYPEFACE: CUSTOM LOGO AND TYPE OK
COLORS: CUSTOM COLORS OK
SECONDARY SIGNS: NO



HOTEL - EAST ELEVATION
SCALE: 1/16" = 1'-0"



HOTEL - WEST ELEVATION
SCALE: 1/16" = 1'-0"

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HOTEL - SOUTH ELEVATION
SCALE: 1/16" = 1'-0"

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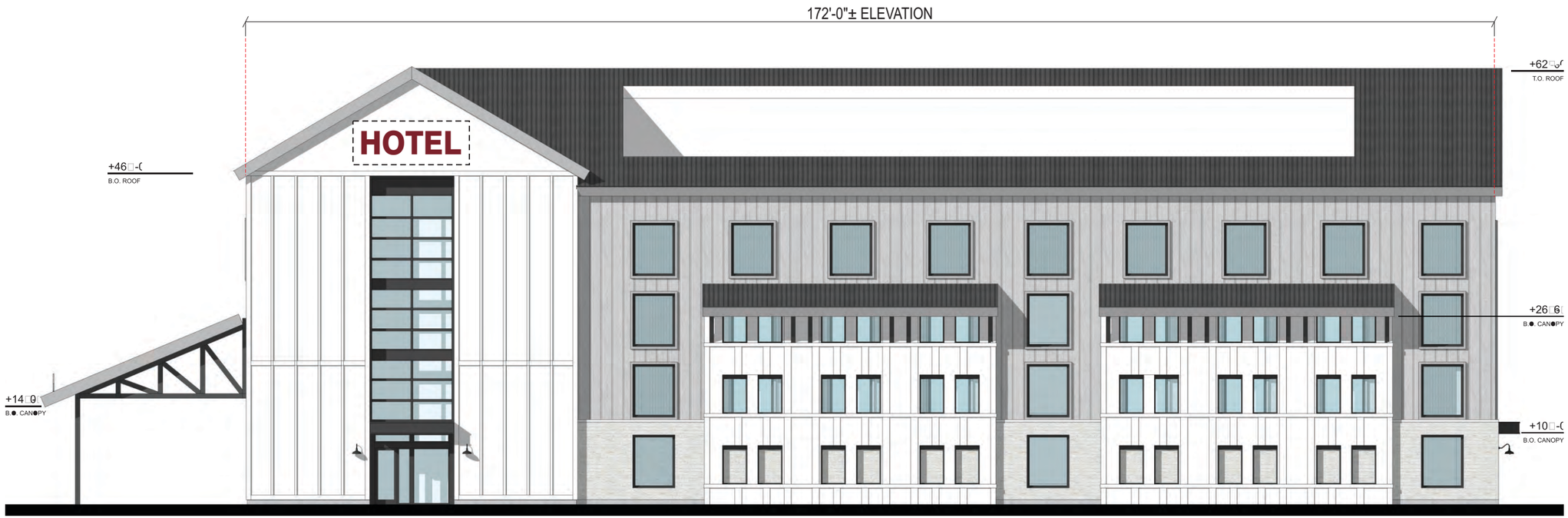
2472



HOTEL - NORTH ELEVATION
SCALE: 1/16" = 1'-0"

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CANYON ROAD
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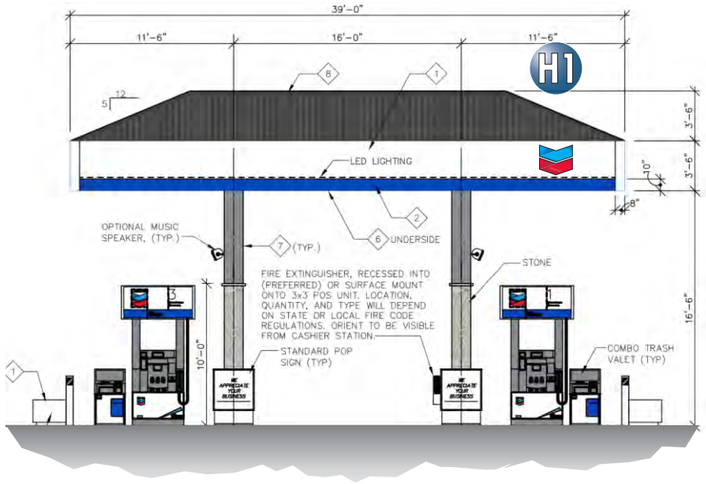
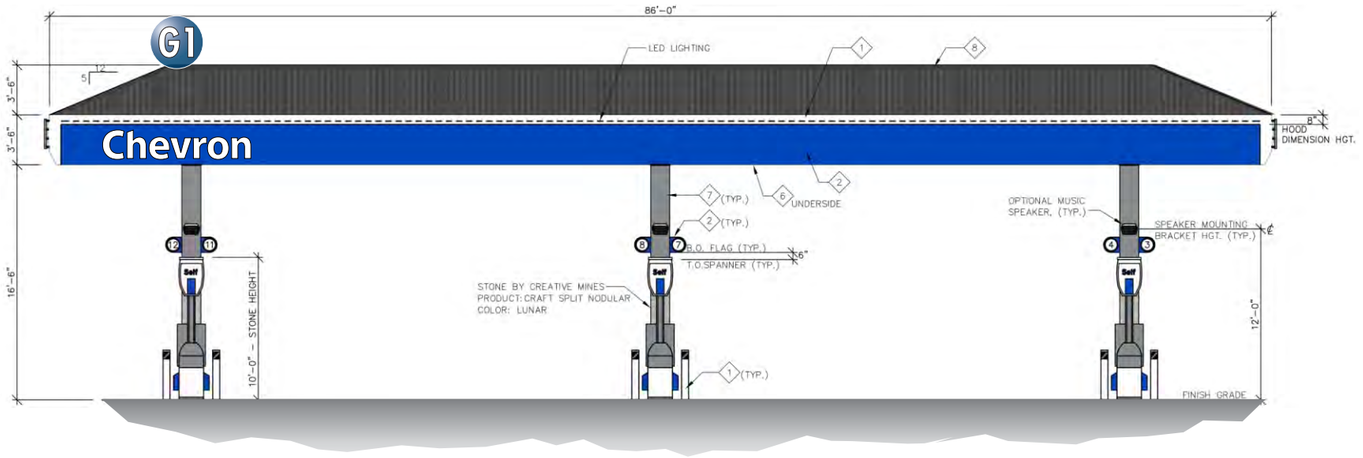
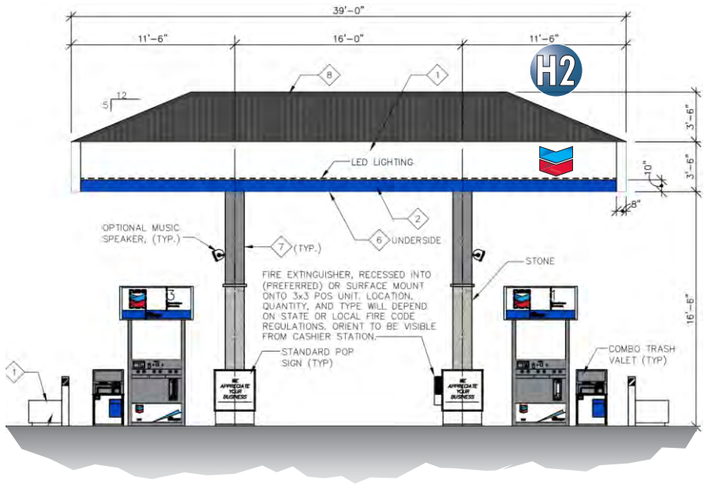
GAS CANOPY ELEVATIONS



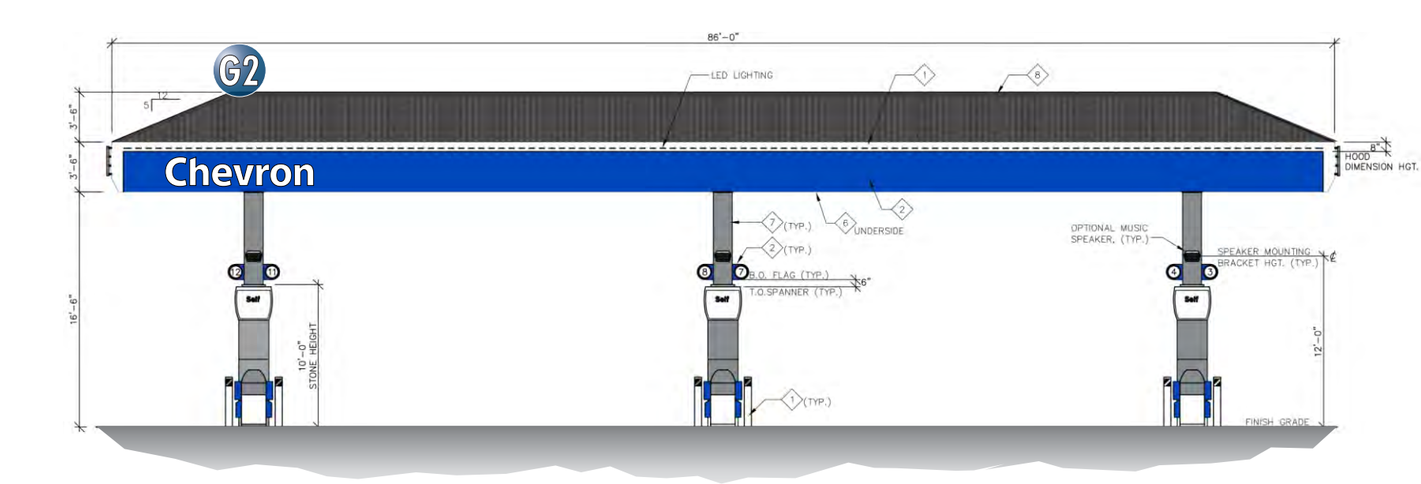
GAS CANOPY - FACING CHERRY STREET
SCALE: 3/32" = 1'-0"



GAS CANOPY - FACING BUNDY CANYON ROAD
SCALE: 3/32" = 1'-0"



GAS CANOPY - FACING INTERSTATE 15
SCALE: 3/32" = 1'-0"



GAS CANOPY - FACING C-STORE
SCALE: 3/32" = 1'-0"

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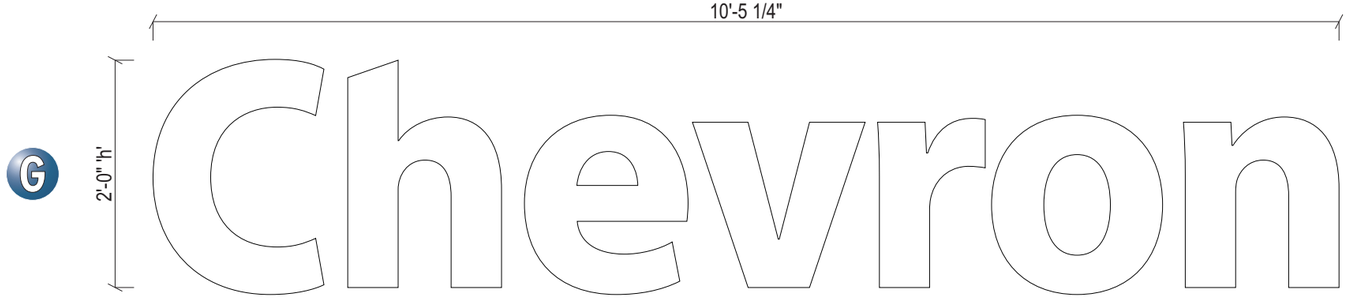
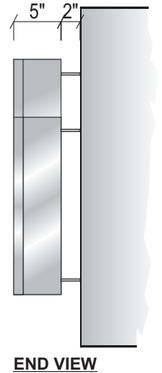
INTERNALLY-ILLUMINATED PLEX FACE CHANNELS (Qty 2 of EA)

SQUARE FOOTAGE: G 20.87, H 4.83

FIELD SURVEY REQUIRED



FRONT VIEW
SCALE: 3/4" = 1'-0"



END VIEW
SCALE: 3/4" = 1'-0"

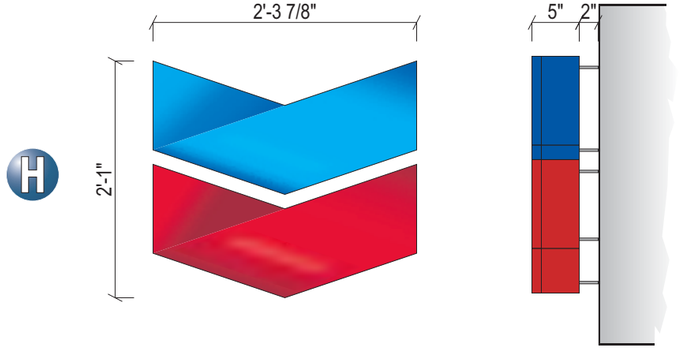
COLORS/FINISHES

P-1 METALLIC SILVER

SPECIFICATIONS

1. USE STANDARD ALUMINUM CONSTRUCTION w/ MATTHEWS SATIN ACRYLIC POLYURETHANE FINISH
2. #7328 WHITE PLEX FACES
3. PAINT RETURNS P-1 w/ 3/4" SILVER TRIMCAP
4. INTERNALLY-ILLUMINATED w/ WHITE LEDS
5. PEG-OFF 2" FROM CANOPY FACE

NOTES
- VERIFY EXACT POWER SUPPLY LOCATION PRIOR TO INSTALLATION



FRONT VIEW
SCALE: 3/4" = 1'-0"

END VIEW
SCALE: 3/4" = 1'-0"

SPECIFICATIONS

1. USE STANDARD ALUMINUM CONSTRUCTION w/ MATTHEWS SATIN ACRYLIC POLYURETHANE FINISH
2. #7328 WHITE PLEX FACES w/ APPLIED VINYL OVERLAYS V-1,V-2
3. PAINT RETURNS P-1,P-2 w/ 3/4" TRIMCAP PAINTED P-1,P-2
4. INTERNALLY-ILLUMINATED w/ WHITE LEDS
5. PEG-OFF 2" FROM CANOPY FACE

NOTES
- VERIFY EXACT POWER SUPPLY LOCATION PRIOR TO INSTALLATION

COLORS/FINISHES

P-1 VERIFY COLOR
P-2 VERIFY COLOR
V-1 DIGITAL PRINT VINYL
V-2 DIGITAL PRINT VINYL

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30			

CLIENT APPROVAL DATE

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CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
21.0

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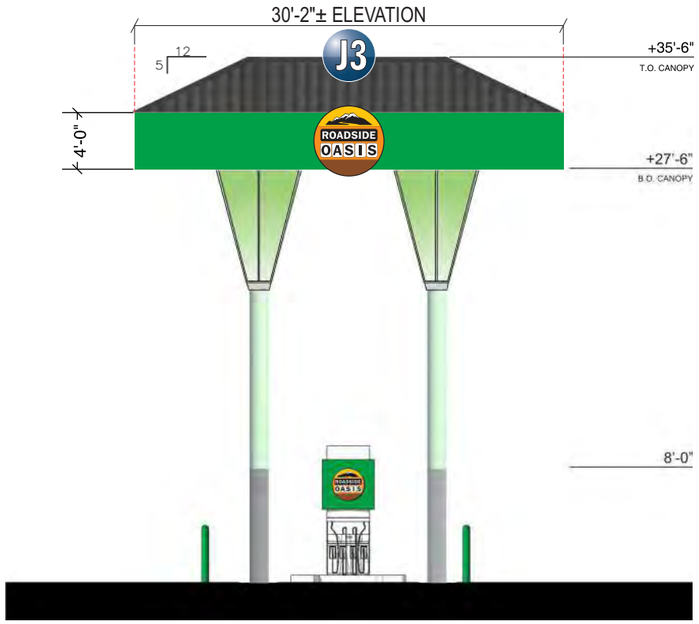
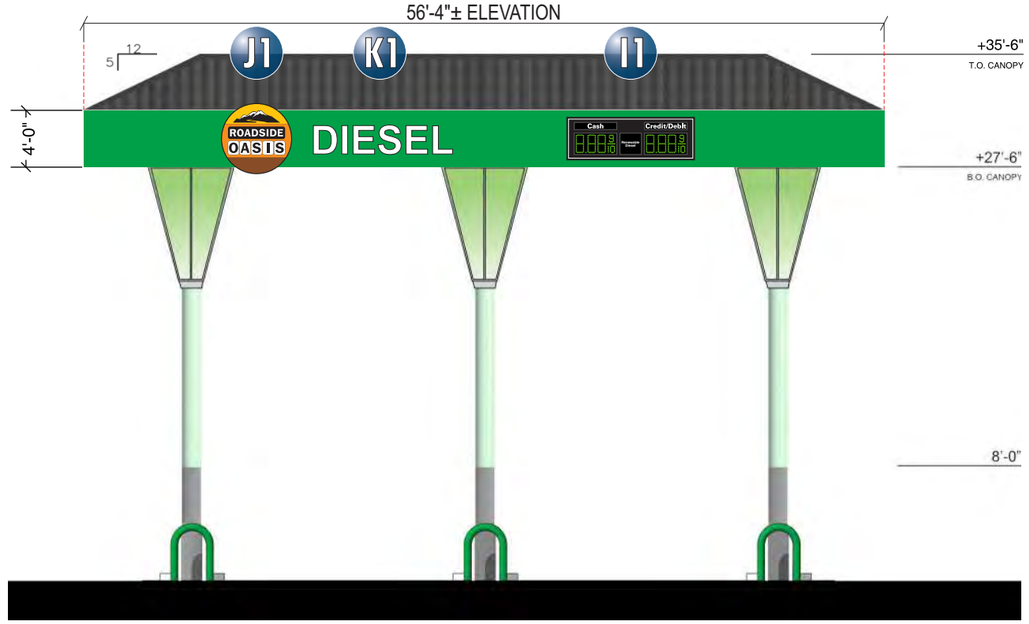
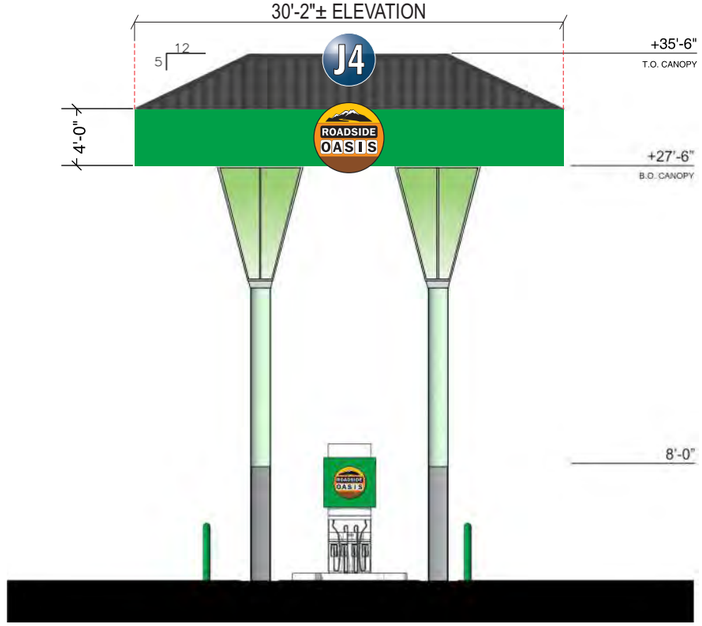
DIESEL CANOPY ELEVATIONS



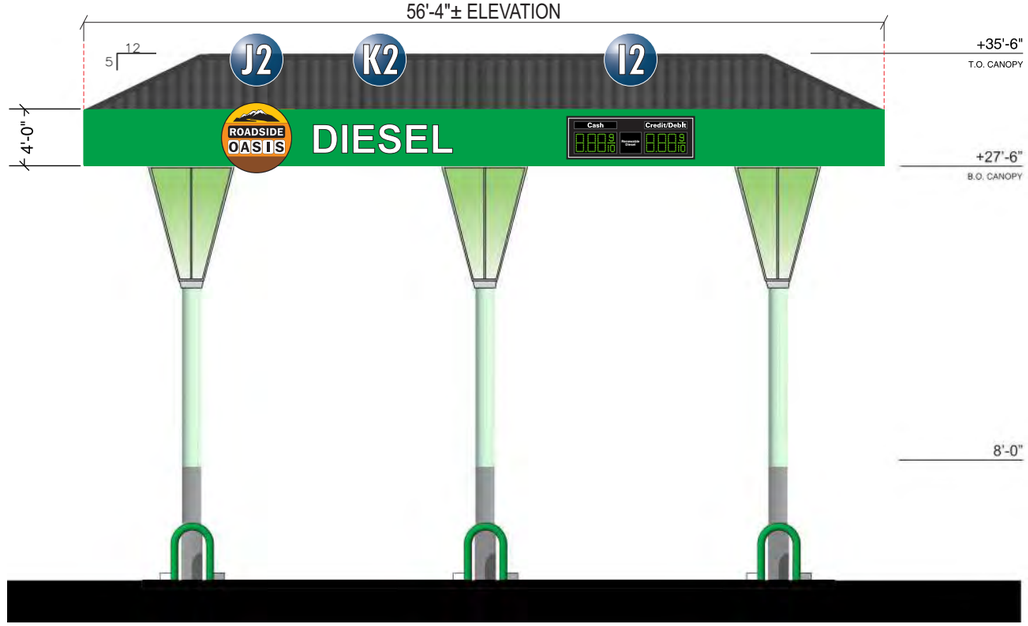
DIESEL CANOPY - FACING CHERRY STREET
SCALE: 3/32" = 1'-0"



DIESEL CANOPY - FACING BUNDY CANYON ROAD
SCALE: 3/32" = 1'-0"



DIESEL CANOPY - FACING INTERSTATE 15
SCALE: 3/32" = 1'-0"



DIESEL CANOPY - FACING C-STORE
SCALE: 3/32" = 1'-0"

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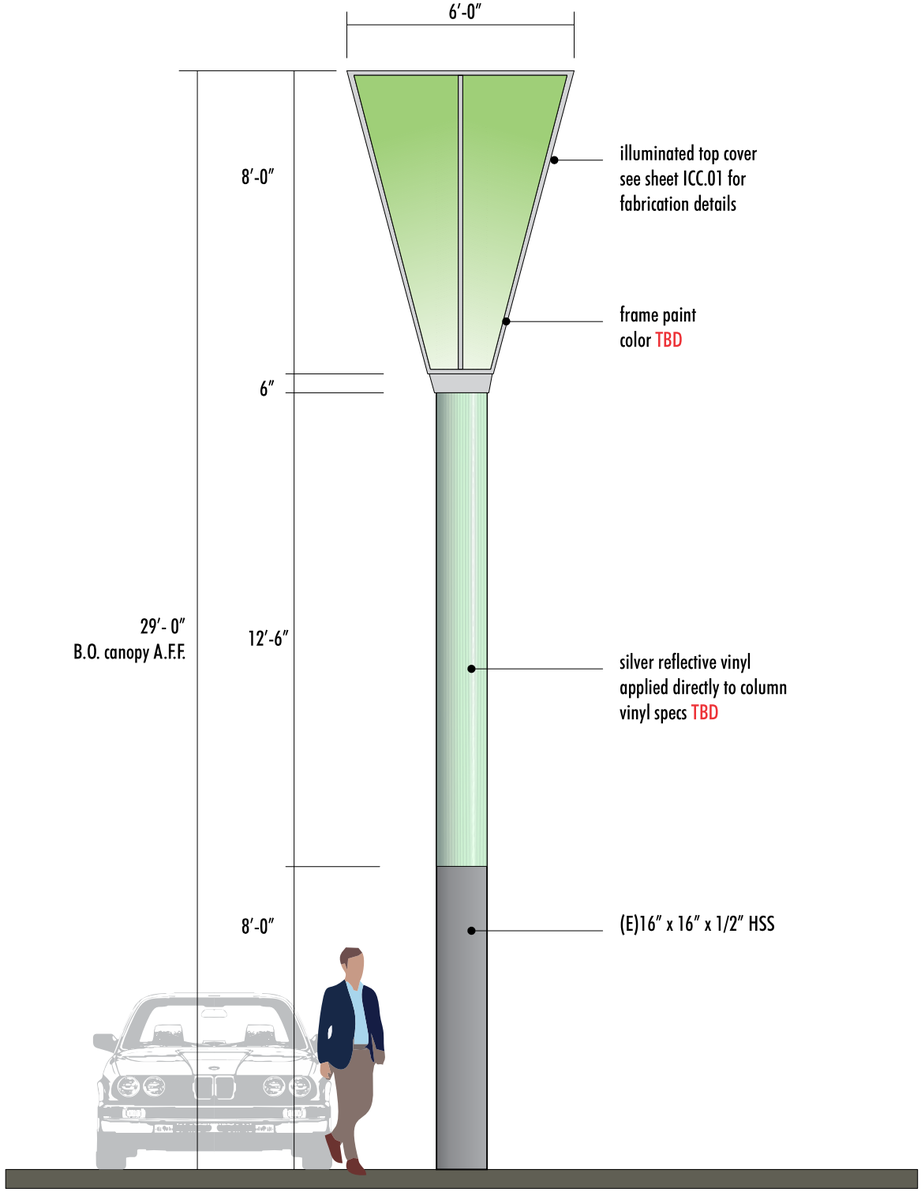
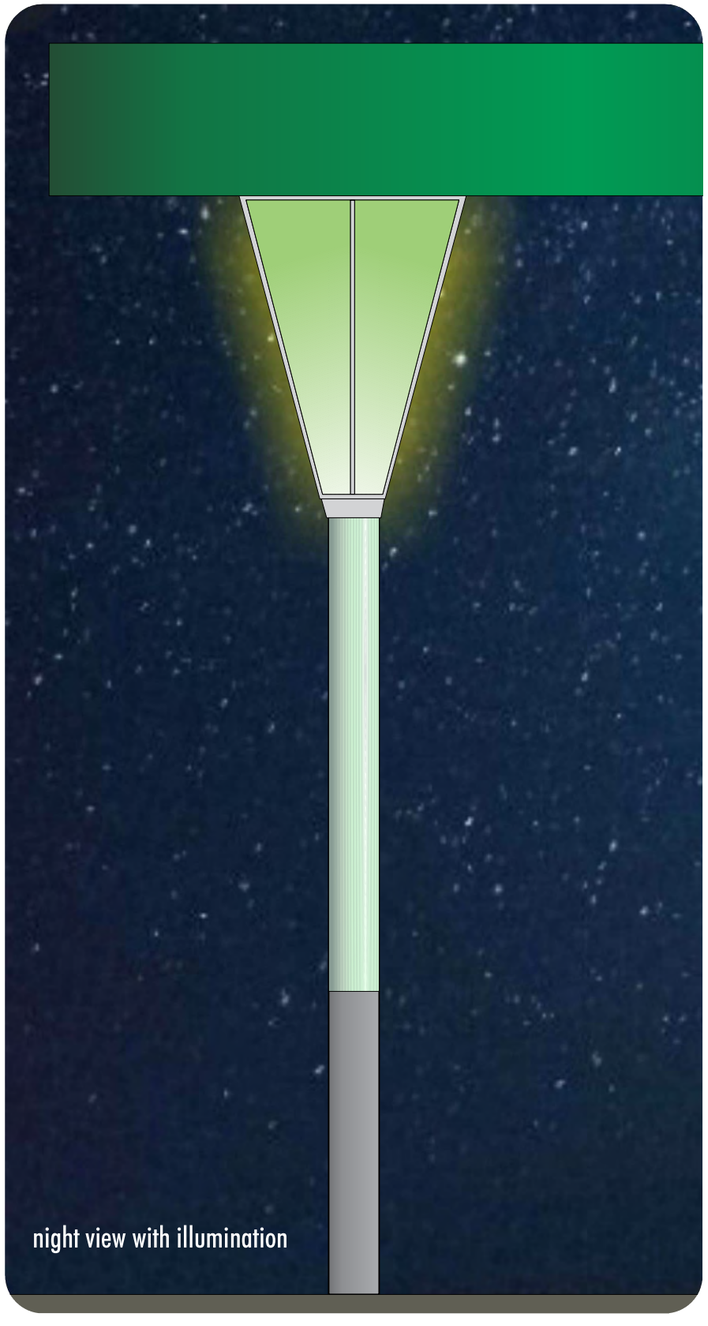


INTERNALLY-ILLUMINATED COLUMN COVER & VINYL OVERLAY
SCALE: 1/4" = 1'-0"



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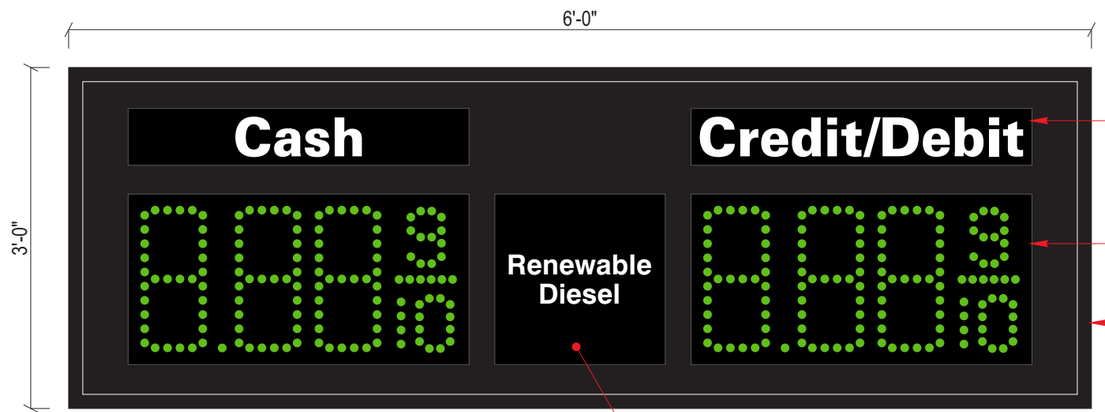
2477

1 NEW S/F ILLUMINATED ELECTRONIC LED PRICER CABINET DISPLAYS (Qty 2)

SQUARE FOOTAGE: 18.0

FIELD SURVEY REQUIRED



FRONT VIEW
SCALE: 3/4" = 1'-0"



END VIEW
SCALE: 3/4" = 1'-0"

NOTE:
Credit/Debit & Cash portion of the sign to be interchangeable White letters to be able to be changed out electronically to read whatever they want just like the gas pricing.

COLORS/FINISHES

P-1 BLACK

SPECIFICATIONS

1. SEE SPECIFICATION CALL-OUTS THIS SHEET

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SHEET NUMBER
24.0

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J NEW S/F INTERNALLY-ILLUMINATED CABINET SIGN DISPLAYS (Qty 4)

SQUARE FOOTAGE: 25.0



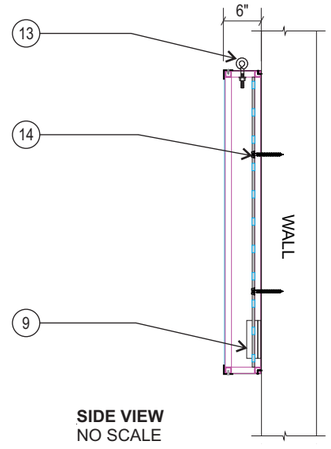
FRONT VIEW
SCALE: 3/4" = 1'-0"

COLORS/FINISHES

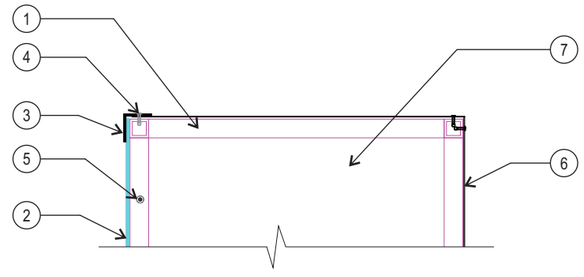
P-1 BLACK
DP-1 DIGITAL PRINT VINYL

SPECIFICATIONS

1. ALUMINUM TUBE, BUTTED & WELDED
2. PLEX FACES w/ APPLIED VINYL OVERLAYS DP-1
3. 1" ALUMINUM RETAINERS P-1
4. POP RIVET RETAINER AT TOP & BOTTOM
5. NON-DRILL POINT PAN-HEAD SCREW RETAINER AT SIDES
6. ACM BACK, CAULKED & POP-RIVETED TO FRAME
7. .063" PRE-FINISHED ALUMINUM SKIN AT SIDES P-1, POP RIVETED TO FRAME
8. WHITE LEDS
9. LED POWER SUPPLY
10. TOGGLE SWITCH / SWITCH PLATE
11. ELECTRICAL HOLE
12. 1" x 2" TUBULAR / ANGLE ALUMINUM SUPPORTS ON 4 FT. CENTERS
13. LIFTING EYEBOLT, MIN. (2) NO MORE THAN 8 FT. APART
14. MOUNTING HARDWARE TO SUIT FIELD CONDITIONS



SIDE VIEW
NO SCALE



CROSS SECTION VIEW
NO SCALE

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JOB #: **284580_R26**
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

REV.	DATE	BY	DESCRIPTION
21	04.02.24	JC	REVISED SIGN 'M' DESIGN LAYOUT
22	04.05.24	JC	ADDED NEW SITE PLAN, GAS & DIESEL CANOPY ELEVATIONS; REVISED SIGN 'M' DESIGN LAYOUT
23	04.08.24	JC	REVISED SIGN 'M' & 'P' DESIGN LAYOUTS
24	04.09.24	JC	REVISED SIGN 'M' LAYOUT
25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
25.0

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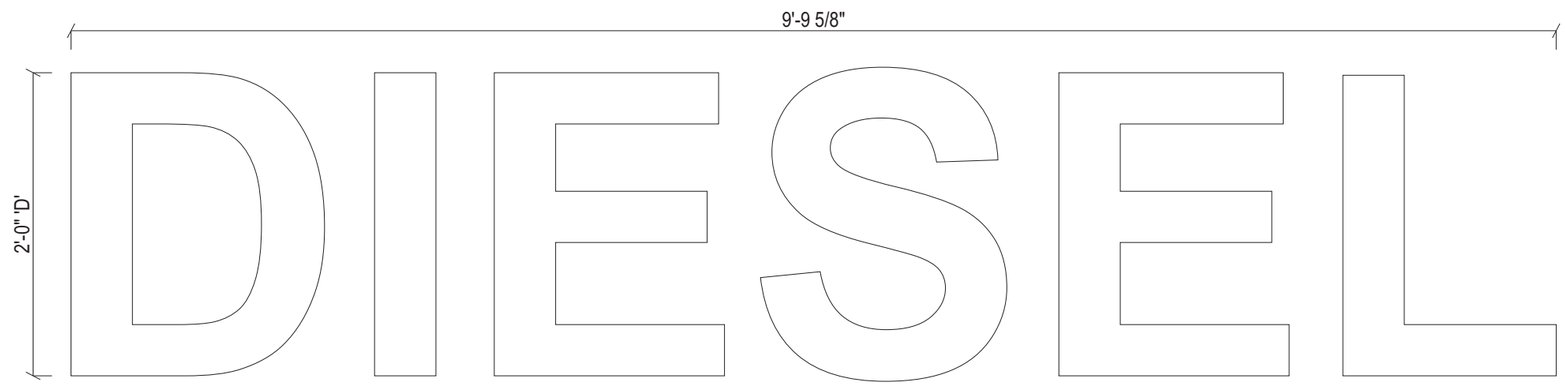
NEW INTERNALLY-ILLUMINATED CHANNEL LETTER DISPLAY (Qty 2)

SQUARE FOOTAGE: 19.60



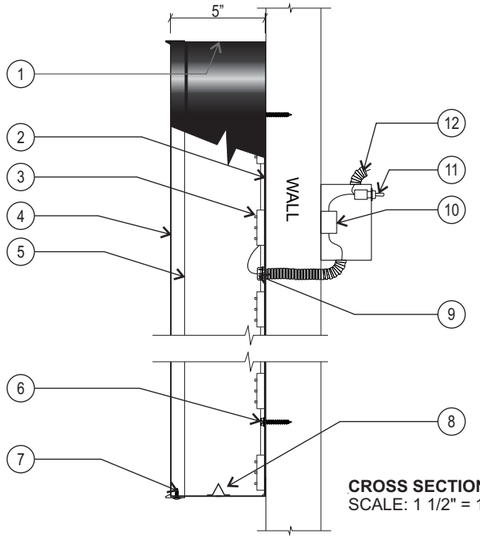
FRONT VIEW
SCALE: 1" = 1'-0"

COLORS/FINISHES

P-1 BLACK

SPECIFICATIONS

1. .040" x 5" PRE-FINISHED BLACK P-1 ALUMINUM COIL (WHITE INSIDE) (SEAMS IN CORNERS OR TOP)
2. ACM BACKS / LETTER LOCKED TO RETURNS
3. WHITE LEDS
4. 3/16" WHITE ACRYLIC
5. 1" PRE-FINISHED JEWELITE CHEMICALLY BONDED TO FACES (SEAMS AT THE TOP)
6. MOUNTING HARDWARE TO SUIT FIELD CONDITIONS
7. #8 - 1/2" PAN HEAD SCREWS (NO MORE THAN 24" APART)
8. 1/4" DIA. WEEP HOLES w/ .063" DRAIN HOLE COVER
9. 7/8" ELECTRICAL HOLE / 3/4" COUPLER w/ FLEXIBLE CONDUIT TO POWER SUPPLY BOX (IN MIDDLE OF LETTER UNLESS NOTED OTHERWISE)
10. LED POWER SUPPLY INSIDE POWER SUPPLY BOX
11. TOGGLE SWITCH MOUNTED TO POWER SUPPLY BOX
12. 15ft MIN. WHIP LENGTH



CROSS SECTION VIEW
SCALE: 1 1/2" = 1'-0"

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SALES REP: J. HADAYA
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26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
26.0

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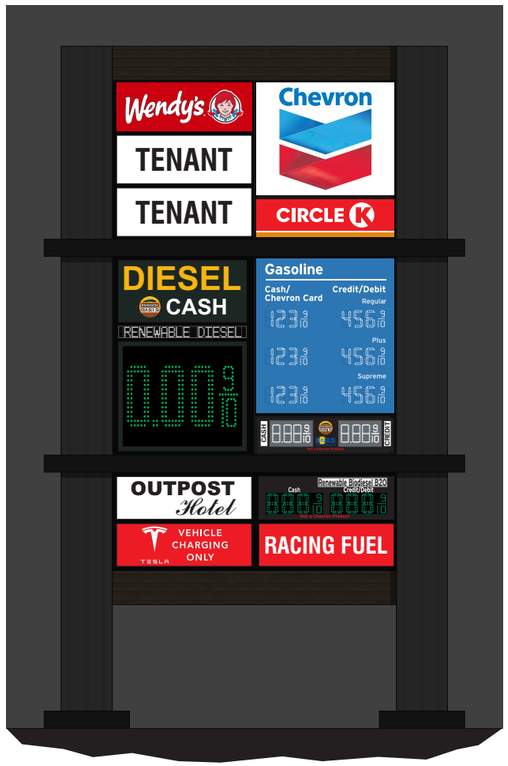
2480

M NEW D/F INTERNALLY-ILLUMINATED PYLON SIGN DISPLAY (Qty 1)

SQUARE FOOTAGE: 106.08

FIELD SURVEY REQUIRED
VECTOR ARTWORK REQUIRED
COLOR CALL OUTS REQUIRED
ENGINEERING REQUIRED



STREET SIDE

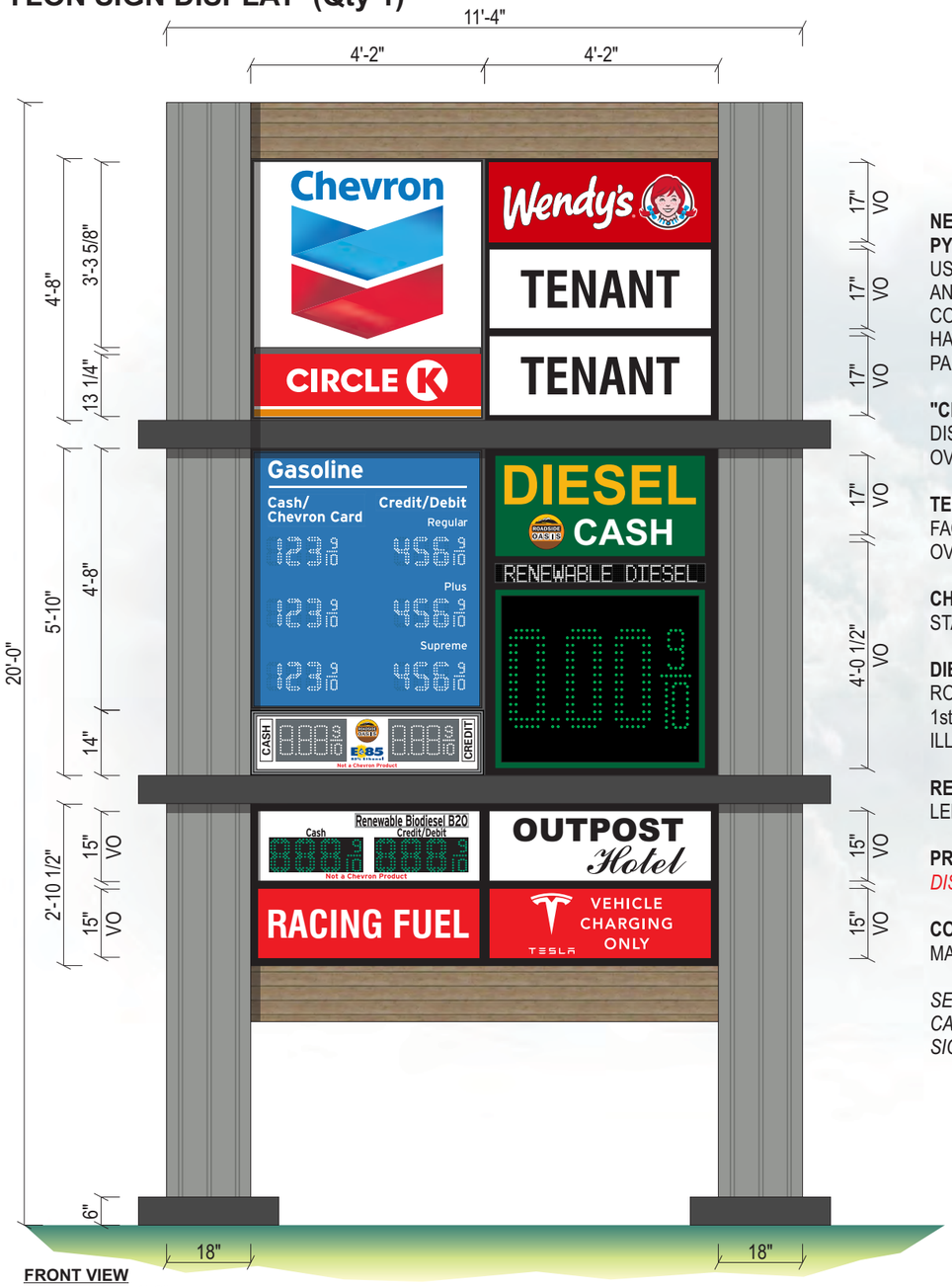
SIMULATED NIGHT VIEW - OPPOSITE SIDE
NO SCALE

COLORS/FINISHES

- P-1 *COLOR TO MATCH BUILDING (VERIFY)*
- W-1 COMPOSITE WOOD SIDING - *COLOR TO MATCH BUILDING (VERIFY)*
- M-1 STANDING SEAM - *COLOR TO MATCH BUILDING (VERIFY)*

SPECIFICATIONS

1. SEE SPECIFICATION CALL-OUTS THIS SHEET



FRONT VIEW
SCALE: 3/8" = 1'-0"

NEW DOUBLE-FACE INTERNALLY-ILLUMINATED PYLON SIGN
USE STANDARD ALUMINUM CONSTRUCTION w/ ANGLE FRAME & STEEL PIPE SUPPORT INTO CONCRETE FOOTING. ALUMINUM STRUCTURE TO HAVE COMPOSITE WOOD SIDING FINISH W-1 & PAINTED FINISH P-1

"CHEVRON" TO BE ACRYLIC FACE CABINET DISPLAY w/ 1st SURFACE APPLIED VINYL OVERLAYS. ILLUMINATE w/ WHITE LEDS

TENANT PANELS TO HAVE WHITE ACRYLIC FACES w/ 1st SURFACE APPLIED VINYL OVERLAYS. ILLUMINATE w/ WHITE LEDS

CHEVRON GAS PRICER PER CORPORATE STANDARDS

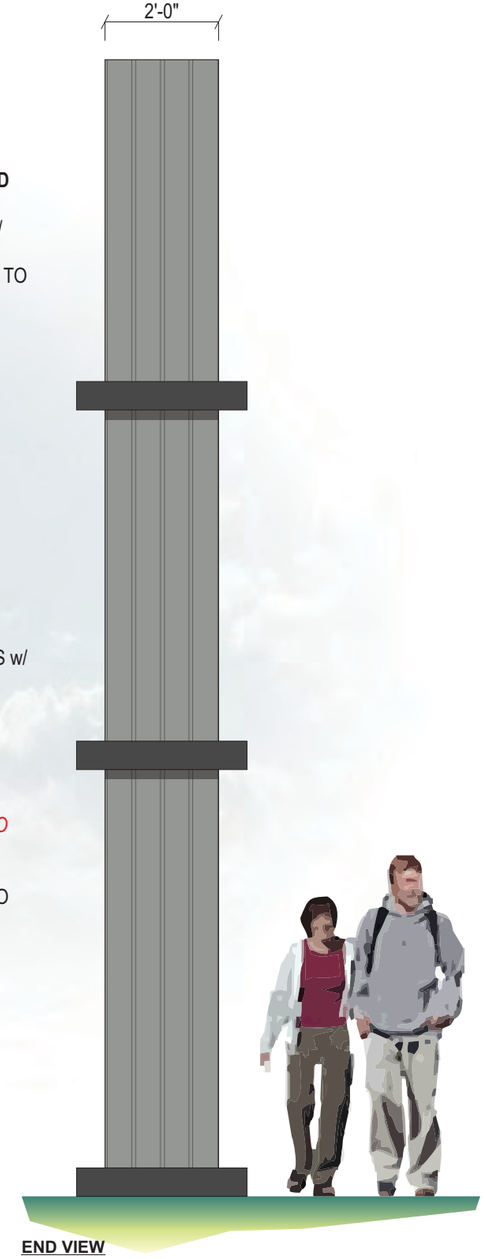
DIESEL GAS TO HAVE ALUMINUM FACES w/ ROUTED & BACKED-UP WHITE PLEX GRAPHICS w/ 1st SURFACE APPLIED VINYL OVERLAYS. ILLUMINATE w/ WHITE LEDS.

RENEWABLE DIESEL TO BE PROGRAMMABLE LED UNIT

PROGRAMMABLE LED PRICER UNITS *(ONLY TO DISPLAY NUMBERS)*.

COLUMNS TO HAVE STANDING SEAM FINISH TO MATCH EXISTING BUILDING M-1

SEE ENGINEERS SPECS FOR STRUCTURAL CALCULATIONS. VERIFY EXACT LOCATION OF SIGN PRIOR TO INSTALLATION.



END VIEW
SCALE: 3/8" = 1'-0"

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JOB #: 284580_R26
DATE: 03.20.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR:

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25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
27.0

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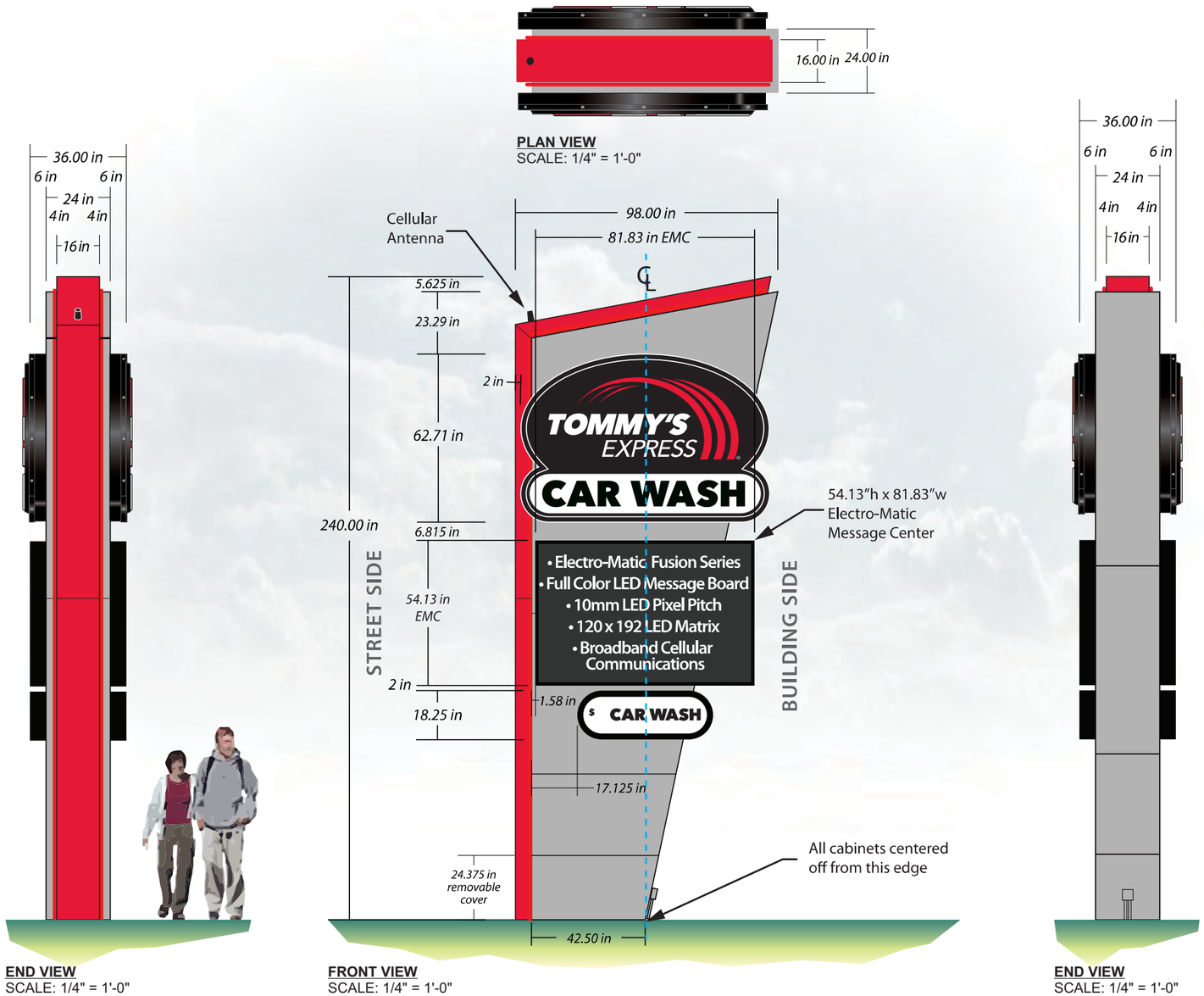
0 NEW D/F ILLUMINATED CAR WASH PYLON SIGN (Qty 1)

SQUARE FOOTAGE: 69.23

FIELD SURVEY REQUIRED
COLOR CALL OUTS REQUIRED
ENGINEERING REQUIRED



PYLON SIGN	
SIGN CODE:	P164-20-E
SCALE:	1/4" = 1'
DATE:	11.04.22A

QUANTITY:	1



Side B

Note: Envelope of car wash price options taped to inside of removeable panel

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SALES REP: J. HADAYA
PROJ MGR:

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26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
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SHEET NUMBER
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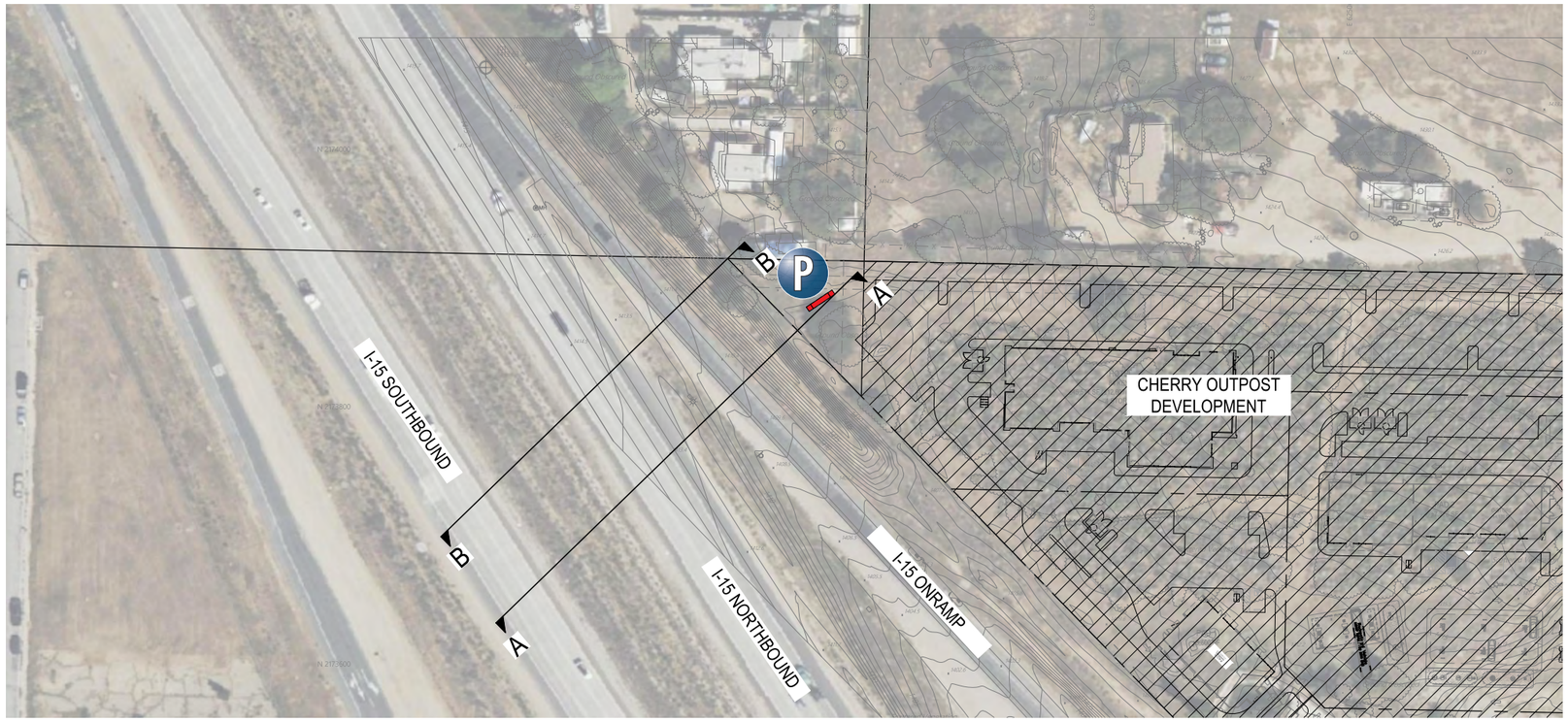
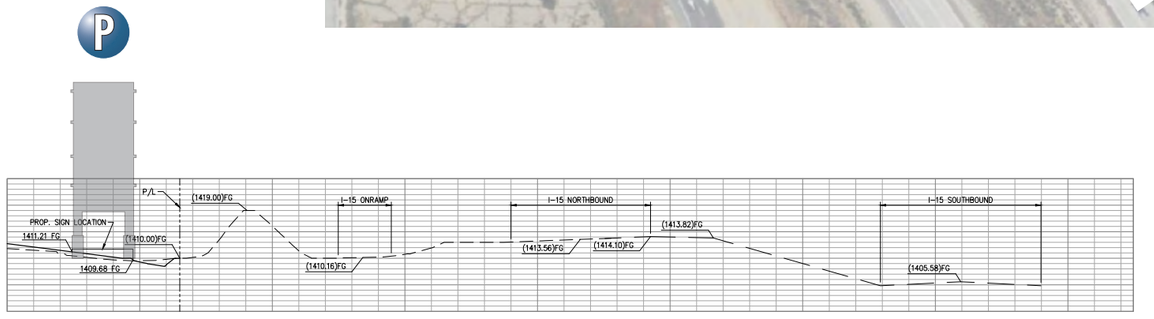
FREEWAY PROFILE EXHIBIT



LEGEND

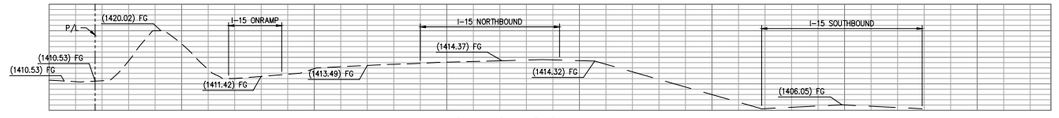
EXISTING SURFACE

PROPOSED SURFACE



SECTION A-A

N.T.S.



SECTION B-B

N.T.S.

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JOB #: **284580_R26**
DATE: 03.20.2023
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SALES REP: J. HADAYA
PROJ MGR:

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26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
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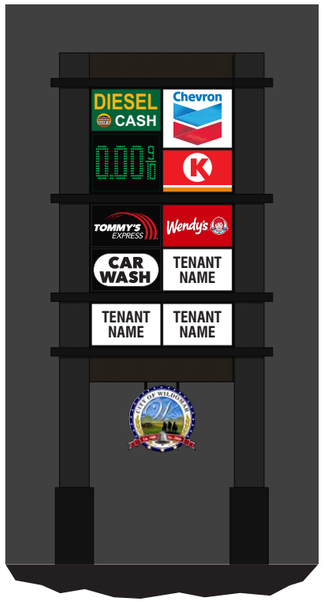
2483

NEW D/F INTERNALLY-ILLUMINATED PYLON SIGN DISPLAY (Qty 1)

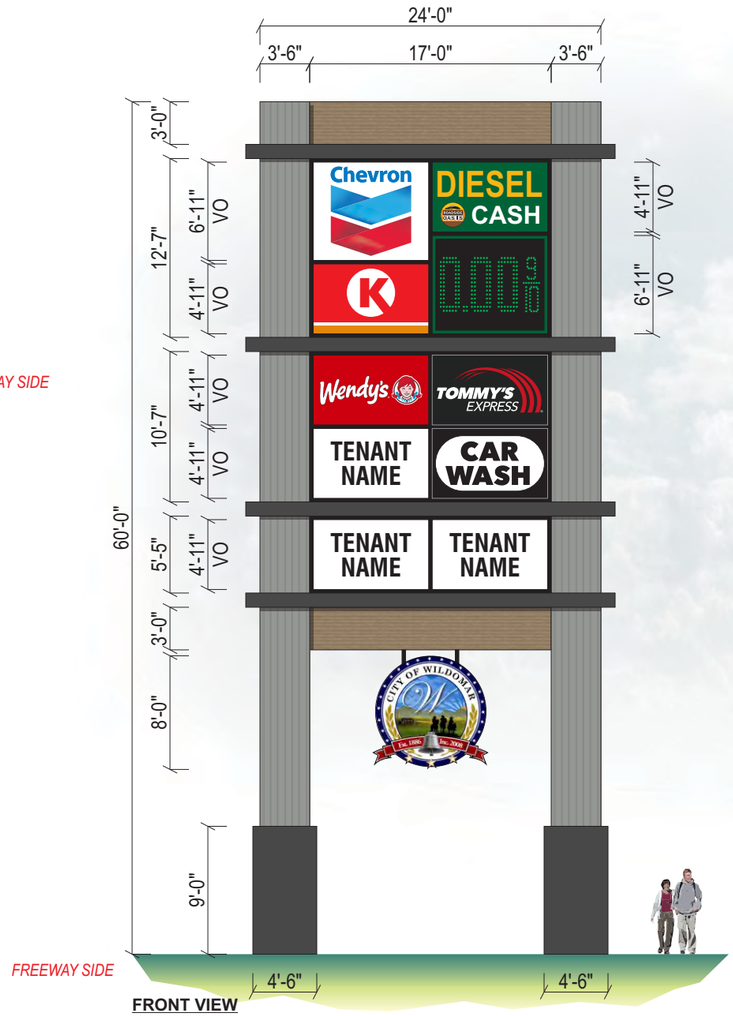
SQUARE FOOTAGE: 326.30

FIELD SURVEY REQUIRED
VECTOR ARTWORK REQUIRED
COLOR CALL OUTS REQUIRED
ENGINEERING REQUIRED

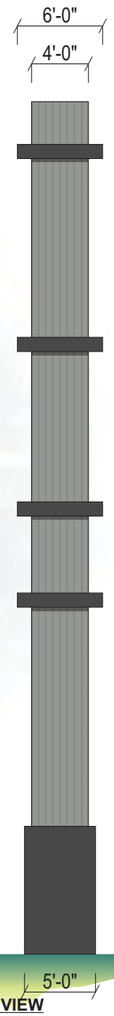


FREEWAY SIDE

SIMULATED NIGHT VIEW - OPPOSITE VIEW
NO SCALE



FRONT VIEW
SCALE: 3/32" = 1'-0"



END VIEW
SCALE: 3/32" = 1'-0"

NEW DOUBLE-FACE INTERNALLY-ILLUMINATED PYLON SIGN USE STANDARD ALUMINUM CONSTRUCTION w/ ANGLE FRAME & STEEL PIPE SUPPORT INTO CONCRETE FOOTING. ALUMINUM STRUCTURE TO HAVE COMPOSITE WOOD SIDING FINISH W-1 & PAINTED FINISH P-1

TENANT PANELS TO HAVE WHITE ACRYLIC FACES w/ 1st SURFACE APPLIED VINYL OVERLAYS. ILLUMINATE w/ WHITE LEDS

"DIESEL CASH" TO HAVE ALUMINUM FACES P-3 w/ ROUTED & BACKED-UP WHITE PLEX GRAPHICS w/ 1st SURFACE APPLIED VINYL OVERLAYS V-1. ILLUMINATE w/ WHITE LEDS. LED PRICER UNITS *(ONLY TO DISPLAY NUMBERS)*

CITY SEAL TO BE D/F INTERNALLY-ILLUMINATED PLEX FACED CABINET P-2 w/ 1st SURFACE APPLIED DIGITAL PRINT VINYL OVERLAYS. ILLUMINATE w/ WHITE LEDS

COLUMNS TO HAVE STANDING SEAM FINISH TO MATCH EXISTING BUILDING M-1

SEE ENGINEERS SPECS FOR STRUCTURAL CALCULATIONS.
VERIFY EXACT LOCATION OF SIGN PRIOR TO INSTALLATION.

COLORS/FINISHES

- P-1 *COLOR TO MATCH BUILDING (VERIFY)*
- P-2 BLACK
- P-3 PTM GREEN #26
- V-1 GOLDEN YELLOW #125
- W-1 COMPOSITE WOOD SIDING - *COLOR TO MATCH BUILDING (VERIFY)*
- M-1 STANDING SEAM - *COLOR TO MATCH BUILDING (VERIFY)*

SPECIFICATIONS

1. SEE SPECIFICATION CALL-OUTS THIS SHEET

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24	04.09.24	JC	REVISED SIGN 'M' LAYOUT
25	04.15.24	JC	ADDED NEW SITE PLAN
26	09.19.24	JC	REVISED SIGN 'P' HEIGHT
27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
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SITE PLAN
NO SCALE

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27			
28			
29			
30			

CLIENT APPROVAL DATE

LANDLORD APPROVAL DATE

CHERRY OUTPOST

CHEVRON
CHERRY STREET & BUNDY CANYON ROAD
WILDOMAR, CA 92595

SHEET NUMBER
31.0

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Cherry Outpost Retail Center – Location/Vicinity Map



Cherry Outpost Retail Center – Adjacent Uses Table

ADJACENT LAND USE, GENERAL PLAN AND ZONING			
Location	**Current Land Use**	**Current GP Land Use Designation**	**Current Zoning Designation**
Subject Property	Vacant	Commercial Retail (CR)	C-H (Commercial Highway)
North	SFR	Medium Density Residential (MDR)	R-1 (Residential Low)
South	Retail Center	Commercial Retail (CR)	C-H (Commercial Highway)
East	SFR	Commercial Retail (CR)	C-G (Commercial General)
West	Highway	ROW (Right of Way)	ROW (Right of Way)

Cherry Outpost Retail Center (PLN 24-0055):

Planning Commission Meeting

June 4, 2025

Agenda Item 2.1

Project Location



- Located at the NWC of Cherry St. & Bundy Canyon Road

Project Applications:

The Applicant proposes to develop a 62,271 square-foot multi-tenant retail center:

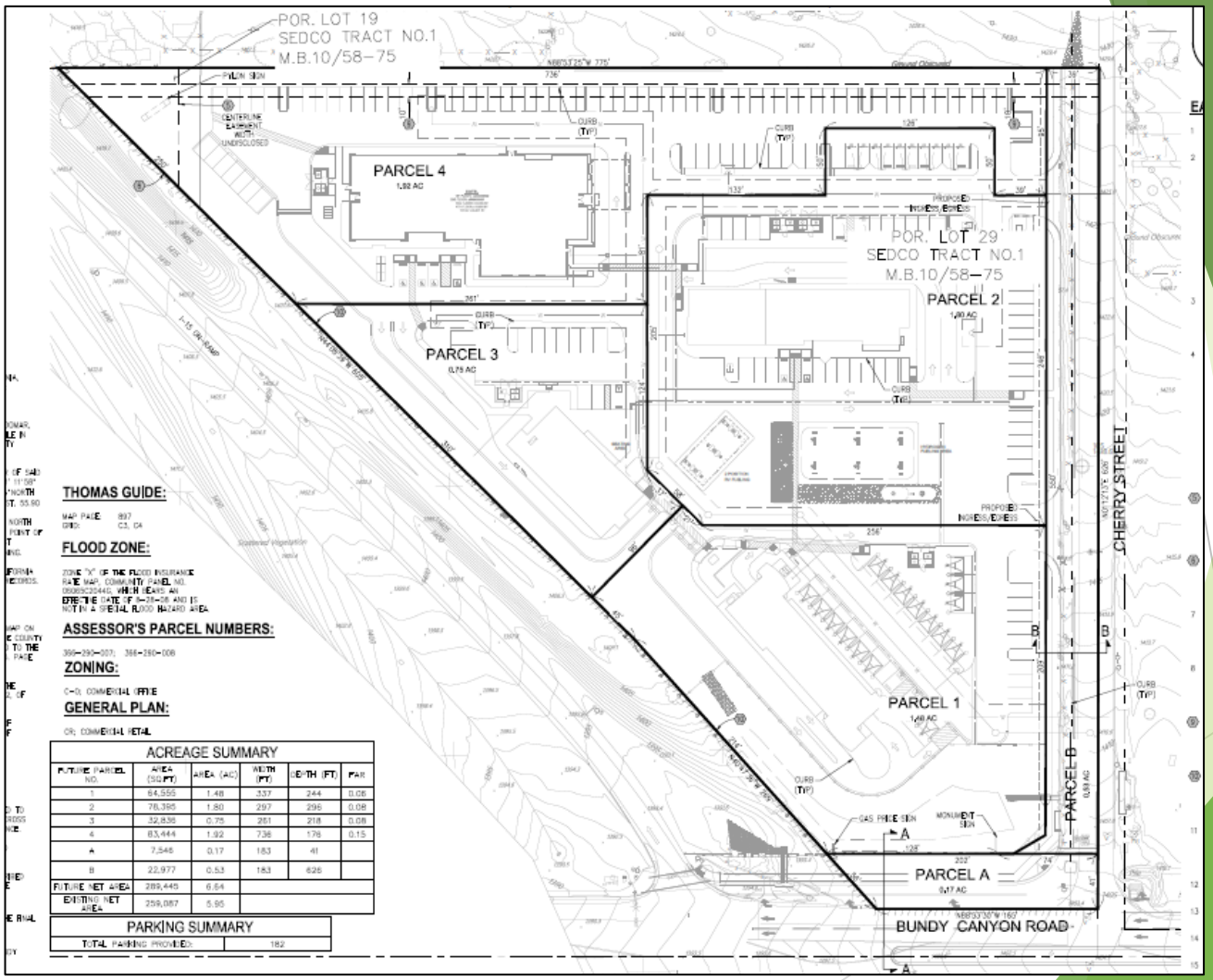
1) **Adoption of an Initial Study/Mitigated Negative Declaration and MMRP;**
2) **Approval of a Tentative Parcel Map (TPM 38828), subject to conditions; and**
3) **Approval of CUP/Plot Plan, subject to conditions.**

CEQA - IS/MND Process:

- The proposed project required preparation of an Initial Study/Mitigated Negative Declaration and a Mitigation Monitoring and Reporting Program.
- Draft IS/MND was circulated 30-day public review period commencing on December 18, 2024 and concluding on January 27, 2025.
- The City received 1 comment letter during the review period.
- Detailed responses to each commenter were prepared and provided to the responders.
- In addition, a MMRP was prepared in accordance with CEQA Guidelines.
- Staff is recommending adoption of the MND/MMRP (PC Resolution No. 2025-08)

Tentative Parcel Map 38828 Discussion

- The Project includes a proposal to subdivide the 6.65-acre site into 4 parcels to accommodate the project.
- Each lot meets and exceeds the minimum standards for lot size as required in the C-H zone.
- The proposed Tentative Parcel Map meets the findings to support approval of the subdivision (PC Resolution 2025-09).

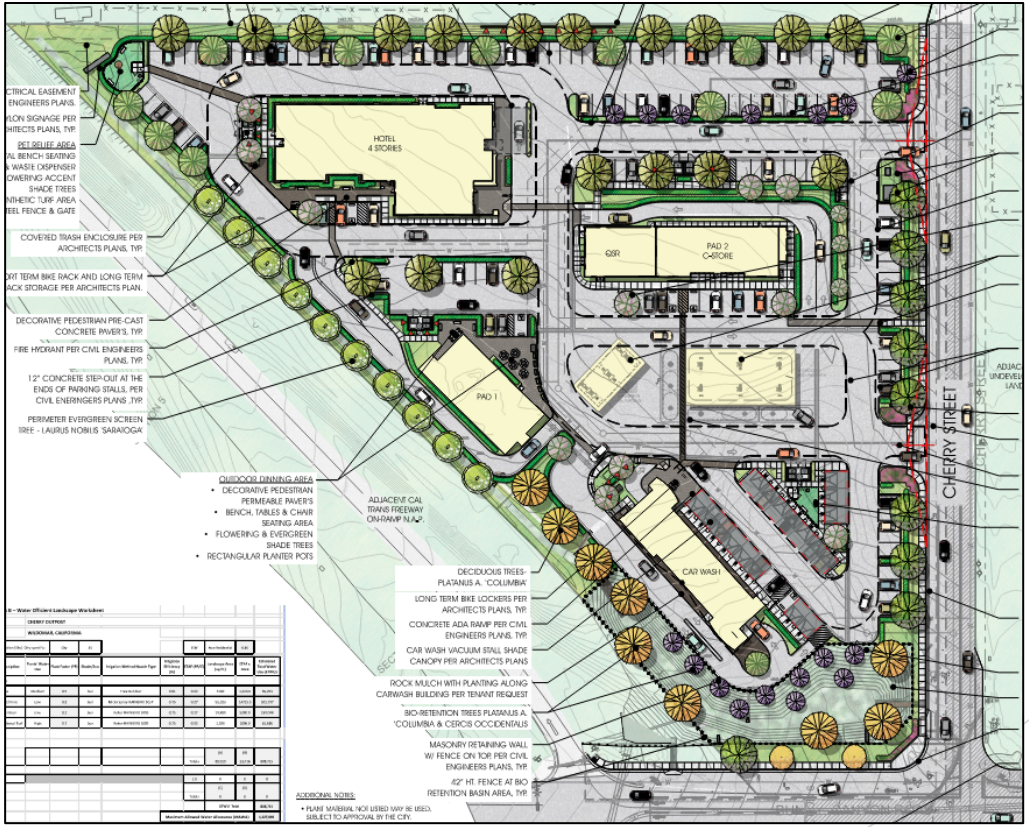

POR. LOT 19
SEDCO TRACT NO.1
M.B.10/58-75
PARCEL 4
1.92 AC
PARCEL 3
0.75 AC
POR. LOT 29
SEDCO TRACT NO.1
M.B.10/58-75
PARCEL 2
1.90 AC
PARCEL 1
1.48 AC
PARCEL A
0.17 AC
PARCEL B
0.53 AC
CHERRY STREET
BUNDY CANYON ROAD
PROPOSED INGRESS/EGRESS
CURB (TYP.)
GAS PRICE SIGN
MONUMENT SIGN
THOMAS GUIDE:
MAP PAGE 897
GRID C3, D4
FLOOD ZONE:
ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 060693C2044E, WHICH BEARS AN EFFECTIVE DATE OF 8-28-08 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA
ASSESSOR'S PARCEL NUMBERS:
366-290-007; 366-290-008
ZONING:
C-O; COMMERCIAL OFFICE
GENERAL PLAN:
OR; COMMERCIAL RETAIL
ACREAGE SUMMARY
FUTURE PARCEL NO. | AREA (SQ.FT) | AREA (AC) | WIDTH (FT) | DEPTH (FT) | FAR
1 | 64,555 | 1.48 | 337 | 244 | 0.05
2 | 76,395 | 1.80 | 297 | 296 | 0.09
3 | 32,836 | 0.75 | 261 | 218 | 0.08
4 | 83,444 | 1.92 | 736 | 178 | 0.15
A | 7,546 | 0.17 | 183 | 41 |
B | 22,977 | 0.53 | 183 | 626 |
FUTURE NET AREA | 289,445 | 6.64 |
EXISTING NET AREA | 259,057 | 5.95 |
PARKING SUMMARY
TOTAL PARKING PROVIDED: 182

Conditional Use Permit 24-0055 Discussion

- The Applicant is requesting approval of a CUP to establish a 5,724 square-foot express drive-thru car wash.
- In accordance with Section 17.40 of the Wildomar Municipal Code, a CUP is required for this activity.
- The car wash will include multiple individual vacuum stalls with roof-covers.
- This car wash will be an independent operation separate from the proposed gas station on the project.
- Staff evaluated this and determined that the proposal meets the findings as outlined in PC Resolution 2025-10

Plot Plan 24-0055 Discussion

- The project is being proposed as a 62,271 square-foot retail center with four (4) buildings.



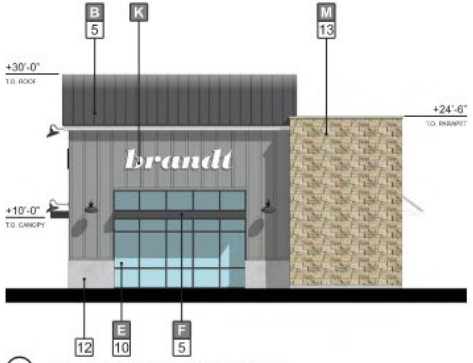
Plot Plan 24-0055 Discussion

- The architectural theme for the retail center can be characterized as “Farm Chic” which is consistent with our Commercial Design Standards and Guidelines.
- The proposed site meets and exceeds the development standards of the C-H zone;
- Findings to support the Plot Plan are listed in PC Resolution 2025-10.
- The following slides show the proposed elevations.

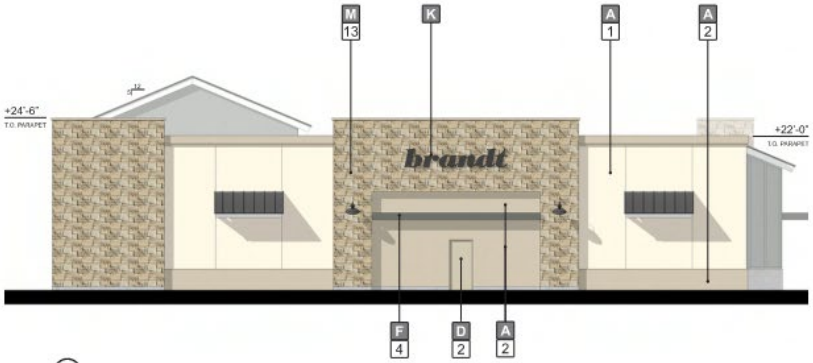
Pad 1 Building (Retail/Restaurant)



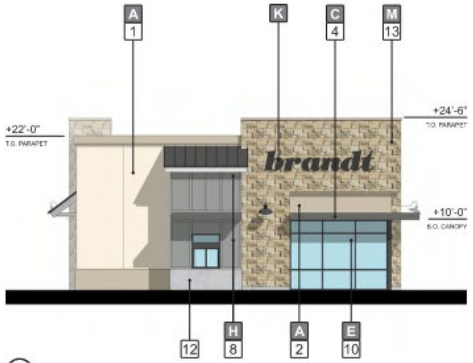
1 NORTHEAST ELEVATION (FRONT)



2 NORTHWEST ELEVATION (RIGHT)



3 SOUTHWEST ELEVATION (REAR)



4 SOUTHEAST ELEVATION (LEFT)

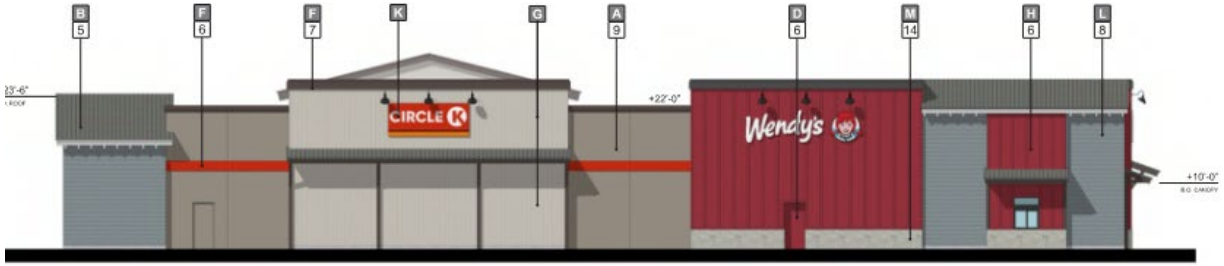
Pad 2 Building (C-Store/QSR)



SOUTH ELEVATION (FRONT)



2 EAST ELEVATION (RIGHT)

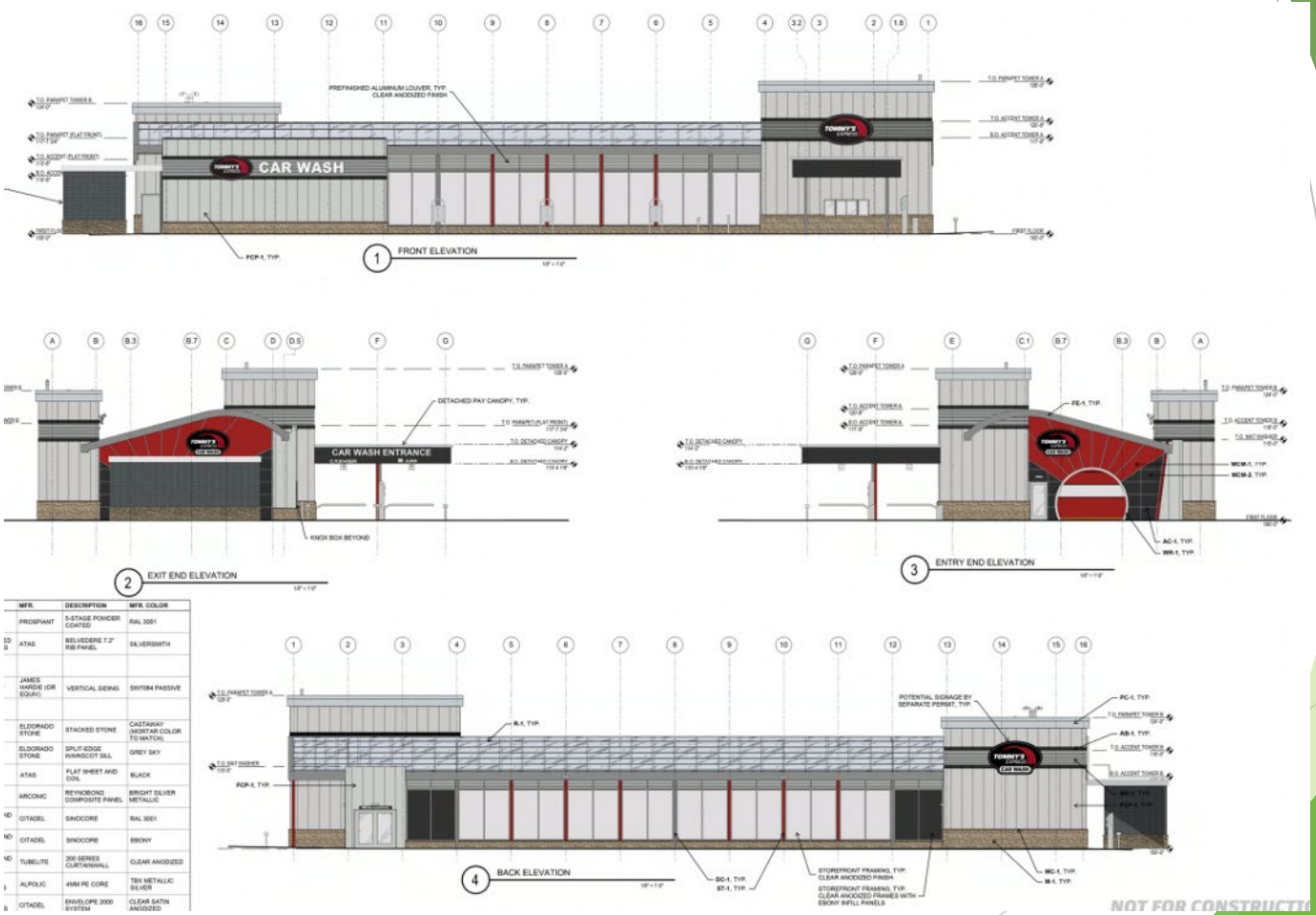


NORTH ELEVATION (REAR)



4 WEST ELEVATION (LEFT)

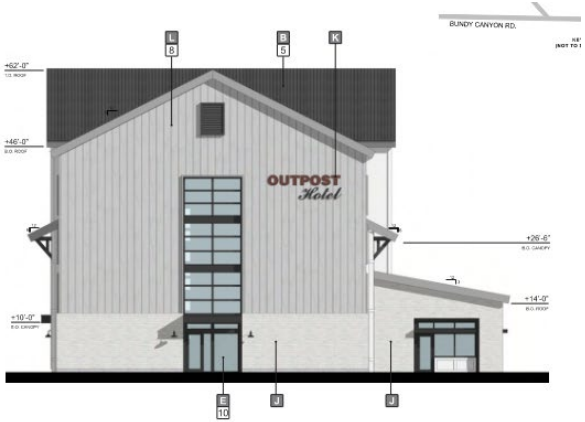
Car Wash Building



Hotel Elevations



1 EAST ELEVATION (FRONT)



2 WEST ELEVATION (REAR)



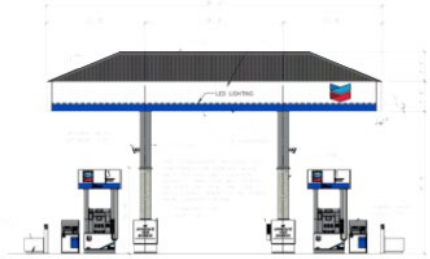
3 SOUTH ELEVATION (RIGHT)



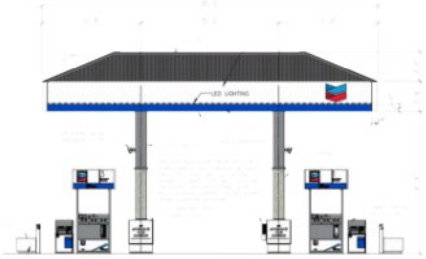
NORTH ELEVATION (LEFT)

2500

Gas Station Canopy Elevations



GAS CANOPY ELEVATION - FACING CHERRY



GAS CANOPY ELEVATION - FACING 1-15 FWY

GENERAL NOTES

1. Do not scale off this drawing.
2. This drawing is the property of th Chevron Property & Facilities Optimization (P&FO) & must not be used, copied or reproduced in whole or in part without prior writ permission.
3. (A) Under-Canopy light fixture LSI Encore, Low Profile, 320W M Halide.
4. (A) Under-Canopy light fixture LSI Focus, 100W Metal Halide.
5. Refer to Hallmark 20/20 Image Guidelines for additional informat as to design and image.



GAS CANOPY ELEVATION - FACING BUNDY CANYON

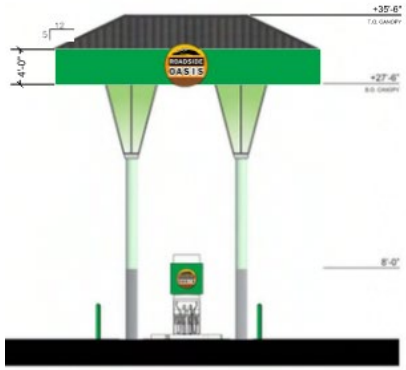
COLOR LEGEND



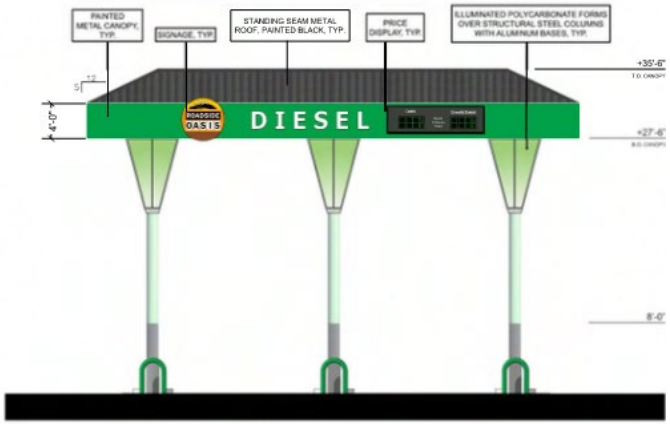
GAS CANOPY ELEVATION - FACING C - STORE



RV Fueling Canopy Elevations



ELEVATION FACING CHERRY ST.



2 ELEVATION FACING BUNDY CANYON RD.



ELEVATION FACING INTERSTATE 15



4 ELEVATION FACING C-STORE

Planning Commission Recommendations

Based on all the findings, Staff recommends the Planning Commission take the following actions:

1) **Adopt of the IS/MND and MMRP (PC Reso 2025-08).**
2) **Approve Tentative Parcel Map No. 38828, subject to conditions (PC Reso 2025-09); and**
3) **Approve Conditional Use Permit and Plot Plan 24-0055, subject to conditions (PC Reso 2025-10).**

No City Council action is required but there is a required 10-day appeal period that will end on Monday, June 16, 2025.

SUBJECT: Development Code Amendment No. 2025-01 (Cannabis Code Amendment): Planning Commission review of a proposed code amendment to Ordinance 187 adopting a CEQA exemption pursuant to Business and Professions Code section 26055(h) and approving a development code amendment amending various requirements of Chapter 17.240 of the WMC related to cannabis businesses.

SUBMITTED BY: Abdu Lachgar

PREPARED BY: Abdu Lachgar

ACTION:
1. Determine that the City Council's approval of Development Code Amendment No. 2025-01 is exempt under the California Environmental Quality Act (CEQA) Guidelines pursuant to Business and Professions Code section 26055(h).

2. Adopt a resolution entitled:

PC RESOLUTION NO. 2025-06

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, RECOMMENDING CITY COUNCIL ADOPTION OF A CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EXEMPTION PURSUANT TO BUSINESS AND PROFESSIONS CODE SECTION 26055(H) AND CEQA GUIDELINE 15061(B)(3), AND APPROVING DEVELOPMENT CODE AMENDMENT NO. 2025-01 AMENDING THE WILDOMAR MUNICIPAL CODE RELATED TO CANNABIS BUSINESSES AND ADDING BACK CERTAIN PROVISIONS TO THE DEVELOPMENT CODE THAT WERE UNINTENTIONALLY OMITTED.

PROJECT DESCRIPTION:
City Council originally adopted Ordinance 187 to establish Cannabis Business regulations within the City Zoning ordinance on June 6, 2020. Since that date, there have been a handful of cannabis businesses operating within the City with minimal issues and largely successful financial operations. Over the past several years, the City has gained experience from multiple cannabis applications reviewed, and has gained additional perspective in which to provide additional guidance to applicants. Based on lessons learned from the past several years, on February 12, 2025, the City Council directed the Planning Department to amend Chapter 17.240 (Cannabis) of the Wildomar Municipal Code to increase the distance standards from residential zones/uses from 100 feet to 600 feet for future retail cannabis businesses located in commercial zones, and to prohibit cannabis cultivation, manufacturing distribution, and testing laboratories in all zone districts and to prohibit cannabis cafes in all zones.

In addition, on January 15, 2025, the City Council adopted Ordinance No. 247 adopting a new

Development Code for the City, subsequently it was discovered that several pre-existing provisions from the original ordinance were unintentionally omitted from the new Development Code and City Council desired to add those provisions back into the Development Code.

PROJECT ANALYSIS:
Cannabis Zoning Ordinance Amendment Summary:

The proposed amendment is provided in its entirety as Exhibit 1 to PC Resolution No. 2025-06. The following is a brief summary of the proposed changes:

• Chapter 17.25 (Establishment of Zones) is being amended to add additional regulations regarding Cannabis activities in the City.
• Chapter 17.45 (Manufacturing/Industrial and Medical Center Zones) is being amended to revise Table 17.45.020-1 to delete the row for "cannabis cultivation, manufacturing, distribution, and testing laboratories" from the list of allowed uses in the M-I (Manufacturing-Industrial) zoning district.
• Chapter 17.240 (Cannabis) is being amended to prohibit cannabis cultivation, manufacturing, distribution, and testing laboratories in all zones.
• Chapter 17.240 (Cannabis) is being amended to modify the distance requirement for cannabis businesses to residential from 100 feet to 600 feet.
• Chapter 17.240 (Cannabis) is being amended to add the pre-existing provisions from the original ordinance that were unintentionally omitted from the new Development Code.

Development Code Amendment No. 2025-01 Finding:
In accordance with the provisions of Section 17.145.040 of the Wildomar Municipal Code, the Planning Commission hereby makes the following finding in support of its recommendation to the City Council to approve Development Code Amendment No. 2025-01.

The proposed amendment is consistent with the Wildomar General Plan goals, policies, and implementation programs.

Evidence: The proposed code amendment amends the Wildomar Development Code to increase the distance standards from residential zones/uses from 100 feet to 600 feet for future retail cannabis businesses located in commercial zones, to prohibit cannabis cultivation, manufacturing, distribution, and testing laboratories in all zone districts and to prohibit cannabis cafes in all zones. Implementation of the amended regulations will reduce possible nuisance and noise issues on residences as well as increase public safety. The proposed amended regulations will still be consistent with general plan policies in that cannabis uses are still permitted which promote economic development and fiscal revenues. The continued operation of existing and future cannabis businesses within the City furthers these goals and policies.

ENVIRONMENTAL ANALYSIS:
CEQA Determination/Finding:
In accordance with the requirements of the California Environmental Quality Act (Public Resources Code § 21000, et seq. ("CEQA")), a review of the potential environmental impacts was conducted by the Planning Department for Development Code Amendment No. 2025-01. Based on this review, the Planning Commission recommends the City Council find that approval of Development Code Amendment No. 2025-01 is exempt under the California Environmental Quality Act (CEQA) Guidelines pursuant to Business and Professions Code

section 26055(h). This provision specifically allows an exemption from CEQA review when the adoption of an ordinance, rule, or regulation by a local jurisdiction that requires discretionary review and approval of permits, licenses, or other authorizations to engage in commercial cannabis activity.

The proposed Development Code Amendment No. 2025-01 requires discretionary Development Agreements and Conditional Use Permits to be approved for each cannabis business seeking to operate in the City, and any applicable CEQA review and documentation will be done concurrent with, and prior to, approval of these discretionary entitlements by the Planning Commission and City Council. Given this, the Planning Commission recommends the City Council determine that Development Code Amendment No. 2025-01 is exempt from CEQA Guidelines pursuant to Business and Professions Code section 26055(h). In addition, Development Code Amendment No. 2025-01 corrects unintentional omissions that occurred during the comprehensive Development Code update adopted by the City Council on January 15, 2025, by adding back in pre-existing provisions that were accidentally omitted from the new Development Code. These corrections ensure there is no unintentional change to the City's pre-existing regulations and therefore are exempt from CEQA review under CEQA Guideline 15061(b)(3) as it can be seen with certainty that continuing existing regulations will not cause any impact to the environment.

PUBLIC NOTICE:
In accordance with Chapter 17.125.070 of the Wildomar Municipal Code, the Planning Department on May 15, 2025, published a legal notice in the Press Enterprise, a local newspaper of general circulation, notifying the general public of the June 4, 2025 Planning Commission hearing where the Commission would discuss Development Code Amendment No. 2025-01. Since this code amendment is not a development project, the provisions of Ordinance 135 requiring public hearing sign boards does not apply.

FISCAL IMPACT:
None.

ATTACHMENTS:
Attach A-PC Resolution 2025-06-w-ord-final [6-4-25].docx
Item 2.2 PPT [6-4-25].pdf

ATTACHMENT A

PC Resolution No. 2025-06

PC RESOLUTION NO. 2025-06

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF WILDOMAR, CALIFORNIA, RECOMMENDING CITY COUNCIL ADOPTION OF A CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EXEMPTION PURSUANT TO BUSINESS AND PROFESSIONS CODE SECTION 26055(H) AND CEQA GUIDELINE 15061(B)(3), AND APPROVING DEVELOPMENT CODE AMENDMENT NO. 2025-01 AMENDING THE WILDOMAR MUNICIPAL CODE RELATED TO CANNABIS BUSINESSES AND ADDING BACK CERTAIN PROVISIONS TO THE DEVELOPMENT CODE THAT WERE UNINTENTIONALLY OMITTED

WHEREAS, in 1996, the voters of the State of California approved Proposition 215, which was codified as Health and Safety Code Section 11362.et seq., and entitled the Compassionate Use Act of 1996, which intended to enable seriously ill Californians to legally possess, use, and cultivate marijuana for medical use under limited, specified circumstances; and

WHEREAS, in 2004, the California legislature enacted Senate Bill 420, the Medicinal Marijuana Program (the "MMP"), which, as codified in California Health and Safety Code Section 11362.7 et seq., was intended to clarify the CUA's scope and immunize from criminal prosecution, under specified state laws, certain activities and conduct related to the provision of medicinal marijuana to qualified patients; and

WHEREAS, on November 8, 2016, the voters of the State of California approved Proposition 64, entitled the "Control, Regulate and Tax Adult Use of Marijuana Act," which legalizes and regulates recreational marijuana in California; and,

WHEREAS, the State has established an integrated licensing and regulatory system for both medicinal and recreational marijuana businesses consistent with Propositions 215 and 64 entitled the Medicinal and Adult-Use Cannabis Regulation and Safety Act ("MAUCRSA"), codified in Business and Professions Code section 26000 et seq.; and,

WHEREAS, Business and Professions Code section 26200 expressly recognizes the ability of cities to completely prohibit all medicinal and recreational cannabis businesses or to allow and regulate such businesses; and,

WHEREAS, allowing commercial cannabis facilities in the City, subject to regulation, will lessen the financial burdens and public health and safety risks caused by current illegally operated commercial cannabis facilities; and,

WHEREAS, a majority of the voters in Wildomar who voted on Proposition 64 at the November 8, 2016 election voted in favor of Proposition 64; and

WHEREAS, in order to protect the public health, safety, and welfare, and consistent with the will of the voters of Wildomar who favored legalizing cannabis, the City

desires to permit, commercial cannabis activity in the City subject to regulation and taxation as set forth in this ordinance; and

WHEREAS, on January 15, 2025, the City Council adopted Ordinance No. 247 adopting a new Development Code for the City, subsequently it was discovered that several pre-existing provisions were unintentionally omitted from the new Development Code, and the City Council desires to add those provisions back into the Development Code; and

WHEREAS, on February 12, 2025, the City Council took public comments and directed the Planning Department to amend Chapter 17.240 (Cannabis) of the Wildomar Municipal Code to increase the distance standards from residential zones/uses from 100 feet to 600 feet for future retail cannabis businesses located in commercial zones, to prohibit cannabis cultivation, manufacturing distribution, and testing laboratories in all zone districts and to prohibit cannabis cafes in all zones; and

WHEREAS, in accordance with Chapter 17.125.070 of the Wildomar Municipal Code, the Planning Department on May 15, 2025 published a legal notice in the Press Enterprise, a local newspaper of general circulation, notifying the general public of the June 4, 2025 special meeting with the Planning Commission where the Commission would discuss the proposed Development Code Amendment No. 2025-01; and

WHEREAS, in accordance with Section 17.125.070 of the Wildomar Municipal Code, the Planning Commission conducted the duly noticed public hearing to discuss Development Code Amendment No. 2025-01 on June 4, 2025, and at which time interested persons had an opportunity to testify in support of, or opposition to the proposed code amendment, and at which time the Planning Commission received public testimony concerning the proposed code amendment and made a recommendation to the City Council regarding Development Code Amendment No. 2025-01.

NOW THEREFORE, the Planning Commission of the City of Wildomar, California does hereby resolve, determine and order as follows:

SECTION 1. CEQA ENVIRONMENTAL DETERMINATION.

In accordance with the requirements of the California Environmental Quality Act (Public Resources Code § 21000, et seq. ("CEQA")), a review of the potential environmental impacts was conducted by the Planning Department for Development Code Amendment No. 2025-01. Based on this review, the Planning Commission finds that the City Council's approval of Development Code Amendment No. 2025-01 is exempt under the California Environmental Quality Act (CEQA) Guidelines pursuant to Business and Professions Code section 26055(h). This provision specifically allows an exemption from CEQA review when the adoption of an ordinance, rule, or regulation by a local jurisdiction that requires discretionary review and approval of permits, licenses, or other authorizations to engage in commercial cannabis activity. The proposed Development Code Amendment No. 2025-01 requires discretionary Development Agreements and Conditional Use Permits to be approved for each cannabis business seeking to operate in the City, and any applicable CEQA review and documentation will be done concurrent

with, and prior to, approval of these discretionary entitlements by the Planning Commission and City Council. Given this, the Planning Commission determines that Development Code Amendment No. 2025-01 is exempt from CEQA Guidelines pursuant to Business and Professions Code section 26055(h) and hereby recommends the City Council adopt this CEQA exemption pursuant to Business and Professions Code section 26055(h). In addition, Development Code Amendment No. 2025-01 corrects unintentional omissions that occurred during the comprehensive Development Code update adopted by the City Council on January 15, 2025, by adding back in pre-existing provisions that were accidentally omitted from the new Development Code. These corrections ensure there is no unintentional change to the City's pre-existing regulations and therefore are exempt from CEQA review under CEQA Guideline 15061(b)(3) as it can be seen with certainty that continuing existing regulations will not cause any impact to the environment.

SECTION 2. REQUIRED DEVELOPMENT CODE AMENDMENT FINDING.

In accordance with the provisions of Section 17.145.040 of the Wildomar Municipal Code, the Planning Commission hereby makes the following finding in support of its recommendation to the City Council to approve Development Code Amendment No. 2025-01.

A. The proposed amendment is consistent with the Wildomar General Plan goals, policies, and implementation programs.

Evidence: The proposed code amendment amends the Wildomar Development Code to increase the distance standards from residential zones/uses from 100 feet to 600 feet for future retail cannabis businesses located in commercial zones, to prohibit cannabis cultivation, manufacturing distribution, and testing laboratories in all zone districts and to prohibit cannabis cafes in all zones. Implementation of the amended regulations will reduce possible nuisance and noise issues on residences as well as increase public safety. The proposed amended regulations will still be consistent with general plan policies in that cannabis uses are still permitted which promote economic development and fiscal revenues. The continued operation of existing and future cannabis businesses within the City furthers these goals and policies.

SECTION 3. PLANNING COMMISSION ACTION.

Based on the foregoing finding, and on substantial evidence in the whole of the record, the Planning Commission hereby adopts PC Resolution No. 2025-06 recommending City Council approval of an Ordinance, attached hereto and incorporated herein by reference as Exhibit 1, approving Development Code Amendment No. 2025-01.

PASSED, APPROVED AND ADOPTED this 4th day of June, 2025.

_____
Eric Filar
Planning Commission Chair

ATTEST:

_____
Steven Jones, AICP
Community Development Director/Minutes Secretary

APPROVED AS TO FORM:

_____
Stephanie Gutierrez
Assistant City Attorney

EXHIBIT 1
Draft Council Ordinance for DCA 2025-01

DRAFT ORDINANCE NO. ____

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF WILDOMAR, CALIFORNIA, ADOPTING A CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EXEMPTION PURSUANT TO BUSINESS AND PROFESSIONS CODE SECTION 26055(H) AND CEQA GUIDELINE 15061(B)(3), AND APPROVING DEVELOPMENT CODE AMENDMENT NO. 2025-01 AMENDING THE WILDOMAR MUNICIPAL CODE RELATED TO CANNABIS BUSINESSES AND ADDING BACK CERTAIN PROVISIONS TO THE DEVELOPMENT CODE THAT WERE UNINTENTIONALLY OMITTED

WHEREAS, in 1996, the voters of the State of California approved Proposition 215, which was codified as Health and Safety Code Section 11362.et seq., and entitled the Compassionate Use Act of 1996, which intended to enable seriously ill Californians to legally possess, use, and cultivate marijuana for medical use under limited, specified circumstances; and

WHEREAS, in 2004, the California legislature enacted Senate Bill 420, the Medicinal Marijuana Program (the "MMP"), which, as codified in California Health and Safety Code Section 11362.7 et seq., was intended to clarify the CUA's scope and immunize from criminal prosecution, under specified state laws, certain activities and conduct related to the provision of medicinal marijuana to qualified patients; and

WHEREAS, on November 8, 2016, the voters of the State of California approved Proposition 64, entitled the "Control, Regulate and Tax Adult Use of Marijuana Act," which legalizes and regulates recreational marijuana in California; and,

WHEREAS, the State has established an integrated licensing and regulatory system for both medicinal and recreational marijuana businesses consistent with Propositions 215 and 64 entitled the Medicinal and Adult-Use Cannabis Regulation and Safety Act ("MAUCRSA"), codified in Business and Professions Code section 26000 et seq.; and,

WHEREAS, Business and Professions Code section 26200 expressly recognizes the ability of cities to completely prohibit all medicinal and recreational cannabis businesses or to allow and regulate such businesses; and,

WHEREAS, allowing commercial cannabis facilities in the City, subject to regulation, will lessen the financial burdens and public health and safety risks caused by current illegally operated commercial cannabis facilities; and,

WHEREAS, a majority of the voters in Wildomar who voted on Proposition 64 at the November 8, 2016 election voted in favor of Proposition 64; and

WHEREAS, in order to protect the public health, safety, and welfare, and consistent with the will of the voters of Wildomar who favored legalizing cannabis, the City desires to permit, commercial cannabis activity in the City subject to regulation and taxation as set forth in this ordinance; and

WHEREAS, on January 15, 2025, the City Council adopted Ordinance No. 247 adopting a new Development Code for the City, subsequently it was discovered that several pre-existing provisions were unintentionally omitted from the new Development Code, and the City Council desires to add those provision back into the Development Code; and

WHEREAS, in accordance with Chapter 17.145 of the Wildomar Municipal Code and California Government Code, Section 65800, et seq., the City Council has the authority to take action on the proposed Development Code Amendment No. 2025-01; and

WHEREAS, the Planning Commission conducted a special meeting and held a noticed public hearing on June 4, 2025 to review Development Code Amendment No. 2025-01, at which time interested persons had an opportunity to testify in support of, or opposition to the proposed municipal code amendment, and at which time the Planning Commission received public testimony, and subsequently adopted PC Resolution No. 2025-06 recommending City Council approval of Development Code Amendment No. 2025-01; and

WHEREAS, in accordance with Chapter 17.125.070 of the Wildomar Municipal Code, the Planning Department on _____, 2025 published a legal notice in the Press Enterprise, a local newspaper of general circulation, notifying the general public of the _____, 2025 City Council meeting where the Council discussed the proposed Development Code Amendment No. 2025-01; and

WHEREAS, in accordance with Chapter 17.125.070 of the Wildomar Municipal Code of the Wildomar Municipal Code, the City Council, upon recommendation from the Planning Commission, conducted a duly noticed public hearing to discuss Development Code Amendment No. 2025-01 on _____, 2025, and at which time interested persons had an opportunity to testify in support of, or opposition to the proposed municipal code amendment, and at which time the City Council received public testimony concerning the proposed code amendment.

THE CITY COUNCIL OF THE CITY OF WILDOMAR HEREBY DOES ORDAIN AS FOLLOWS:

SECTION 1: CEQA ENVIRONMENTAL DETERMINATION.

In accordance with the requirements of the California Environmental Quality Act (Public Resources Code § 21000, et seq. ("CEQA")), a review of the potential environmental impacts was conducted by the Planning Department for Development Code Amendment No. 2025-01. Based on this review, the City Council finds that approval

of Development Code Amendment No. 2025-01 is exempt under the California Environmental Quality Act (CEQA) Guidelines pursuant to Business and Professions Code section 26055(h). This provision specifically allows an exemption from CEQA review when the adoption of an ordinance, rule, or regulation by a local jurisdiction that requires discretionary review and approval of permits, licenses, or other authorizations to engage in commercial cannabis activity. The proposed Development Code Amendment No. 2025-01 requires discretionary Development Agreements and Conditional Use Permits to be approved for each cannabis business seeking to operate in the City, and any applicable CEQA review and documentation will be done concurrent with, and prior to, approval of these discretionary entitlements by the Planning Commission and City Council. Given this, the City Council hereby determines that Development Code Amendment No. 2025-01 is exempt from CEQA Guidelines pursuant to Business and Professions Code section 26055(h). In addition, Development Code Amendment No. 2025-01 corrects unintentional omissions that occurred during the comprehensive Development Code update adopted by the City Council on January 15, 2025, by adding back in pre-existing provisions that were accidentally omitted from the new Development Code. These corrections ensure there is no unintentional change to the City's pre-existing regulations and therefore are exempt from CEQA review under CEQA Guideline 15061(b)(3) as it can be seen with certainty that continuing existing regulations will not cause any impact to the environment.

SECTION 2. REQUIRED DEVELOPMENT CODE AMENDMENT FINDING.

In accordance with the provisions of Section 17.145.040 of the Wildomar Municipal Code, the Planning Commission hereby makes the following finding in support of its recommendation to the City Council to approve Development Code Amendment No. 2025-01.

A. The proposed amendment is consistent with the Wildomar General Plan goals, policies, and implementation programs.

Evidence: The proposed code amendment amends the Wildomar Development Code to increase the distance standards from residential zones/uses from 100 feet to 600 feet for future retail cannabis businesses located in commercial zones, to prohibit cannabis cultivation, manufacturing distribution, and testing laboratories in all zone districts and to prohibit cannabis cafes in all zones. Implementation of the amended regulations will reduce possible nuisance and noise issues on residences as well increase public safety. The proposed amended regulations will still be consistent with general plan policies in that cannabis uses are still permitted which promote economic development and fiscal revenues. The continued operation of existing and future cannabis businesses within the City furthers these goals and policies.

SECTION 3. ADDITION OF SECTION 17.25.050 TO THE MUNICIPAL CODE

A new Section 17.25.050 is hereby added to the Wildomar Municipal Code to read as follows:

"17.25.050 Uses allowed in zone classifications.

The terminology used in Section 17.25.020 of this chapter is general only and is not intended to be descriptive of all uses allowed in the zone classifications. The zone classifications are specifically set forth in subsequent articles of the ordinance codified in this chapter to which reference should be made to determine all the uses permitted therein. When a use is not specifically listed as permitted or conditionally permitted in a zone classification, the use is prohibited unless, in circumstances where this section empowers him or her to do so, the Community Development Director makes a determination that the use is substantially the same in character and intensity as those uses permitted or conditionally permitted in the zone classification."

SECTION 4. ADDITION OF SECTION 17.25.060 TO THE MUNICIPAL CODE

A new Section 17.25.060 is hereby added to the Wildomar Municipal Code to read as follows:

"17.25.060 Commercial Cannabis Activities and Noncommercial Cannabis Cultivation.

A. Commercial Cannabis Activities and Facilities. Commercial cannabis activity, as defined in Business and Professions Code section 26001(k), is permitted in the City in compliance with chapters 5.76 and 17.240 of this code. It shall be a violation of this code to engage in any commercial cannabis activity that is not in full compliance with the requirements of chapters 5.76 and 17.240 of this code. It is a violation of this code for any building, facility, establishment, property, or location to be utilized by any person to establish, commence, engage in, conduct, or carry on, or permit another person to establish, commence, engage in, conduct, or carry on any commercial cannabis activity that is not in full compliance with the requirements of chapters 5.76 and 17.240 of this code.

B. Noncommercial Cannabis Cultivation. A person may cultivate no more than six living cannabis plants inside his or her private residence, or inside an accessory structure to his or her private residence located upon the grounds of that private residence that is fully enclosed and secured against unauthorized entry, provided that the owner of the property provides written consent expressly allowing the cannabis cultivation to occur, the person conducting the cannabis cultivation complies with all applicable Building Code requirements set forth in Title 17 of this code, there is no use of gas products (CO2, butane, propane, natural gas, etc.) on the property for purposes of cannabis cultivation, and the cannabis cultivation complies with Health and Safety Code section 11362.2(a)(3).

C. Enforcement. Any violation of this section shall be enforced pursuant to Chapter 1.16."

SECTION 5. ADDITION OF SECTION 17.25.070 TO THE MUNICIPAL CODE

A new Section 17.25.070 is hereby added to the Wildomar Municipal Code to read as follows:

"17.25.070 Industrial Hemp Cultivation.

A. Findings. Industrial hemp cultivation presents public health, safety and welfare issues that must be mitigated if such cultivation is to be permitted, including, but not limited to, odor control, pests, security, and other public safety concerns. As of the effective date of the ordinance adding this section to the Zoning Code, no industrial hemp cultivation uses have been established in the City and no cultivators have expressed interest to the City for establishing cultivation uses in the City. The City Council finds that the public interest is better served at this time by not expending public resources on establishing regulations for an industry that has not, and has expressed no interest in, operating in the City. The City may reconsider the prohibition on industrial hemp cultivation contained herein in the future.

B. Definitions. The following definitions apply to this section:

"Cultivation" means any activity involving the planting, growing, harvesting, drying, curing, grading, trimming, processing, or manufacturing of industrial hemp.

"Industrial hemp" includes the definition as set forth in Health and Safety Code Section 11018.5(a). C.

C. Industrial Hemp Cultivation. The cultivation of industrial hemp as defined above is prohibited in all zone districts within the City of Wildomar. It is a violation of this Code for any building, facility, establishment, property, or location to be utilized by any person to establish, commence, engage in, conduct, or carry on, or permit another person to establish, commence, engage in, conduct, or carry on any industrial hemp cultivation in the City of Wildomar.

D. Violation—Separate Offense. Any person who violates any provision of this section is guilty of a separate offense for each and every day during any portion of which any such person commits, continues, permits, or causes a violation thereof, and may be penalized accordingly.

E. Penalties. Violation of any provision of this section is subject to penalties as set forth in Wildomar Municipal Code Chapter1.16.

F. Public Nuisance. In addition to the penalties set forth above, any violation of this section is declared to be a public nuisance per se and contrary to the public interest and will, at the discretion of the City, be subject to a cause of action for injunctive relief or any other available remedy under the law."

SECTION 6. AMENDMENT OF CHAPTER 17.45 OF THE MUNICIPAL CODE

Chapter 17.45 is hereby amended to revise Table 17.45.020-1 to delete the row for "cannabis cultivation, manufacturing, distribution, and testing laboratories" under the subheading "manufacturing / service commercial" from the list of allowed uses in the M-I (Manufacturing-Industrial) zoning district.

SECTION 7. AMENDMENT OF SECTION 17.240.040 OF THE WILDOMAR MUNICIPAL CODE

Section 17.240.040 is hereby amended to delete subparagraph B.8 in its entirety and to renumber the subsequent subsections B.9, B.10 and B.11 as B.8, .9, and B.10.

SECTION 8. AMENDMENT OF SECTION 17.240.060 OF THE MUNICIPAL CODE

Section 17.240.060 is hereby amended to read as follows:

17.240.060 Locational Requirements.

A conditional use permit for a cannabis business shall not be approved unless the proposed cannabis business will be located in a zoning district in which cannabis businesses of the type proposed are conditionally permitted. Cannabis retailers are conditionally permitted in the commercial and mixed-use zones (See Table 17.40.020-1). All other types of cannabis businesses are prohibited within the City. In addition, a conditional use permit shall not be approved for a cannabis business unless all of the following locational requirements applicable to the type of cannabis business proposed are satisfied:

A. No cannabis business shall be located within 600 feet of a of a residential use or residential zone, public or private school providing instruction in kindergarten or grades 1 through 12, a day care center (excluding small and large family day cares), a park or a youth center.

B. All distances specified in this section shall be measured in a straight line, without regard to intervening structures or topography, from the nearest point of the building or structure in which the cannabis business is, or will be located, to the nearest property line of the parcel where such use is located. If the cannabis business is, or will be located, in a multi-tenant building, the distances shall be measured from the nearest point of the suite in which the cannabis business is, or will be located.

C. For the purposes of this section the following definitions apply:

    1. "Day care center" is as defined in Business & Professions Code section 26001(o) and Health & Safety Code section 1596.76.

    2. "Youth center" is as defined in Business & Professions Code Section 26001(bc) and Health & Safety Code section 11353.1.

"Public or private school" means any location appearing in the California Department of Education School Directory as the location of a public or private school.

SECTION 9. AMENDMENT OF SECTION 17.240.070 OF THE WILDOMAR MUNICIPAL CODE

Section 17.240.070 is amended to delete paragraph B, C, and D in their entirety. Paragraph A is amended to add a new subparagraph A.8 to read as follows:

"Cannabis and cannabis products shall not be smoked, vaped, ingested, or otherwise consumed by any person on the premises of the cannabis business."

SECTION 10. SEVERABILITY

If any Chapter, subsection, subdivision, sentence, clause, phrase, or portion of this ordinance, is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision will not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have adopted this ordinance, and each Chapter, subsection, subdivision, sentence, clause, phrase, or portion thereof, irrespective of the fact that any one or more Sections, subsections, subdivisions, sentences, clauses, phrases, or portions thereof be declared invalid or unconstitutional."

SECTION 11. EFFECTIVE DATE.

This ordinance shall take effect thirty (30) days after its passage by the City Council.

SECTION 12. CITY CLERK ACTION

The City Clerk is authorized and directed to cause this Ordinance to be published within fifteen (15) days after its passage in a newspaper of general circulation and circulated within the City in accordance with Government Code Chapter 36933(a) or, to cause this Ordinance to be published in the manner required by law using the alternative summary and posting procedure authorized under Government Code Chapter 39633(c).

INTRODUCED FOR FIRST READING this ____ day of _____, 2025.

_____
Ashlee Dephillippo
Mayor

APPROVED AS TO FORM:

_____
Thomas D. Jex
City Attorney

ATTEST:

_____
Janet Morales, CMC
City Clerk

Cannabis Code Amendment No. 2025-01

Planning Commission Meeting
June 4, 2025
Agenda Item 2.2

Background Information

- Staff is proposing a code amendment that will modify the WMC to revise the City's Cannabis requirements.
- City Council originally adopted Ordinance 187 to establish Cannabis regulations on June 6, 2020.
- Based on lessons learned from the past several years, on February 12, 2025, the City Council directed the Planning Department to amend Chapter 17.240 (Cannabis) of the WMC.
- In addition, several pre-existing provisions from the original ordinance were unintentionally omitted from the new Development Code.
- The following slide will summarize the proposed changes.

Summary of Revised Changes

- **The following is a summary of the notable changes to the code:**
  - **Chapter 17.25 (Establishment of Zones) is being amended to add additional regulations regarding Cannabis activities in the City.**
  - **Chapter 17.45 (Manufacturing/Industrial and Medical Center Zones) is being amended to revise Table 17.45.020-1 to delete the row for "cannabis cultivation, manufacturing, distribution, and testing laboratories" from the list of allowed uses in the M-I (Manufacturing-Industrial) zoning district.**
  - **Chapter 17.240 (Cannabis) is being amended to prohibit cannabis cultivation, manufacturing, distribution, and testing laboratories in all zones.**
  - **Chapter 17.240 (Cannabis) is being amended to modify the distance requirement for cannabis businesses to residential from 100 feet to 600 feet.**
  - **Chapter 17.240 (Cannabis) is being amended to add the pre-existing provisions from the original ordinance that were unintentionally omitted from the new Development Code.**

Recommendation:

- **The Planning Department recommends the Planning Commission take the following actions:**

1) **Determine that the City Council's approval of Development Code Amendment No. 2025-01 is exempt under the California Environmental Quality Act (CEQA) Guidelines pursuant to Business and Professions Code section 26055(h); and**

2) **Adopt PC Resolution No. 2025-06.**

SUBJECT: Plot Plan No. 24-0054 (Stable Lanes Retail Center) Architecture & Sign Program Update

SUBMITTED BY: Abdu Lachgar

PREPARED BY: Abdu Lachgar

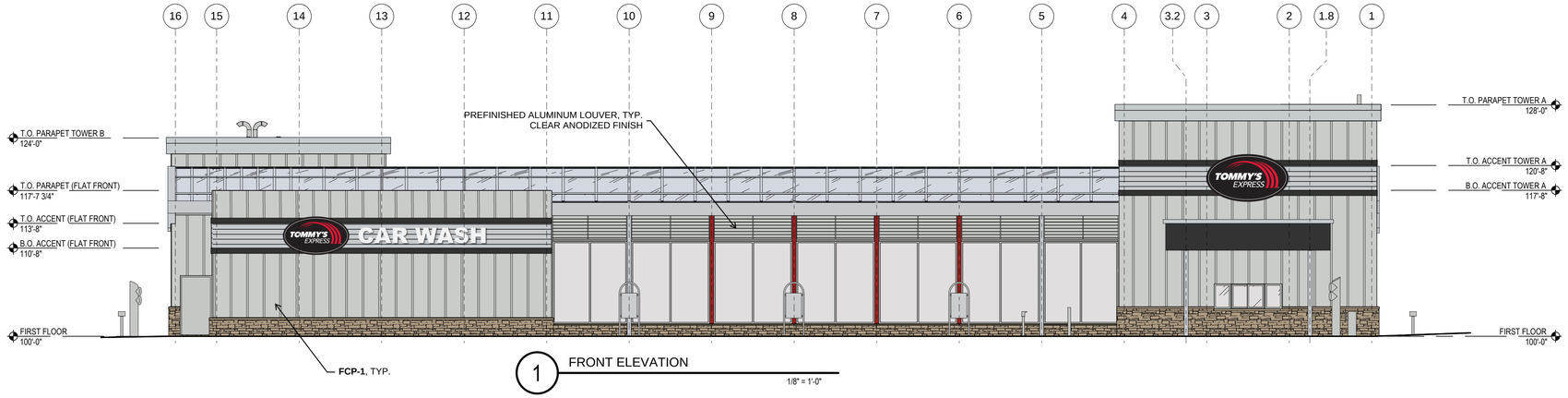
ACTION:
1. Approve the updated architectural plans.
2. Approve the updated sign program.

PROJECT DESCRIPTION:
The Planning Commission reviewed and approved the Stable Lanes Retail Center project (Plot Plan No. 24-0054) at the December 4, 2024 meeting. During the course of discussion, the Planning Commission added a condition of approval requiring revised architectural elevations for the car wash and a revised sign program to go back to the Planning Commission for review at a later date.

PROJECT ANALYSIS:
The applicant submitted revised architectural elevations for the approved car wash as well as a revised sign program addressing all of the requirements laid out in the conditions of approval, including eliminating the red color from the car wash/sign and removing the LED message board panel from the sign. Staff has reviewed the changes and has determined that they meet the requirements set forth by the Planning Commission on December 4, 2024.

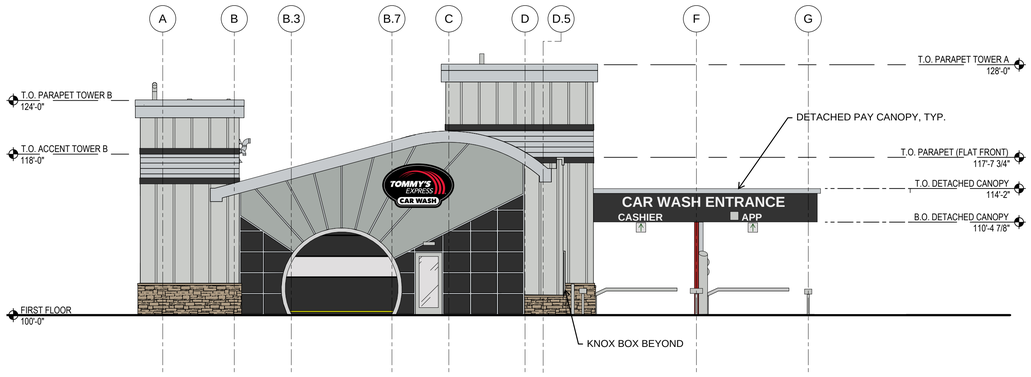
PUBLIC NOTICE:
The Planning Department on May 24, 2025 published a legal notice in the “Press Enterprise”, a local newspaper of general circulation notifying the general public of the June 4, 2025 Planning Commission meeting at which time the Planning Commission would consider the Stable Lanes Retail Center project.

ATTACHMENTS:
Attach A - Updated Car Wash Elevations.pdf
Attach B - Updated Sign Program.pdf
Attach C - Stable Lanes Staff PPT [6-4-25].pdf



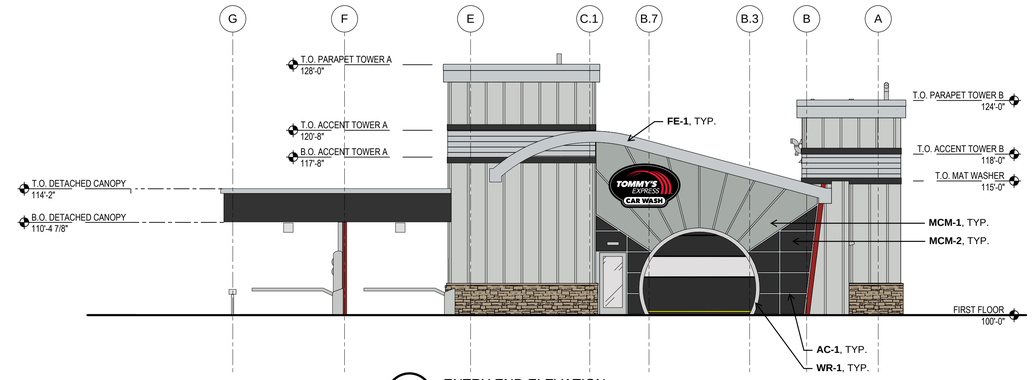
1 FRONT ELEVATION

1/8" = 1'-0"



2 EXIT END ELEVATION

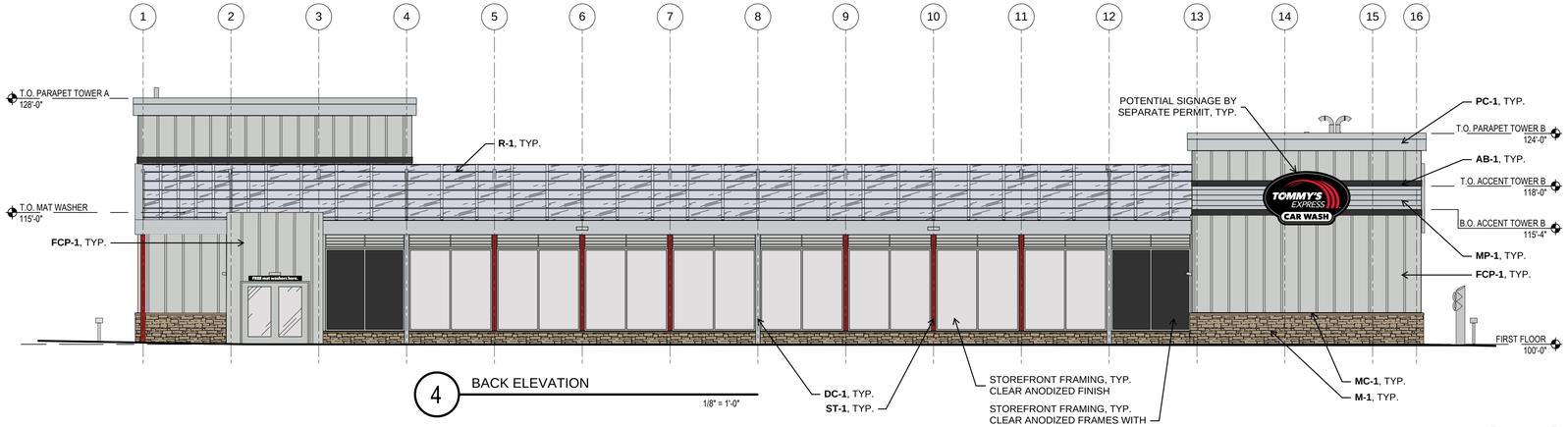
1/8" = 1'-0"



3 ENTRY END ELEVATION

1/8" = 1'-0"

TAG	MATERIAL	MFR.	DESCRIPTION	MFR. COLOR
ST-1	STRUCTURAL STEEL	PROSPIANT	5-STAGE POWDER COATED	CARNIVAL RED II SL4A139
MP-1	PREFINISHED PROFILED MCM, TOWER BANDING	ATAS	BELVEDERE 7.2" RIB PANEL	SILVERSMITH
FCP-1	FIBER CEMENT PANEL BOARD	JAMES HARDIE (OR EQUIV)	VERTICAL SIDING	SW7064 PASSIVE
M-1	CULTURED STONE VENEER, KNEE WALL	ELDORADO STONE	STACKED STONE	CASTAWAY (MORTAR COLOR TO MATCH)
MC-1	MASONRY CAP (FOR KNEE WALL)	ELDORADO STONE	MASONRY CAP	MATCH M-1
AB-1	PREFINISHED MCM, TOWER BANDING	ATAS	FLAT SHEET AND COIL	BLACK
PC-1	PREFINISHED MCM, TOWER FASCIA	ARCONIC	REYNOBOND COMPOSITE PANEL	BRIGHT SILVER METALLIC
MCM-1	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	CITYSCAPE
MCM-2	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	EBONY
AC-1	PREFINISHED MCM, END WALL REVEALS	TUBELITE	200 SERIES CURTAINWALL	CLEAR ANODIZED
DC-1	PREFINISHED MCM, DOWNSPOUT COVERS	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
WR-1	PREFINISHED MCM, GARAGE DOOR WRAPS	CITADEL	ENVELOPE 2000 SYSTEM	CLEAR SATIN ANODIZED
FE-1	PREFINISHED MCM, ROOF FASCIA	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
R-1	ACRYLIC ROOF SYSTEM	ACRYLITE	HEATSTOP HIGH IMPACT MULTI-SKIN	WZO11 - COOL BLUE WHITE



4 BACK ELEVATION

1/8" = 1'-0"

NOT FOR CONSTRUCTION
FOR REFERENCE ONLY
NOT TOMMY APPROVED

CONFIDENTIAL WARNING: THIS SHEET CONTAINS AND CONSTITUTES CONFIDENTIAL INFORMATION, IMAGES, AND TRADE SECRETS OF TOMMY CAR WASH SYSTEMS. ANY UNAUTHORIZED USE OR PORTION THEREOF IS STRICTLY PROHIBITED. THIS WORK IS THE EXCLUSIVE PROPERTY OF TOMMY CAR WASH SYSTEMS. ALL RIGHTS RESERVED.

REVISION SCHEDULE

VERSION	DATE	DESCRIPTION
V1.2	12/12/2024	

TOMMY CAR WASH SYSTEMS

TOMMY'S EXPRESS CAR WASH
EXTERIOR ELEVATIONS

P4129 WILDOMAR, CALIFORNIA

A200

12/12/2024

1/8" = 1'-0"

DESIGNS PREPARED FOR:

STABLE LANES

SITE ADDRESS:
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

JOB NUMBER:
290974

SALES REPRESENTATIVE:
J. HADAYA

PROJECT MANAGER:
L. HORTON

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DESIGN REVISIONS

REV. #	DATE	DESIGNER	REVISION COMPLETED	INTERNAL	PERMIT	CLIENT	REV. #	DATE	DESIGNER	REVISION COMPLETED	INTERNAL	PERMIT	CLIENT
1	09.20.24	JC	ADDED NEW SITE PLAN; ADDED NEW ELEVATIONS				13						
2	09.26.24	JC	ADDED NEW SITE PLAN; ADDED NEW ELEVATIONS				14						
3	09.27.24	JC	REVISED PS.1 TENANT POSITION				15						
4	03.10.25	JC	ADDED NEW ELEVATIONS				16						
5	03.13.25	JC	ADDED CAR WASH SIGNAGE				17						
6	05.02.25	JC	ADDED NEW PS.2 PYLON SIGN LAYOUT				18						
7							19						
8							20						
9							21						
10							22						
11							23						
12							24						

DESIGNER NOTES

DATE	DESIGNER	NOTES

PREFLIGHT PRINT LIST

GOOD TO GO	PRIMARY CHECKS	GOOD TO GO	ADDITIONAL CHECKS
	NO MISSING / UNPACKAGED / UNLINKED IMAGES		REMOVE ANY NON-PRINTING DATA
	ENSURE IMAGE RESOLUTION 100 PPI AT FULL SCALE - REFER TO JONES ART REQUIREMENTS REGARDING POSSIBLE EXCEPTIONS		FLATTEN TRANSPARENCIES (FLATTEN RASTER IMAGES AND EFFECTS, LEAVE VECTOR COPY, LOGOS ETC. INTACT AS VECTORS)
	COLORS - MUST BE CMYK OR PANTONE		CONVERT FONTS TO PATHS (OR CURVES)
	ENSURE IMAGE SIZE & PROPORTIONS ARE CORRECT FOR FINAL PRODUCT, AND ANY INCLUDED BLEED & TRIM MARKS MATCH CLIENT SPECS		EMBED IMAGES OR ENSURE UNEMBEDDED IMAGES ARE PROPERLY LOCATED FOR SYSTEM USE

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A Mortensen Company

JOB #: **290974_R6_SSP**
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

- ☐ FIELD SURVEY
- ☐ VECTOR ARTWORK
- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
1.0

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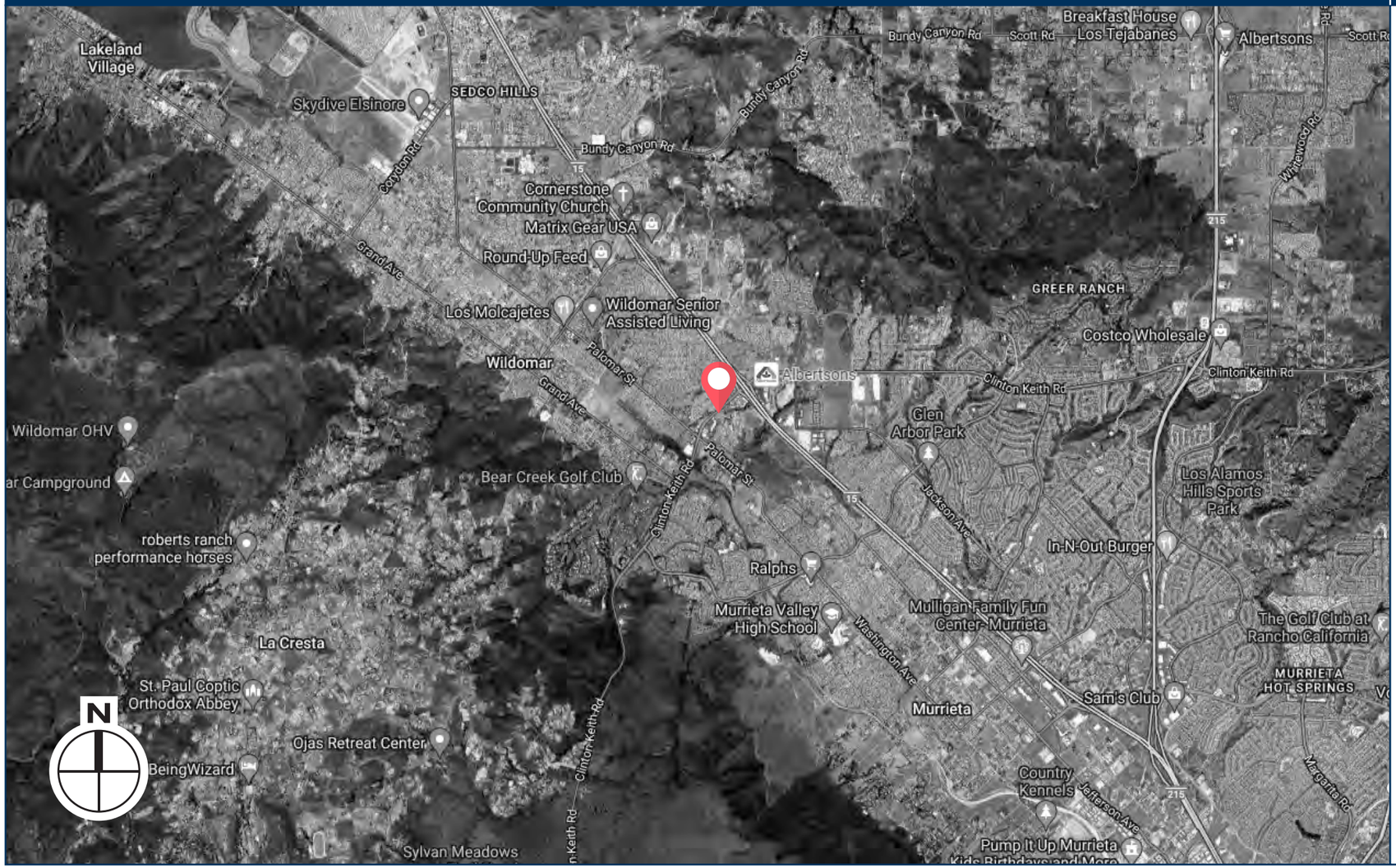
STABLE LANES

VICINITY MAP



NO SCALE

SIGN CODE REVIEW

JONES SIGN Your Vision. Accomplished. A Mortensen Company	JOB #: 290974_R6_SSP DATE: 12.15.2023 DESIGNER: J. CASTILLO SALES REP: J. HADAYA PROJ MGR: L. HORTON	**REQUIRED:** ☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS ☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING **OTHER:**	LANDLORD APPROVAL DATE CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
2.0

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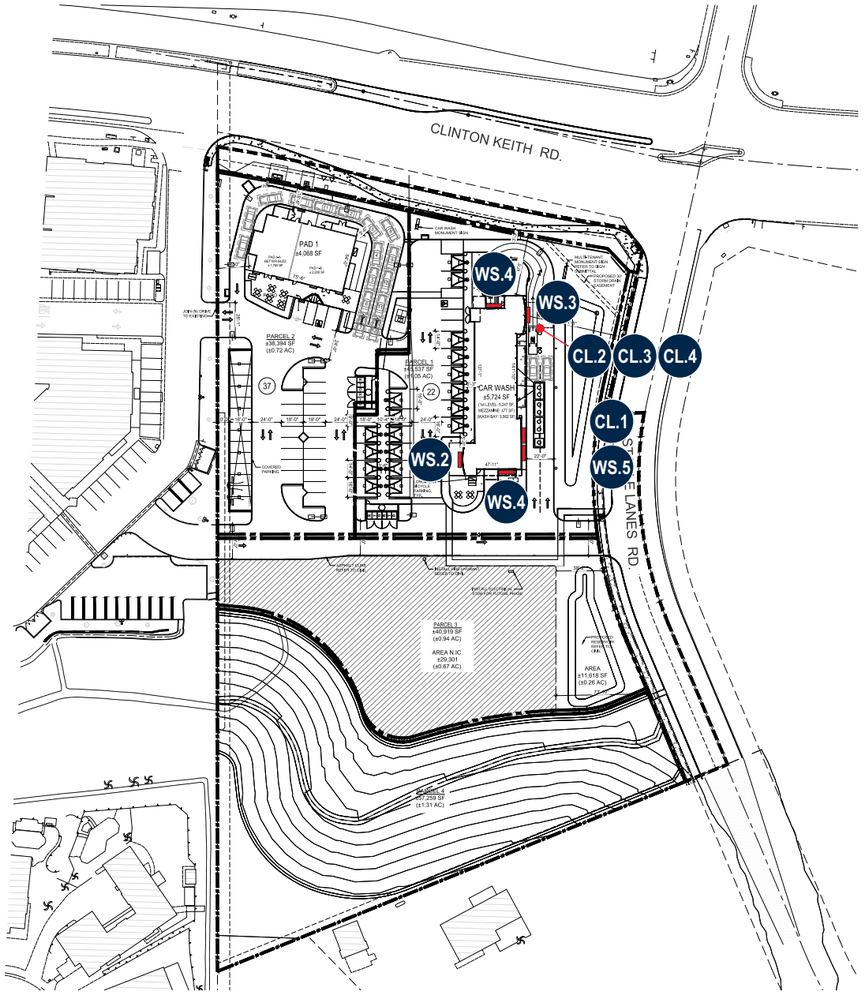
STABLE LANES

SITE PLAN



N

0 20 40 80
SCALE:

WS.1 TOMMY'S EXPRESS CAR WASH

WS.2 TOMMY'S EXPRESS CAR WASH

WS.3 TOMMY'S EXPRESS

WS.4 TOMMY'S EXPRESS CAR WASH

WS.5 TOMMY'S EXPRESS

WS.6 FREE VACUUMS

WS.7 LOVE YOUR RIDE

CL.1 CAR WASH

CL.2 CAR WASH ENTRANCE

CL.3 CASHIER

CL.4 APP

SCOPE OF WORK

EXTERIOR SIGNS		QTY
WS.1	NEW INTERNALLY-ILLUMINATED CABINET DISPLAY	2
WS.2	NEW INTERNALLY-ILLUMINATED CABINET DISPLAY	1
WS.3	NEW INTERNALLY-ILLUMINATED CABINET DISPLAY	1
WS.4	NEW INTERNALLY-ILLUMINATED CABINET DISPLAY	2
WS.5	NEW INTERNALLY-ILLUMINATED CABINET DISPLAY	1
WS.6	NEW INTERNALLY-ILLUMINATED CABINET DISPLAY	2
WS.7	NEW INTERNALLY-ILLUMINATED CABINET DISPLAY	2
CL.1	NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS	1
CL.2	NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS	1
CL.3	NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS	1
CL.4	NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS	1

SCALE: AS NOTED

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JOB #: 290974_R6_SSP
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DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

- ☐ FIELD SURVEY
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- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
3.0

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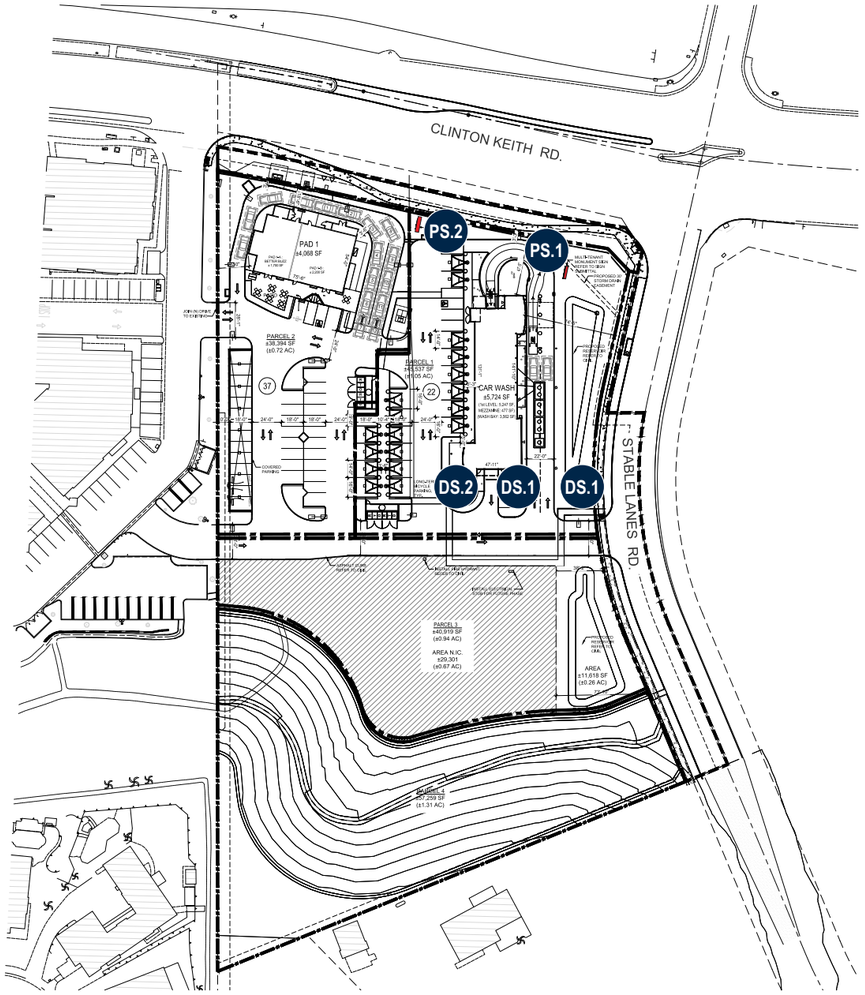
2530

STABLE LANES

SITE PLAN





SCOPE OF WORK

EXTERIOR SIGNS		QTY
PS.1	NEW D/F INTERNALLY-ILLUMINATED PYLON SIGN	1
PS.2	NEW D/F INTERNALLY-ILLUMINATED PYLON SIGN	1
DS.1	NEW D/F NON-ILLUMINATED DIRECTIONAL SIGN	3
DS.2	NEW D/F NON-ILLUMINATED DIRECTIONAL SIGN	1
SF.1	NEW S/F NON-ILLUMINATED GROUND MOUNTED SNAP FRAME DISPLAY	4
SF.2	NEW S/F NON-ILLUMINATED GROUND MOUNTED SNAP FRAME DISPLAY	2
SF.3	NEW S/F NON-ILLUMINATED WALL MOUNTED SNAP FRAME DISPLAY	2
PN.1	NEW S/F NON-ILLUMINATED WALL PANEL DISPLAY	1
PN.2	NEW S/F NON-ILLUMINATED WALL PANEL DISPLAY	2
FC.1	NEW NON-ILLUMINATED FLAT CUT-OUT LETTER DISPLAY	18

SCALE: AS NOTED

JONES SIGN
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- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
4.0

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2531

A INTRODUCTION

The intent of this sign criteria is to provide the guidelines necessary to achieve a visually coordinated, balanced and appealing sign environment, harmonious with the architecture of the project, while maintaining provisions for individual graphic expression.

Performance of this sign criteria shall be rigorously enforced and any nonconforming sign shall be removed by the tenant or his sign contractor at their expense, upon demand by the Landlord.

Exceptions to these standards shall not be permitted without approval from the Landlord and will require approval of a modification to the sign program application by the City.

Accordingly, the Landlord will retain full rights of approval for any sign used in the center.

No sign shall be installed without the written Landlord approval and the required City permits.

B LANDLORD/TENANT REQUIREMENTS

1. Each Tenant shall submit to Landlord for written approval, three (3) copies of the detailed shop drawings of this proposed sign, indicating conformance with the sign criteria herein outlined.

2. The Landlord shall determine and approve the availability and position of a Tenant name on any ground sign(s).

3. The Tenant shall pay for all signs, related materials and installation fees (including final inspection costs).

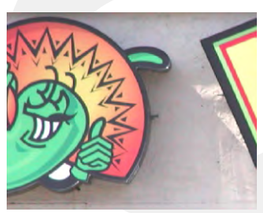
4. The Tenant shall obtain all necessary permits.

5. The Tenant shall be responsible for fulfillment of all requirements of this sign criteria.

6. It is the responsibility of the Tenant's sign company to verify all conduit and transformer locations and service access prior to fabrication.

7. Should a sign be removed, it is the Tenant's responsibility to patch all holes, paint surface to match the existing color, and restore surface to original condition.









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A Mortensen Company

JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
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C GENERAL SIGN CONSTRUCTION REQUIREMENTS:

1. All signs and their installation shall comply with all local building and electrical codes.

2. All electrical signs will be fabricated by a U.L. approved sign company, according to U.L. specifications and bear U.L. Label.

3. Sign company to be fully licensed with the City and State and shall have full Workman's Compensation and general liability insurance.

4. All penetrations of building exterior surfaces are to be sealed waterproof in color and finish to match existing exterior.

5. Internal illumination to be LEDs, installed and labeled in accordance with the "National Board of Fire Underwriters Specifications".

6. Painted surfaces to have a satin finish. Only paint containing acrylic polyurethane products may be used.

7. Logo and letter heights shall be as specified and shall be determined by measuring the normal capital letter of a type font exclusive of swashes, ascenders, and descenders.

8. All sign fabrication work shall be of excellent quality. All logo images and type-styles shall be accurately reproduced. Lettering that approximates type-styles will not be acceptable. The Landlord reserves the right to reject any fabrication work deemed to be below standard.

9. All lighting must match the exact specification of the approved working drawings. No exposed conduits or raceways will be allowed.

10. Signs must be made of durable rust–inhibiting materials that are appropriate and complimentary to the building.

11. Color coatings shall exactly match the colors specified on the approved plans.

12. Joining of materials (e.g., seams) shall be finished in way as to be unnoticeable. Visible welds shall be continuous and ground smooth. Rivets, screws, and other fasteners that extend to visible surfaces shall be flush, filled, and finished so as to be unnoticeable.

13. Finished surfaces of metal shall be free from oil canning and warping. All sign finishes shall be free from dust, orange peel, drips, and runs and shall have a uniform surface conforming to the highest standards of the industry.

14. In no case shall any manufacturer’s label be visible from the street from normal viewing angles.

15. Exposed raceways are not permitted.

16. Exposed junction boxes, lamps, tubing or neon crossovers of any type are not permitted.

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D TENANT SIGNAGE SPECIFICATIONS:

The intent of this criteria is to insure a standardized uniform style throughout the center while encouraging the creativity of typographical and iconic elements to develop interest and style. Signs must be architecturally compatible with the entire center.

STOREFRONT SIGNAGE
The following types of construction will be allowed:
- Acrylic face channel logos & letters
- Thru-face and halo channel letters
- Reverse pan channel letters

Tenant signs must meet the requirements of Wildomar Municipal Code Chp. 17.252

Specifically, the following tenant sign areas are allowed.
FRONT WALL SIGNS - 10% of wall area square footage for Tenant's lease area.
SIDE WALL SIGNS - 10% of wall area total for all signs.
REAR WALL SIGNS - 5% of wall area square footage for Tenant's lease area.

Sign area available shall be calculated at maximum 1.5 square foot of sign area for each lineal foot of leased premises.

The sign width is 75% of leased frontage of tenant space or the architectural element of which the sign is placed, whichever is the smallest. Refer to following exhibits for maximum sign heights allowed.

Regardless of the allowable square footage allowance for a tenant sign, the display must be balanced and proportional to the area upon which it is installed, as determined by Owner or Owner's Agent.

All tenants who have leased space adjacent to building storefront shall be allocated at least one sign for each building wall face.

In-line shops or end cap shops who only use two (2) wall signs may also have two (2) sign panels (one on each side) on a designated multi-tenant monument sign or freeway sign. Subject to availability and owner approval. In no case shall the combination of wall signs and monument signs exceed four (4) signs.

In order to allow creativity and artistic designs, ascending and descending shapes will be allowed to extend beyond the envelope limits provided that the overall allocated square footage is not exceeded. In other words, these areas shall be calculated individually and added to the "boxed" area for the main sign body. (See diagram below)



Descender: (The part of the lowercase letters, such as g, p, and y, which extends below the other lowercase letters)

Irregular shaped icons & logos should be considered in sign design for increased visual impact.

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E PROHIBITED SIGNS:

1. Signs constituting a Traffic Hazard:
No person shall install or maintain, or cause to be installed or maintained, any sign which simulates or imitates in size, color, lettering or design any traffic sign or signal, or which makes use of the words "STOP", "LOOK", "DANGER" or any words, phrases, symbols, or characters in such a manner as to interfere with, mislead or confuse traffic.

2. Signs in Proximity to Utility Lines:
Signs which have less horizontal or vertical clearance from authorized communication or energized electrical power lines that are prescribed by the laws of the State of California are prohibited.

3. Signs painted directly on a building surface will not be permitted.

4. Wall signs may not project above the top of a parapet, the roof line at the wall, or roof line.

5. There shall be no signs that are flashing, moving or audible.

6. No sign shall project above or below the sign-able area. The sign-able area is defined in the attached exhibit for tenants.

7. Vehicle Signs:
Signs on or affixed to trucks, automobiles, trailers, or other vehicles which are use for advertising, identity, or provide direction to a specific use or activity not related to its lawful activity are prohibited.(i.e. Delivery trucks with tenant signage is OK!)

8. Light Bulb Strings:
External displays, other than temporary decorative holiday lighting which consists of unshielded light bulbs are prohibited. An exception may be granted by the Landlord when the display is an integral part of the design character of the activity to which it relates.

9. Banners, Pennants & Balloons Used for Advertising Purposes:
Temporary flags, banners, or pennants, or a combination of same constituting an architectural feature which is an integral part of the design character of a project may be permitted subject to Municipal Code requirements, Landlord's, and City approval.

10. Billboard Signs are not permitted.

11. The use of permanent “sale” signs are prohibited. The temporary use of these signs are limited to a thirty-day period and is restricted to signs affixed to the interior of windows which do not occupy more that 20% of the window area. Each business is permitted a total of not more than ninety (90) days of temporary window sale signs per calendar year.

12. No standard plex faced cabinet construction allowed.

F ABANDONMENT OF SIGNS:

Any tenant sign left after thirty (30) days from vacating premises shall become the property of Landlord.

G INSPECTION:

Landlord reserves the right to hire an independent electrical engineer at the Tenant's sole expense to inspect the installation of all Tenant's signs and to require the Tenant to have any discrepancies and/or code violations corrected at the Tenant's expense.

H MAINTENANCE:

It is the Tenant's responsibility to maintain their signs in proper working and clean conditions at all times . Otherwise, landlord reserves the right to hire his own contractor, make the necessary corrections, and bill tenant should it be deemed necessary.

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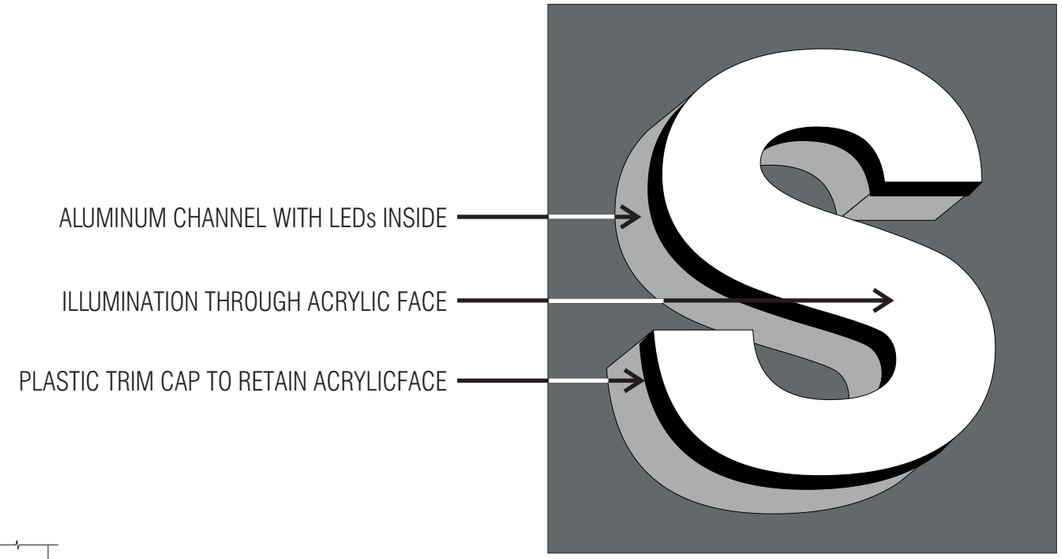
SIGN CONSTRUCTION

Illuminated ACRYLIC-FACED CHANNELS with THRU-FACE ILLUMINATION.
Use standard aluminum construction with Matthews (or equivalent) satin acrylic polyurethane finish.
Faces use any color of translucent ACRYLIC with any color of trim cap.
Illuminate with any color of LEDs.
Paint aluminum channel any color.

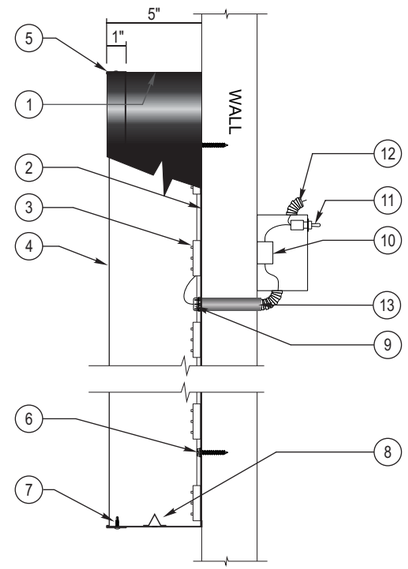
NOTE: All signs may utilize digital vinyl printing on faces of illuminated or non-illuminated surfaces.



EXAMPLE OF ACRYLIC FACED CHANNEL

SPECIFICATIONS:
1. .040" x 5" PRE-FINISHED ALUMINUM COIL (WHITE INSIDE)
2. ACM BACKS / LETTER LOCKED TO RETURNS
3. WHITE LEDS
4. 3/16" ACRYLIC / STANDARD COLORS
5. 1" PRE-FINISHED JEWELITE CHEMICALLY BONDED TO FACES
6. MOUNTING HARDWARE TO SUIT FIELD CONDITIONS
7. #8 - 1/2" PAN HEAD SCREWS
8. 1/4" DIA. WEEP HOLES w/ .063" DRAIN HOLE COVER
9. 7/8" ELECTRICAL HOLE / 1/2" COUPLER w/ FLEXIBLE CONDUIT TO POWER SUPPLY BOX
10. LED POWER SUPPLY INSIDE POWER SUPPLY BOX
11. TOGGLE SWITCH MOUNTED TO POWER SUPPLY BOX
12. 15 FT. MIN. WHIP LENGTH
13. RIGID CONDUIT THROUGH WALL w/ - 1" STUB BEYOND INSIDE WALL

NOTES:
1. ETL STICKER TO BE PLACED ON BOTTOM OF SIGN, VISIBLE FROM GROUND



CROSS SECTION VIEW
NO SCALE

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2536

SIZE: 1.5 SQUARE FOOT OF SIGN AREA PER LINEAR FOOT OF LEASED PREMISES.
MAXIMUM OF 100 SQUARE FEET TOTAL PER ELEVATION.
CONSTRUCTION: SEE SHEET 8
ILLUMINATION: YES
COPY: TENANT NAME AND / OR LOGO
HEIGHT: SEVENTY PERCENT OF ADJACENT SURFACE
LENGTH: SEVENTY PERCENT OF ADJACENT SURFACE
TYPEFACE: CUSTOM LOGO AND TYPE OK
COLORS: CUSTOM COLORS OK
SECONDARY SIGNS: NO

MAXIMUM 70%
OF ADJACENT SURFACE

70% OF ADJACENT SURFACE OR 2'-6" MAX *(WHICHEVER IS LESS)*

SHOP TENANT



TYPICAL SHOP TENANT ELEVATION

SCALE: 1/8" = 1'-0"

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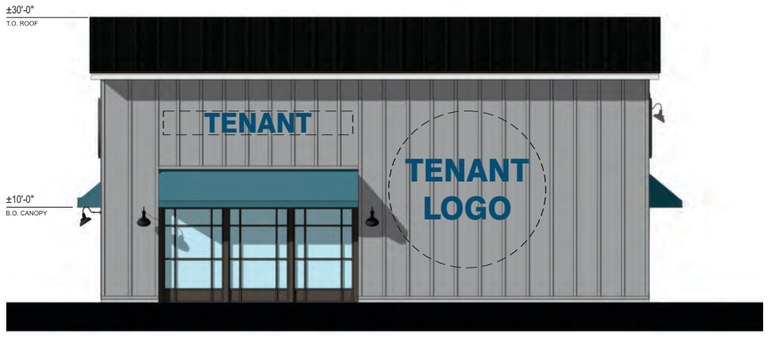
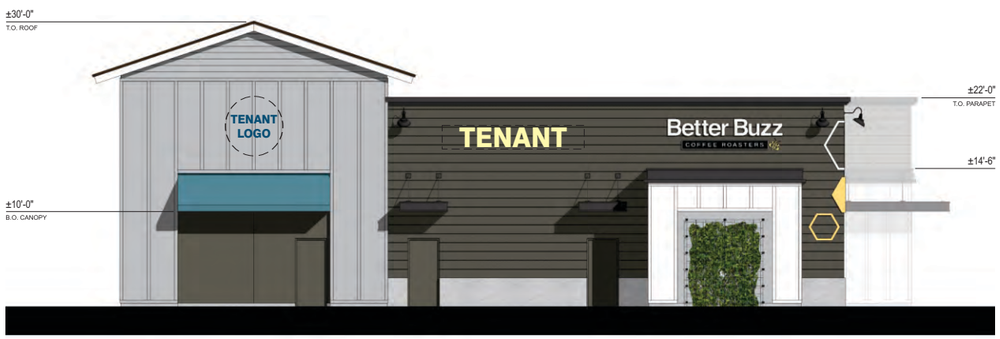
SOUTHEAST ELEVATION - STOREFRONT SCALE: 1/16" = 1'-0"



NORTHEAST ELEVATION SCALE: 1/16" = 1'-0"



NORTHWEST ELEVATION - REAR SCALE: 1/16" = 1'-0"



SOUTHWEST ELEVATION SCALE: 1/16" = 1'-0"

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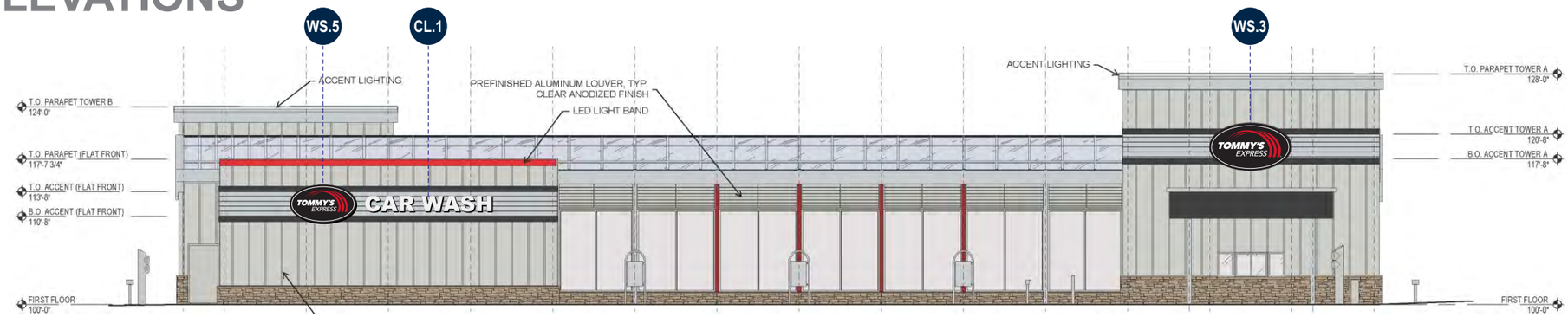
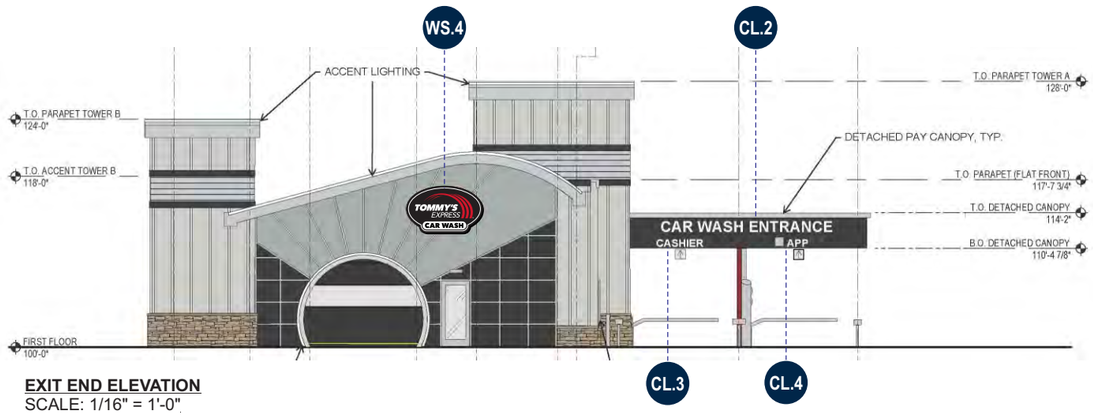
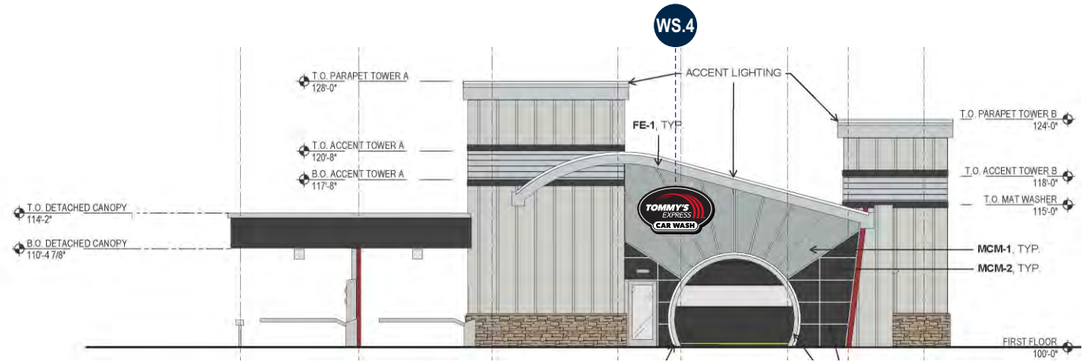
CAR WASH ELEVATIONS



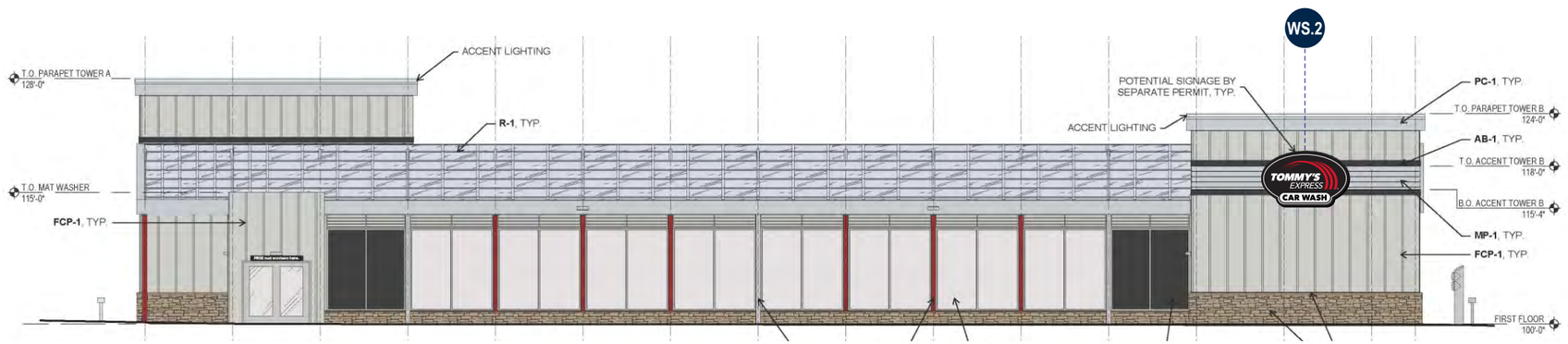
FRONT ELEVATION
SCALE: 1/16" = 1'-0"



EXIT END ELEVATION
SCALE: 1/16" = 1'-0"



ENTRY END ELEVATION
SCALE: 1/16" = 1'-0"



BACK ELEVATION
SCALE: 1/16" = 1'-0"

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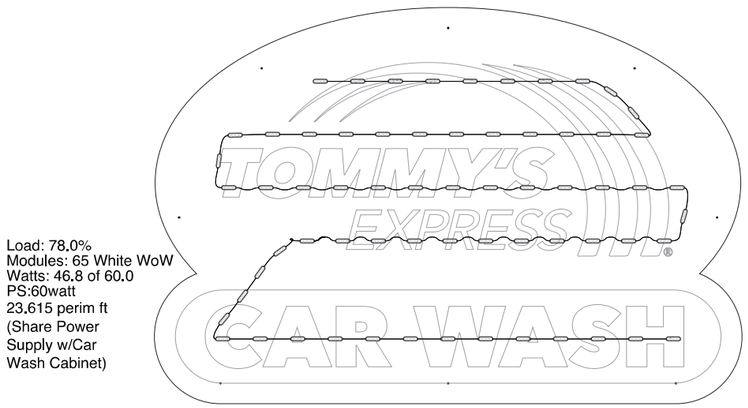
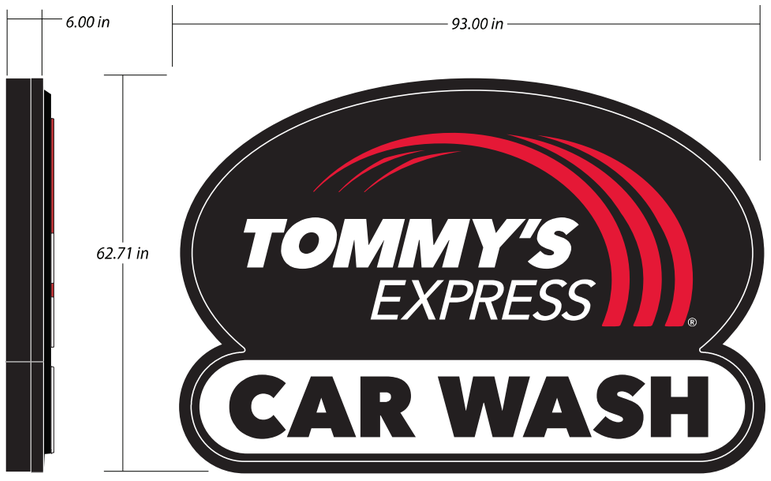
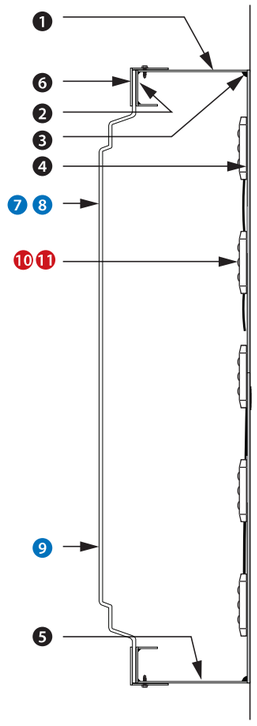
WS.1 NEW INTERNALLY-ILLUMINATED CABINET DISPLAY - EXTERIOR (Qty 2)







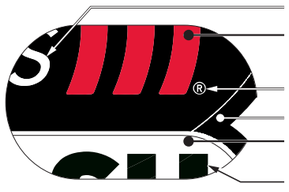
CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	2" - .100" ROUTED ALUM. FLANGE
3	WELDED CONSTRUCTION
4	.100" ALUM. BACK / SUPPORTS-GUSSETS
5	WEEP HOLES
6	.100" - 2" X 2" RETAINER
	CABINET /RETAINER PAINT COLORS
	MAP BLK, SIDEWALLS AND BACK (GLOSS)

ITEM	FACE
7	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
8	SUBSURFACE PAINT
9	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
10	LED: G2G WHITE WOW
11	POWER SUPPLY: 1x 60W (ALLANSON)
	SHARE POWER SUPPLY W/CAR WASH CAB. POWER SUPPLY MOUNTED IN PYLON

INSTALLATION
MOUNT TO PYLON

SIGN CODE:	PWS41-CW
SCALE:	1/2" = 1'



.50" emboss, back paint Grip Flex White
.50" emboss, back paint Grip Flex to match PMS 186
Not embossed, paint Grip Flex White
2.5" Flange, 62.21" x 92.5" trim, 58.71" x 89" v.o.
.50" emboss (oval only), back paint Grip Flex White
Back paint Grip Flex Black (Not Embossed)

Face Details

JONES SIGN
Your Vision. Accomplished.
A Mortensen Company

JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
13.0

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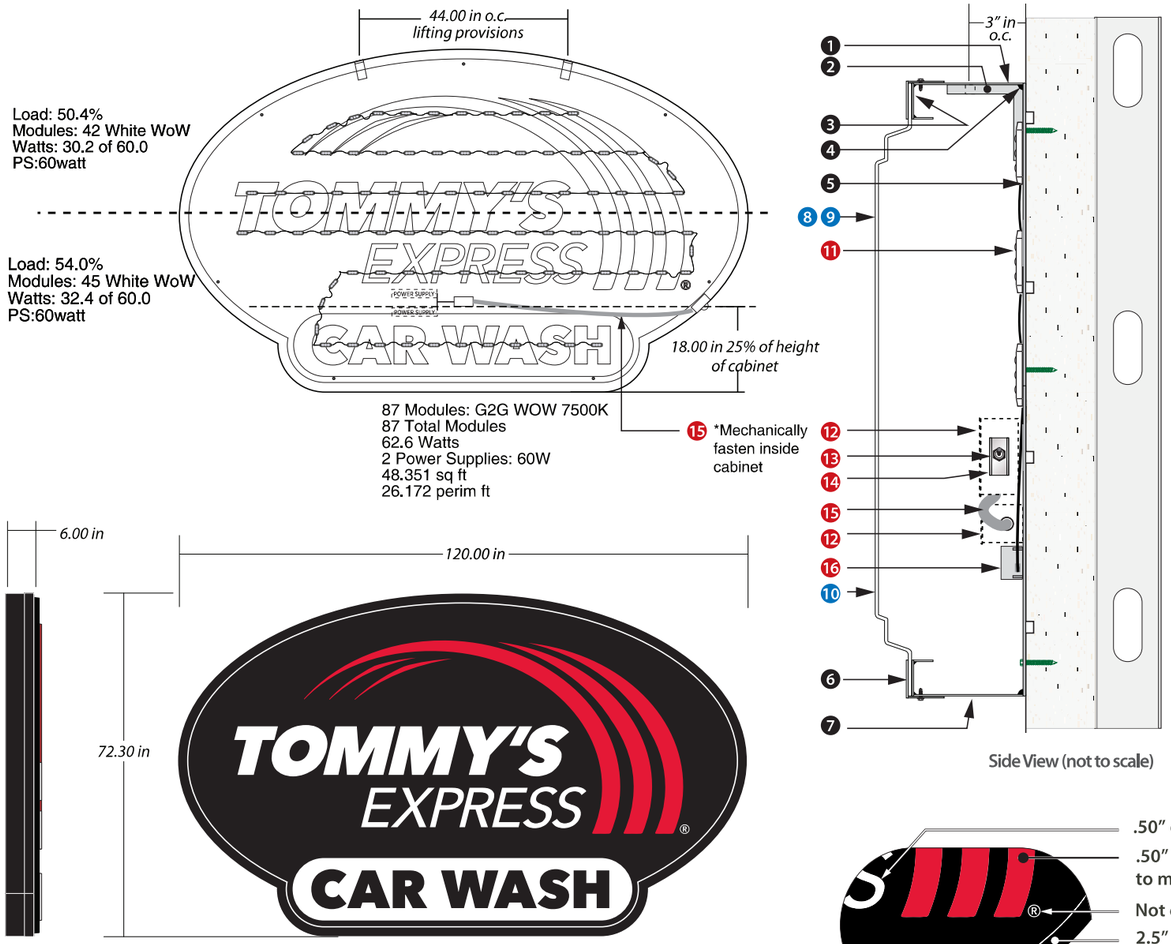
2540

WS.2 NEW INTERNALLY-ILLUMINATED CABINET DISPLAY - EXTERIOR (Qty 1)



Side View (not to scale)

CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	4"x4"x.50"x1.875" ALUM. ANGLE
	.625"-11 TAP, WELD TO BACK, 44"O.C.
3	2" - .100" ROUTED ALUM. FLANGE
4	WELDED CONSTRUCTION
5	.100" ALUM. BACK / SUPPORTS-GUSSETS
6	.100" - 2" X 2" RETAINER
7	WEEP HOLES
	CABINET /RETAINER PAINT COLORS
	MAP BLACK (GLOSS)

ITEM	FACE
8	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
9	SUBSURFACE PAINT
10	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
11	LED: G2G WHITE WOW
12	ELECT. BOX (PART #EL-BOX-4SSLEK) 2X REQ.
13	20A TOGGLE SWITCH (EL-SW-SW20)
14	LOCKING PLATE (EL-SW-LOCKING PLATE)
15	MC CABLE* (EL-COND-AL-.375FLX)
16	POWER SUPPLY: 2X 60W (1.12 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL
	INSTALLATION

SIGN CODE:	WS61-CW
SCALE:	3/8" = 1'

Face Details

.50" emboss, back paint Grip Flex White
.50" emboss, back paint Grip Flex to match PMS 186
Not embossed, paint Grip Flex White
2.5" Flange, 71.80" x 119.50" trim, 68.30" x 116" v.o.
.50" emboss (oval only), back paint Grip Flex White
Back paint Grip Flex Black (Not Embossed)

JONES SIGN
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A Mortensen Company

JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE
CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
14.0

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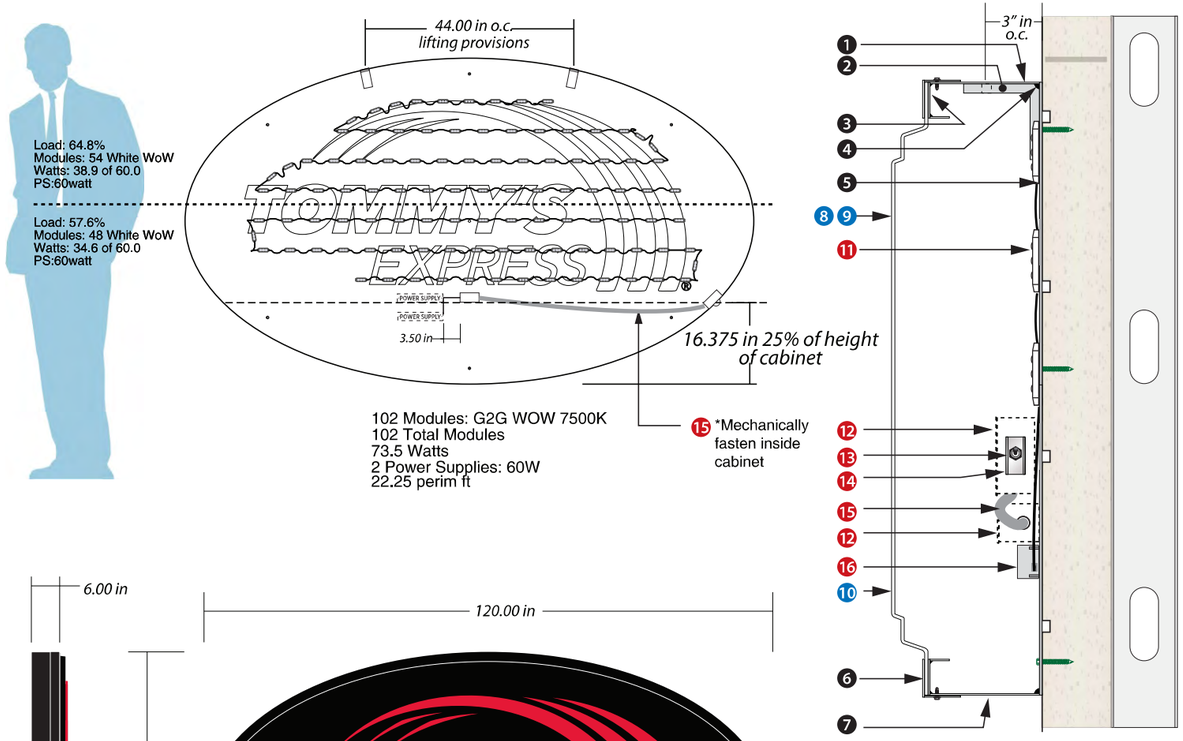
2541

WS.3 NEW INTERNALLY-ILLUMINATED CABINET DISPLAY - EXTERIOR (Qty 1)



Side View (not to scale)



.50" emboss, back paint Grip Flex to match PMS 186

.50" emboss, back paint Grip Flex White

Not embossed, paint Grip Flex White

Back paint Grip Flex Black

2.5" Flange, 68.25" x 119.50" Trim, 64.75" x 116" v.o.

Face Details

CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	4"x4"x.50"x1.875" ALUM. ANGLE
	.625"-11 TAP, WELD TO BACK, 44"O.C.
3	2" - .100" ROUTED ALUM. FLANGE
4	WELDED CONSTRUCTION
5	.100" ALUM. BACK / SUPPORTS-GUSSETS
6	.100" - 2" X 2" RETAINER
7	WEEP HOLES
	CABINET /RETAINER PAINT COLORS
	MAP BLACK (GLOSS)

ITEM	FACE
8	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
9	SUBSURFACE PAINT
10	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
11	LED: G2G WHITE WOW
12	ELECT. BOX (PART #EL-BOX-4SSLEK) 2X REQ.
13	20A TOGGLE SWITCH (EL-SW-SW20)
14	LOCKING PLATE (EL-SW-LOCKING PLATE)
15	MC CABLE* (EL-COND-AL-.375FLX)
16	POWER SUPPLY: 2X 60W (1.12 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL

INSTALLATION

SIGN CODE:	WS58
SCALE:	3/8" = 1'

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
15.0

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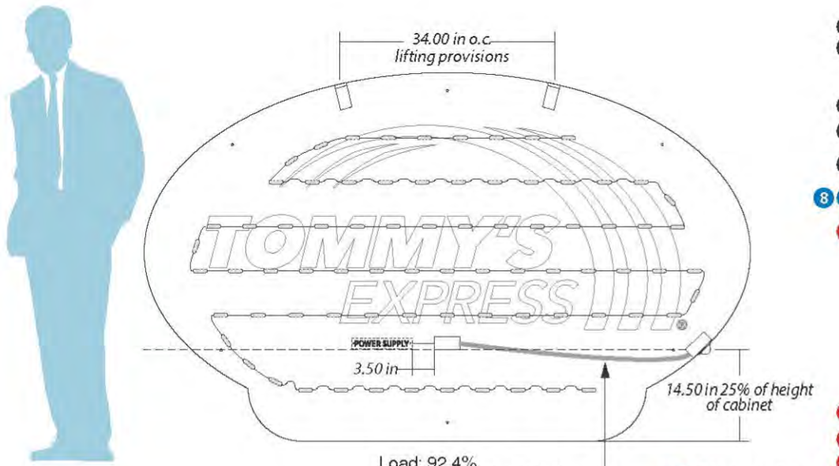
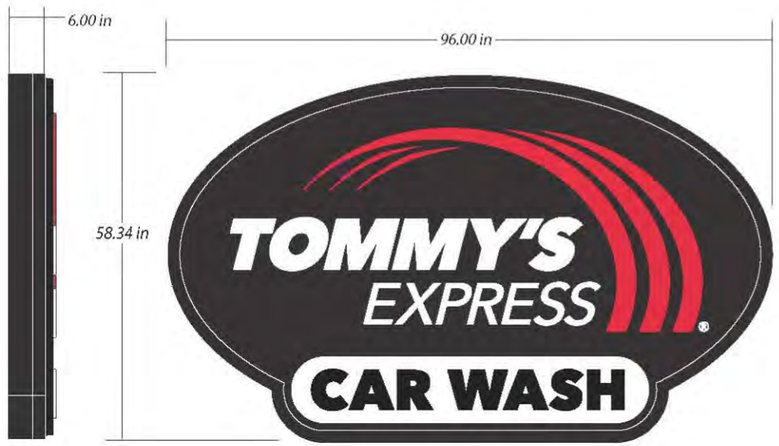
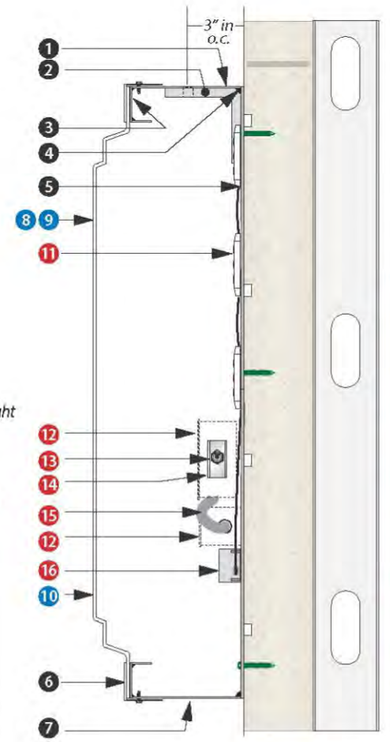
WS.4 NEW INTERNALLY-ILLUMINATED CABINET DISPLAY - EXTERIOR (Qty 2)







Side View (not to scale)

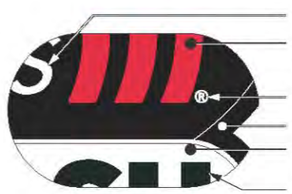
CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	4"x 4"x .50"x 1.875" ALUM. ANGLE
	.625"-11 TAP, WELD TO BACK, 34"O.C.
3	2" - .100" ROUTED ALUM. FLANGE
4	WELDED CONSTRUCTION
5	.100" ALUM. BACK / SUPPORTS-GUSSETS
6	.100" - 2"X 2" RETAINER
7	WEEP HOLES
	CABINET /RETAINER PAINT COLORS
	MAP BLACK (GLOSS)

ITEM	FACE
8	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
9	SUBSURFACE PAINT
10	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
11	LED: G2G WHITE WOW
12	ELECT. BOX (PART #EL-BOX-4SSLEK) 2X REQ.
13	20A TOGGLE SWITCH (EL-SW-SW20)
14	LOCKING PLATE (EL-SW-LOCKING PLATE)
15	MC CABLE* (EL-COND-AL-.375FLX)
16	POWER SUPPLY: 1X 60W (.56 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL

INSTALLATION

SIGN CODE:	WS39-CW
SCALE:	1/2" = 1'



Face Details

.50" emboss, back paint Grip Flex White
.50" emboss, back paint Grip Flex to match PMS 186
Not embossed, paint Grip Flex White
2.5" Flange, 57.84" x 95.5" trim, 54.34" x 92" v.o.
.50" emboss (oval only), back paint Grip Flex White
Back paint Grip Flex Black (Not Embossed)

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
16.0

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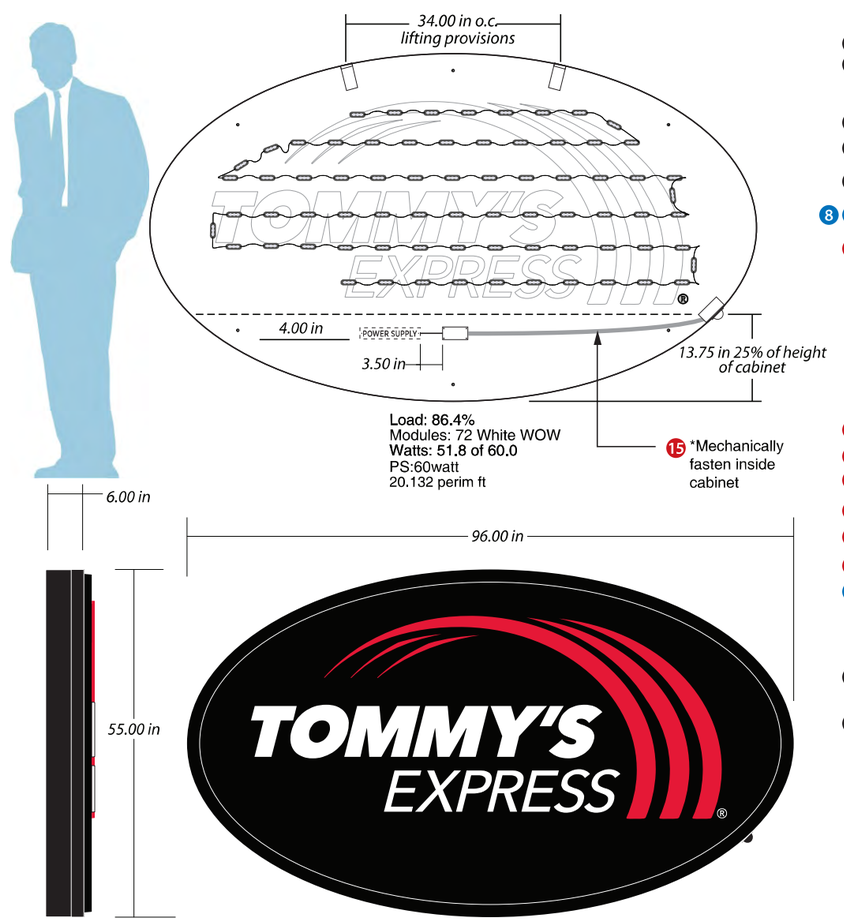
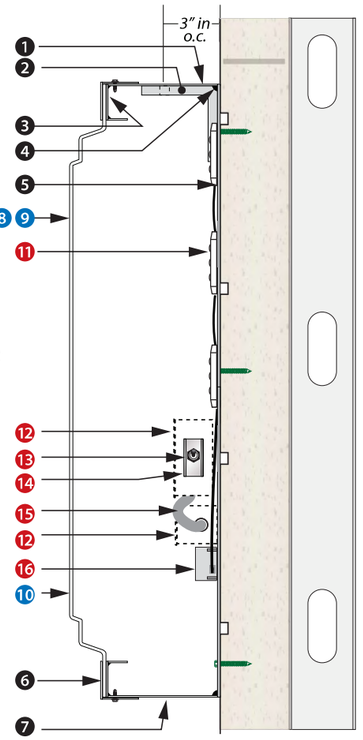
WS.5 NEW INTERNALLY-ILLUMINATED CABINET DISPLAY - EXTERIOR (Qty 1)





Side View (not to scale)



Face Details

CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	4"x4"x.50"x1.875" ALUM. ANGLE
	.625"-11 TAP, WELD TO BACK, 34"O.C.
3	2" - .100" ROUTED ALUM. FLANGE
4	WELDED CONSTRUCTION
5	.100" ALUM. BACK / SUPPORTS-GUSSETS
6	.100" - 2" X 2" RETAINER
7	WEEP HOLES
	CABINET /RETAINER PAINT COLORS
	MAP BLACK (GLOSS)

ITEM	FACE
8	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
9	SUBSURFACE PAINT
10	REGISTER MARK NOT EMBOSSED
	FACE PAINT COLORS
	GRIP FLEX BLACK
	GRIP FLEX TO MATCH PMS 186
	GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
11	LED: G2G WHITE WOW
12	ELECT. BOX (PART #EL-BOX-4SSLEK) 2X REQ.
13	20A TOGGLE SWITCH (EL-SW-SW20)
14	LOCKING PLATE (EL-SW-LOCKING PLATE)
15	MC CABLE* (EL-COND-AL-.375FLX)
16	POWER SUPPLY: 1X 60W (.56 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL

INSTALLATION

SIGN CODE:	WS37
SCALE:	1/2" = 1'

.50" emboss, back paint Grip Flex to match PMS 186

.50" emboss, back paint Grip Flex White

Not embossed, paint Grip Flex White

Back paint Grip Flex Black

2.5" Flange, 54.50" x 95.50"trim size, 51" x 92" v.o.

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A Mortensen Company

JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
17.0

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2544

WS.6 NEW INTERNALLY-ILLUMINATED CABINET DISPLAY - EXTERIOR (Qty 2)



For 1x - Sign
16 mods
11.5 w

For 2x - Signs
32 Modules: G2G WOW 7500K
32 Total Modules
23.0 Watts
Share power supply w/PWS41-CW cabinet



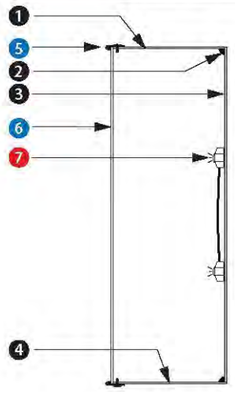
CUSTOM WALL SIGN	
ITEM	CABINET STRUCTURE/RETAINER
1	6" - .063" ALUM. SIDEWALL
2	WELDED CONSTRUCTION
3	.100" ALUM. BACKS
4	WEEP HOLES
	CABINET PAINT COLORS
	MAP BLK, SIDEWALLS (GLOSS)
	EXPOSED ENDS OF BACK (GLOSS)

ITEM	FACE
5	1" BLK JEWELITE / BLK JEWELITE SCREW
6	.125"WHITE PLEX FACE (7328)
	VINYL COLORS
	MATTE BLACK SCOTCHCAL (#7725-22)

ITEM	ELECTRICAL: 120v
7	LED: G2G WHITE WOW
	SHARE POWER SUPPLY W/ PWS41-CW CAB. POWER SUPPLY MOUNTED IN PYLON

INSTALLATION
MOUNT TO PYLON

SIGN CODE:	PWS6.5-FV
SCALE:	1" = 1'
DATE:	06.14.23D
QUANTITY:	2 Pre-assembled onto pylon sign



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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
18.0

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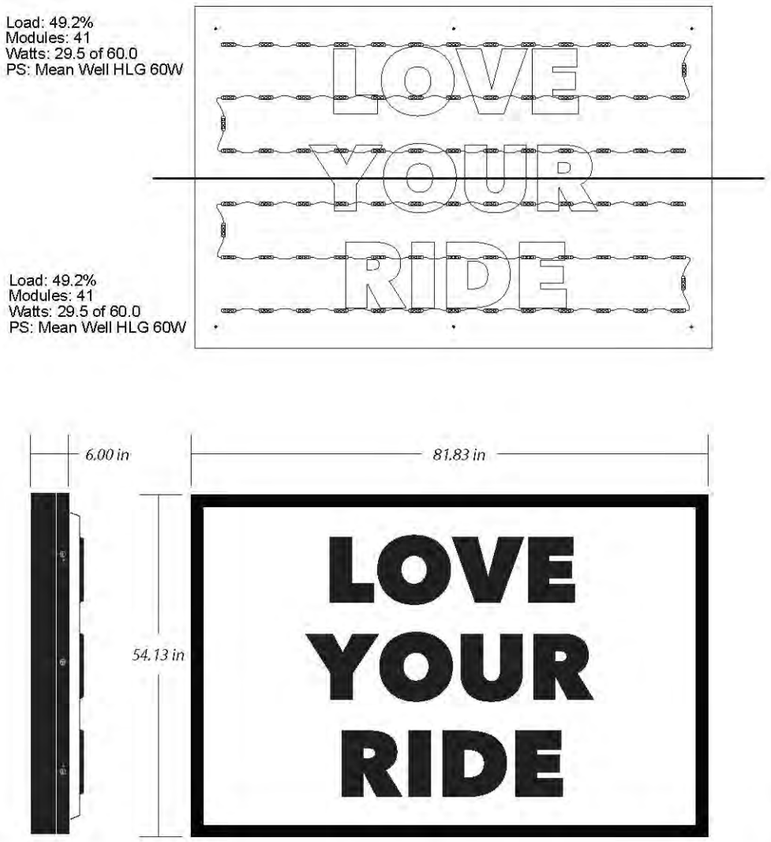
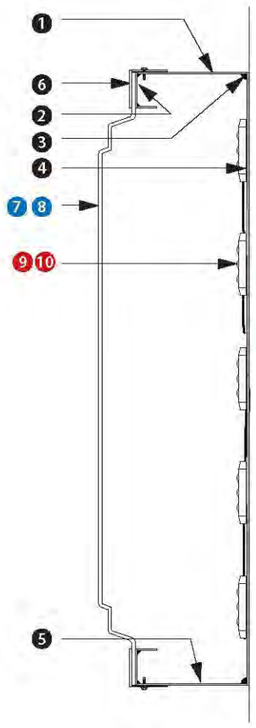
WS.7 NEW INTERNALLY-ILLUMINATED CABINET DISPLAY - EXTERIOR (Qty 2)





CUSTOM WALL SIGN	
ITEM	RETAINER / CABINET STRUCTURE
1	6" - .080" SIDEWALLS
2	2" - .100" ROUTED ALUM. FLANGE
3	WELDED CONSTRUCTION
4	.100" ALUM. BACK / SUPPORTS-GUSSETS
5	WEEP HOLES
6	.100" - 2"X 2" RETAINER
CABINET /RETAINER PAINT COLORS	
	MAP BLK, SIDEWALLS AND BACK (GLOSS)

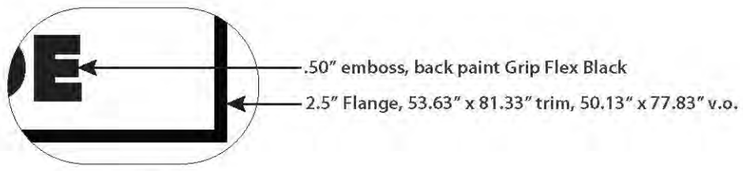
ITEM	FACE
7	.177" CLEAR POLY. / 1-1/4" D - 1/2" EMBOSS.
8	SUBSURFACE PAINT

FACE PAINT COLORS
GRIP FLEX BLACK
GRIP FLEX WHITE

ITEM	ELECTRICAL: 120v
9	LED: G2G WHITEWOW
10	POWER SUPPLY: 2x 60W (ALLANSON)

INSTALLATION
MOUNT TO PYLON

SIGN CODE:	P-P4129
SCALE:	1/2" = 1'
DATE:	01.27.25
QUANTITY:	2 Pre-assembled onto pylon sign



Face Details

JONES SIGN
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A Mortensen Company

JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

- ☐ FIELD SURVEY
- ☐ VECTOR ARTWORK
- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
19.0

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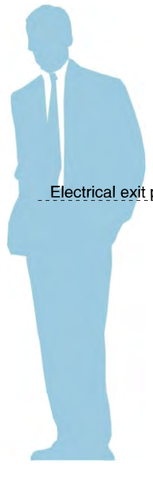
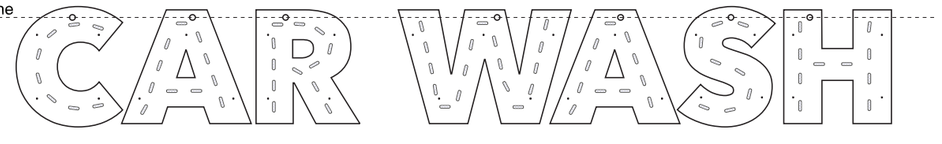
CL.1 NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS - EXTERIOR (Qty 1)

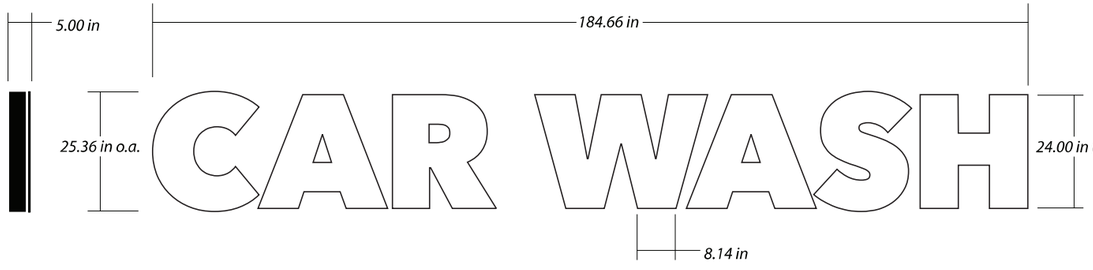


Electrical exit plane

C	A	R	W	A	S	H
8 mods	11 mods	12 mods	17 mods	11 mods	8 mods	10 mods
5.8 w	7.9 w	8.6 w	12.2 w	7.9 w	5.8 w	7.2 w
3.4 mod/ft²	4.1 mod/ft²	4.3 mod/ft²	4.2 mod/ft²	4.1 mod/ft²	3.4 mod/ft²	3.4 mod/ft²
2.346 sq ft	2.652 sq ft	2.811 sq ft	4.033 sq ft	2.652 sq ft	2.368 sq ft	2.945 sq ft
8.395 perim ft	8.997 perim ft	9.793 perim ft	14.435 perim ft	8.997 perim ft	9.121 perim ft	10.565 perim ft

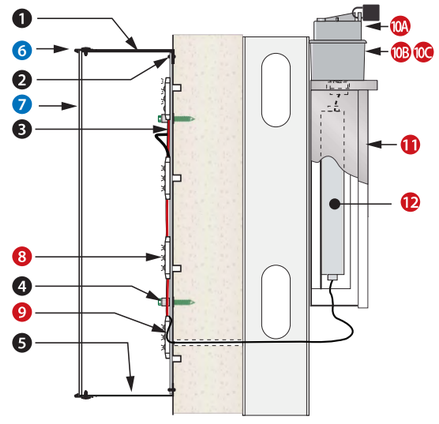


Load: 92.4%
Modules: 77 White G2G WOW
Watts: 55.4 of 60.0
PS:60watt
19.807 sq ft
70.303 perim ft



JEWELITE CHANNEL LETTERS	
ITEM	CABINET STRUCTURE
1	5" - .040" PREPAINTED BLACK SIDEWALLS
2	STAPLED CONSTRUCTION
3	3mm ACM PANEL
4	.25-20 INSERT W/FASTENER
5	WEEP HOLES
ITEM	FACE / RETAINER
6	1" BLACK JEWELITE / BLACK JEWELITE SCREW
7	.125" WHITE PLEX FACE (7328)
ITEM	ELECTRICAL: 120V
8	G2G WHITE WOW LED (77)
9	SLEEVED LED CABLE
10A	LOCKING COVER (EL-COVER-PTC100GY)
10B	ELECTRICAL BOX (EL-BOX-IH3-ILM)
10C	120V/20A SWITCH (EL-SW-CS120-2)
11	POWER SUPPLY BOX
12	POWER SUPPLY: 1X 60W (.56 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL
	INSTALLATION

SIGN CODE:	WL33-CW
SCALE:	3/8" = 1'



JONES SIGN
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A Mortensen Company

JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
20.0

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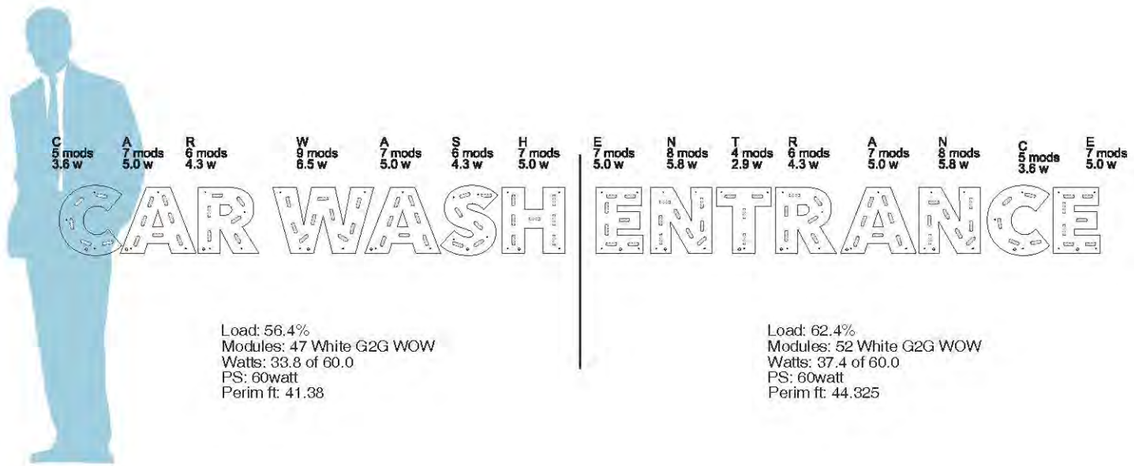
2547

CL.2 NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS - EXTERIOR (Qty 1)

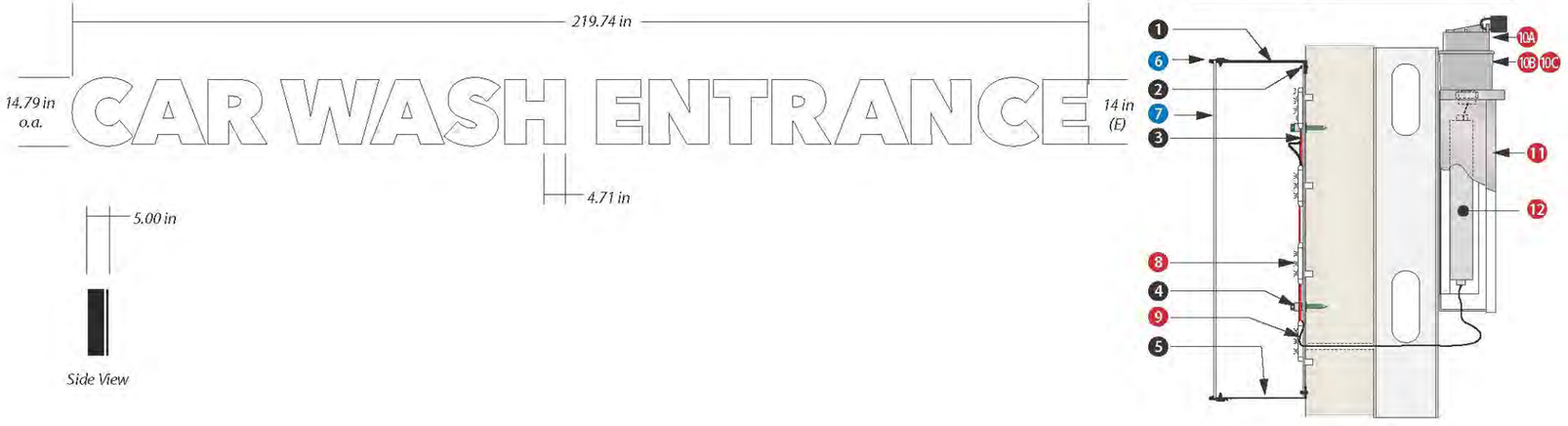


Load: 56.4%
Modules: 47 White G2G WOW
Watts: 33.8 of 60.0
PS: 60watt
Perim ft: 41.38

Load: 62.4%
Modules: 52 White G2G WOW
Watts: 37.4 of 60.0
PS: 60watt
Perim ft: 44.325

JEWELITE CHANNEL LETTERS	
ITEM	CABINET STRUCTURE
1	5" - .040" PREPAINTED BLACK SIDEWALLS
2	STAPLED CONSTRUCTION
3	3mm ACM PANEL
4	.25-20 INSERT W/FASTENER
5	WEEP HOLES
ITEM	FACE / RETAINER
6	1" BLACK JEWELITE / BLACK JEWELITE SCREW
7	.125" WHITE PLEX FACE (7328)
ITEM	ELECTRICAL: 120V
8	G2G WHITE WOW LED (99)
9	SLEEVED LED CABLE
10A	LOCKING COVER (EL-COVER-PTC100GY)
10B	ELECTRICAL BOX (EL-BOX-IH3-ILM)
10C	120V/20A SWITCH (EL-SW-CS120-2)
11	POWER SUPPLY BOX
12	POWER SUPPLY: 2X 60W (1.12 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL
	INSTALLATION

SIGN CODE:	WL23-CWE
SCALE:	3/8" = 1'
DATE:	05.22.19B
QUANTITY:	1



JONES SIGN
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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
21.0

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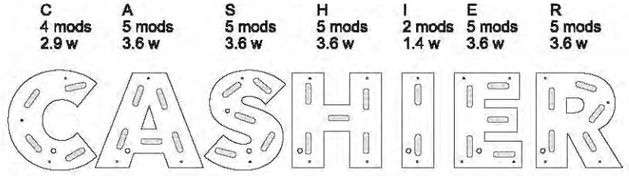
CL.3 NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS - EXTERIOR (Qty 1)



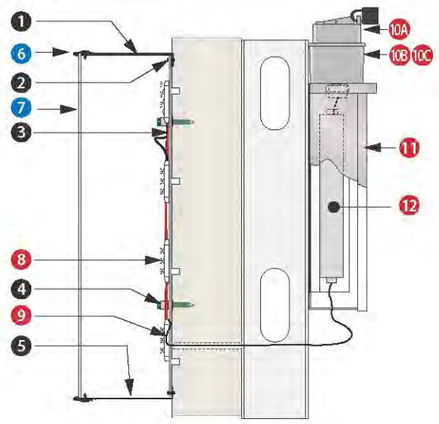


Load: 37.2%
Modules: 31 White G2G WOW
Watts: 22.3 of 60.0
PS: Universal 60watt
Perim ft: 26.56



JEWELITE CHANNEL LETTERS	
ITEM	CABINET STRUCTURE
1	5" - .040" PREPAINTED BLACK SIDEWALLS
2	STAPLED CONSTRUCTION
3	3mm ACM PANEL
4	.25-20 INSERT W/FASTENER
5	WEEP HOLES
ITEM	FACE / RETAINER
6	1" BLACK JEWELITE / BLACK JEWELITE SCREW
7	.125" WHITE PLEX FACE (7328)
ITEM	ELECTRICAL: 120V
8	G2G WHITE WOW LED (31)
9	SLEEVED LED CABLE
10A	LOCKING COVER (EL-COVER-PTC100GY)
10B	ELECTRICAL BOX (EL-BOX-IH3-ILM)
10C	120V/20A SWITCH (EL-SW-CS120-2)
11	POWER SUPPLY BOX
12	POWER SUPPLY: 1X 60W (.56 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL
	INSTALLATION

SIGN CODE:	WL5-C
SCALE:	3/4" = 1'
DATE:	05.22.19B
QUANTITY:	1



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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

- ☐ FIELD SURVEY
- ☐ VECTOR ARTWORK
- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
22.0

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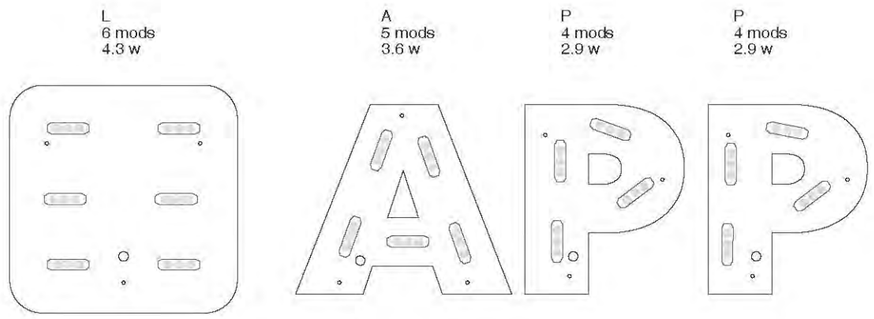
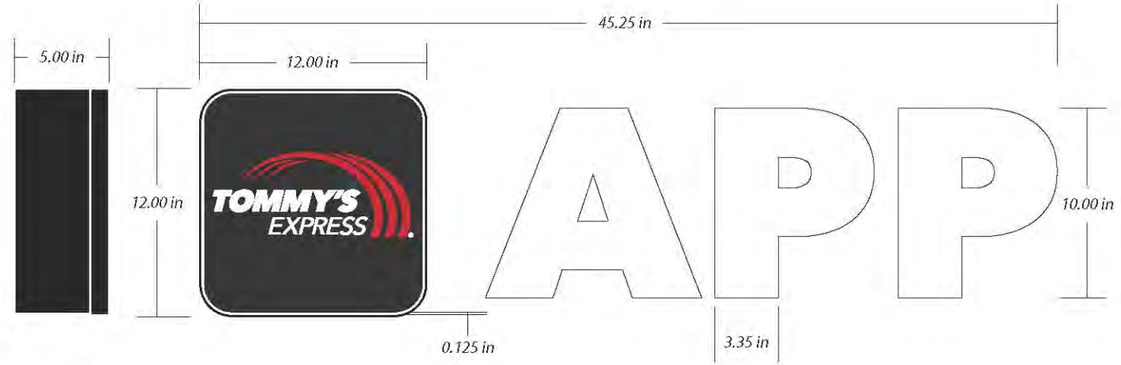
CL.4 NEW INTERNALLY-ILLUMINATED CHANNEL LETTERS - EXTERIOR (Qty 1)

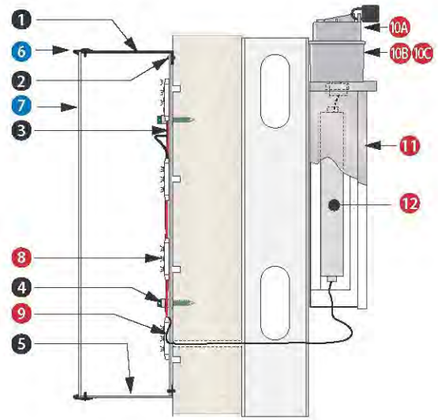


19 Modules: G2G WOW 7500K
19 Total Modules
13.7 Watts
1 Power Supply: 60W
2.334 sq ft
14.18 perim ft

SIGN CODE:	WL4-APP
SCALE:	1-1/2" = 1'
DATE:	6.18.20D
QUANTITY:	1

JEWELITE CHANNEL LETTERS	
ITEM	CABINET STRUCTURE
1	5" - .040" PREPAINTED BLACK SIDEWALLS
2	STAPLED CONSTRUCTION
3	3mm ACM PANEL
4	.25-20 INSERT W/FASTENER
5	WEEP HOLES
ITEM	FACE / RETAINER
6	1" BLACK JEWELITE / BLACK JEWELITE SCREW
7	.125"WHITE PLEX FACE (7328)
	VINYL COLORS
	MATTE BLACK SCOTCHCAL (#7725-22)
	DARK RED SCOTCHCAL (#3630-73)
ITEM	ELECTRICAL: 120V
8	G2G WHITE WOW LED (19)
9	SLEEVED LED CABLE
10A	LOCKING COVER (EL-COVER-PTC100GY)
10B	ELECTRICAL BOX (EL-BOX-IH3-ILM)
10C	120V/20A SWITCH (EL-SW-CS120-2)
11	POWER SUPPLY BOX
12	POWER SUPPLY: 1X 60W (.56 TOTAL AMPS)
	ELECTRICAL BOX W/LOCKING SWITCH REQ. BY ELECTRICIAN ON INTERIOR WALL
	INSTALLATION





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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
23.0

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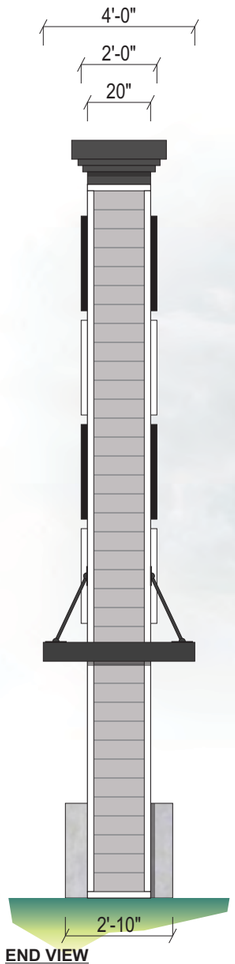
2550

PS.1 NEW D/F INTERNALLY-ILLUMINATED PYLON SIGN - EXTERIOR (Qty 1)

FIELD SURVEY REQUIRED
COLOR CALL OUTS REQUIRED
ENGINEERING REQUIRED



SIMULATED NIGHT VIEW - OPPOSITE VIEW
NO SCALE



END VIEW
SCALE: 1/4" = 1'-0"



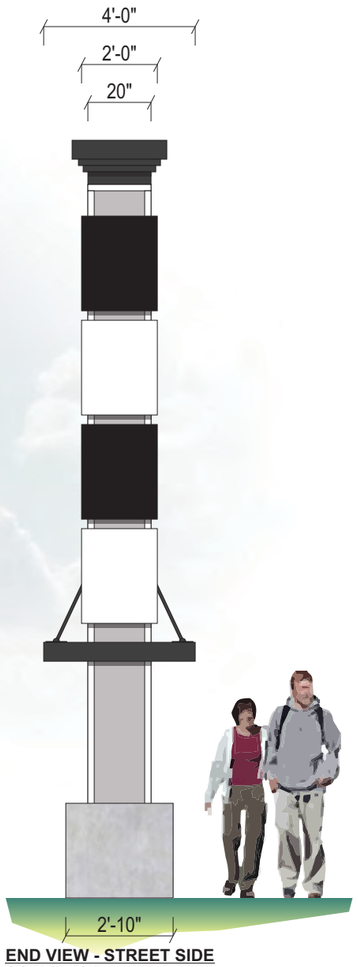
FRONT VIEW
SCALE: 1/4" = 1'-0"

NEW D/F INTERNALLY-ILLUMINATED PYLON SIGN
USE STANDARD ALUMINUM CONSTRUCTION w/ ANGLE FRAME & STEEL PIPE SUPPORT INTO CONCRETE FOOTING. ALUMINUM STRUCTURE TO HAVE PAINTED FINISH w/ COLORS TO MATCH EXISTING BUILDING P-1,P-2,P-3

TENANT PANELS TO HAVE ALUMINUM FACES PAINTED P-1 & ROUTED & BACKED-UP PLEX GRAPHICS w/ 1st SURFACE APPLIED VINYL OVERLAYS. ILLUMINATE w/ WHITE LEDS

BASE TO HAVE PRECAST CONCRETE FINISH TO MATCH BUILDING M-1

SEE ENGINEERS SPECIFICATIONS FOR STRUCTURAL CALCULATIONS. VERIFY EXACT LOCATION OF SIGN PRIOR TO INSTALLATION



END VIEW - STREET SIDE
SCALE: 1/4" = 1'-0"

SPECIFICATIONS:

1. SEE SPECIFICATION CALL-OUTS THIS SHEET

COLORS / FINISHES:

- P-1 WHITE
- P-2 DUNN EDWARDS DE6387 "DANGEROUS ROBOT"
- P-3 DUNN EDWARDS DEA87 "BLACK"
- M-1 TO MATCH PRECAST CONCRETE

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
24.0

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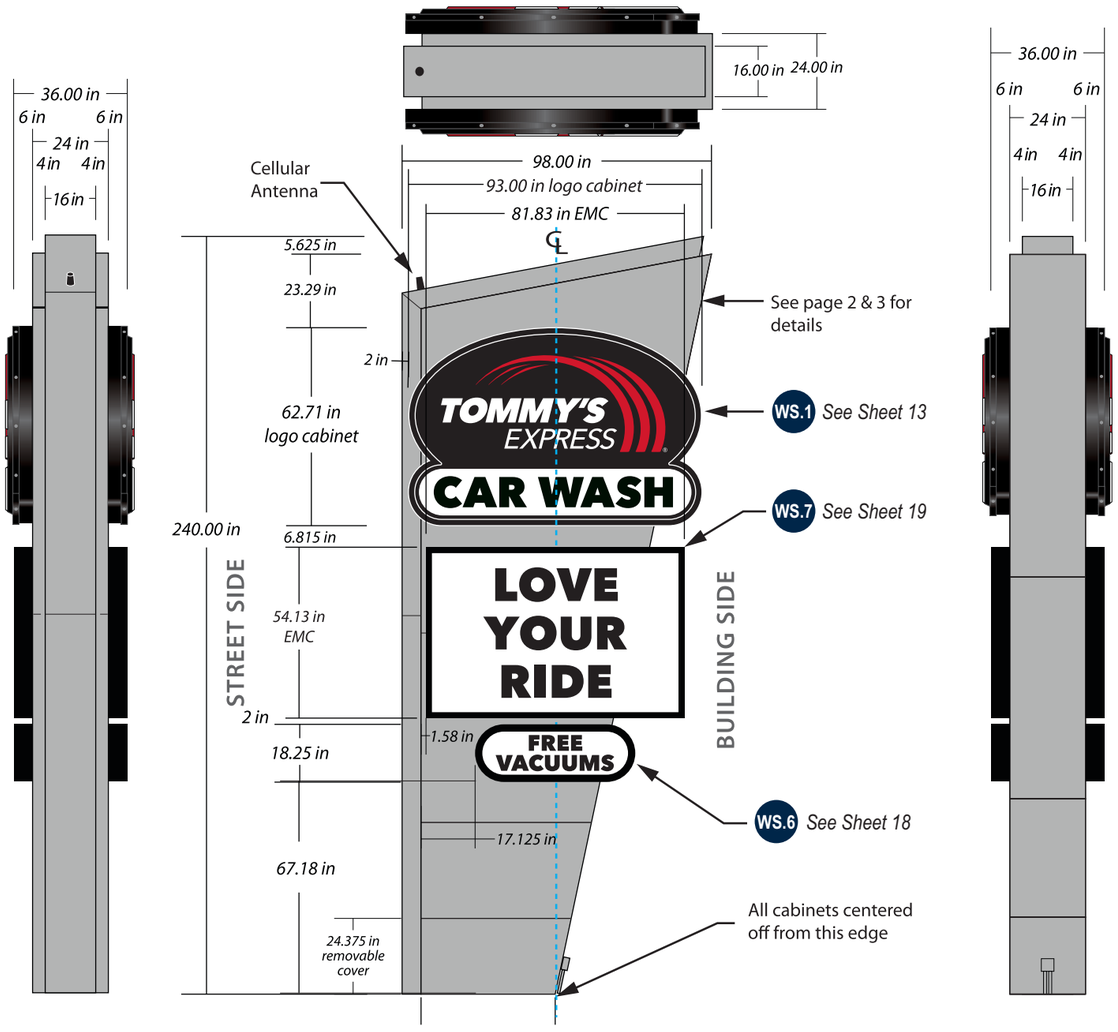
2551

1

PS.2 NEW D/F INTERNALLY-ILLUMINATED PYLON SIGN - EXTERIOR (Qty 1)



PYLON SIGN	
SIGN CODE:	P-P4129
SCALE:	1/4" = 1'



Side B

JONES SIGN Your Vision. Accomplished. A Mortensen Company	JOB #: 290974_R6_SSP DATE: 12.15.2023 DESIGNER: J. CASTILLO SALES REP: J. HADAYA PROJ MGR: L. HORTON	REQUIRED: ☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS ☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING OTHER:	LANDLORD APPROVAL DATE CLIENT APPROVAL DATE	STABLE LANES	STABLE LANES CLINTON KEITH & STABLE LANES ROAD WILDOMAR, CA 92595	SHEET NUMBER 25.0

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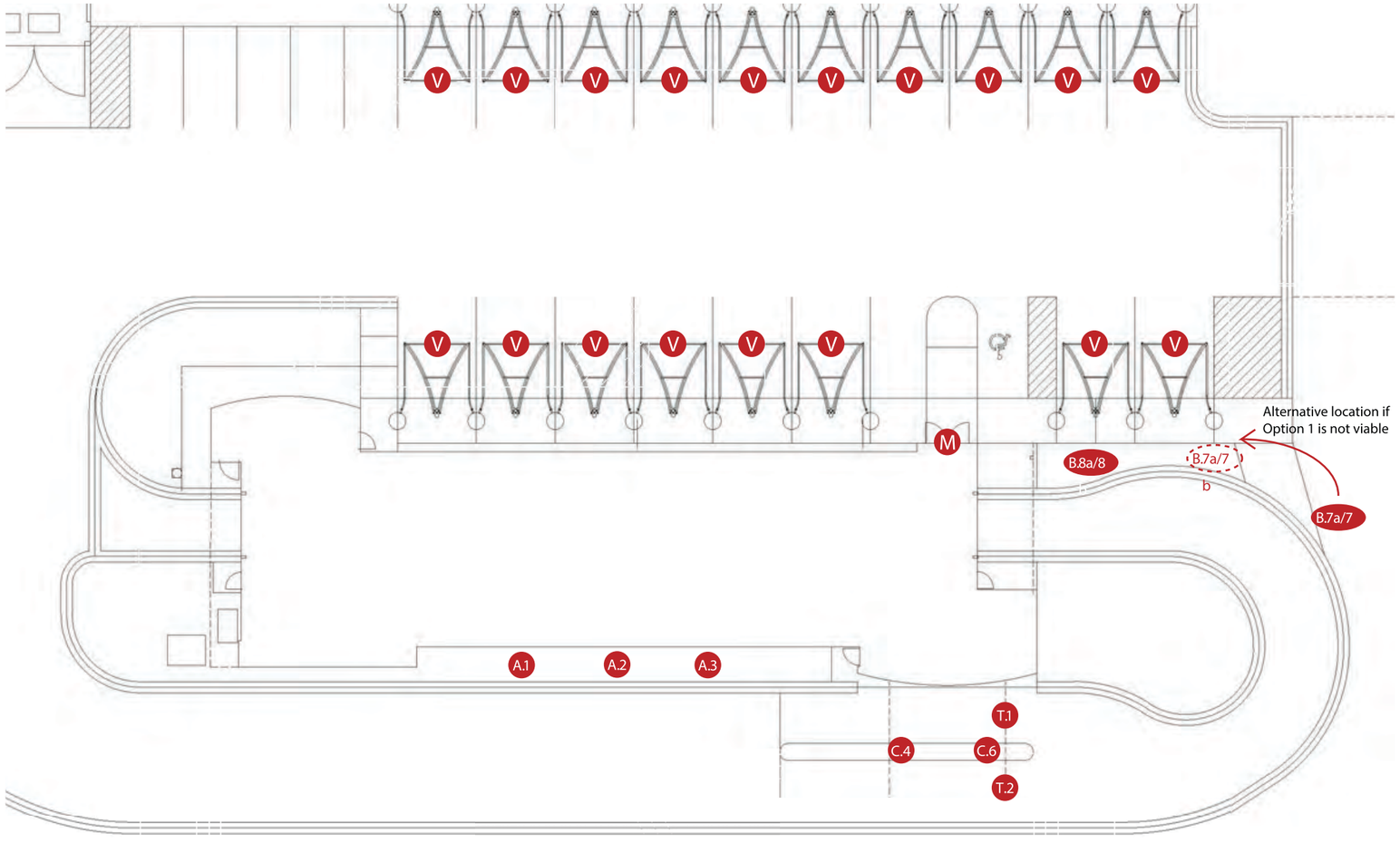

SITE PLAN @ CAR WASH ELEVATION
NO SCALE

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JOB #: **290974_R6_SSP**
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

- ☐ FIELD SURVEY
- ☐ VECTOR ARTWORK
- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
26.0

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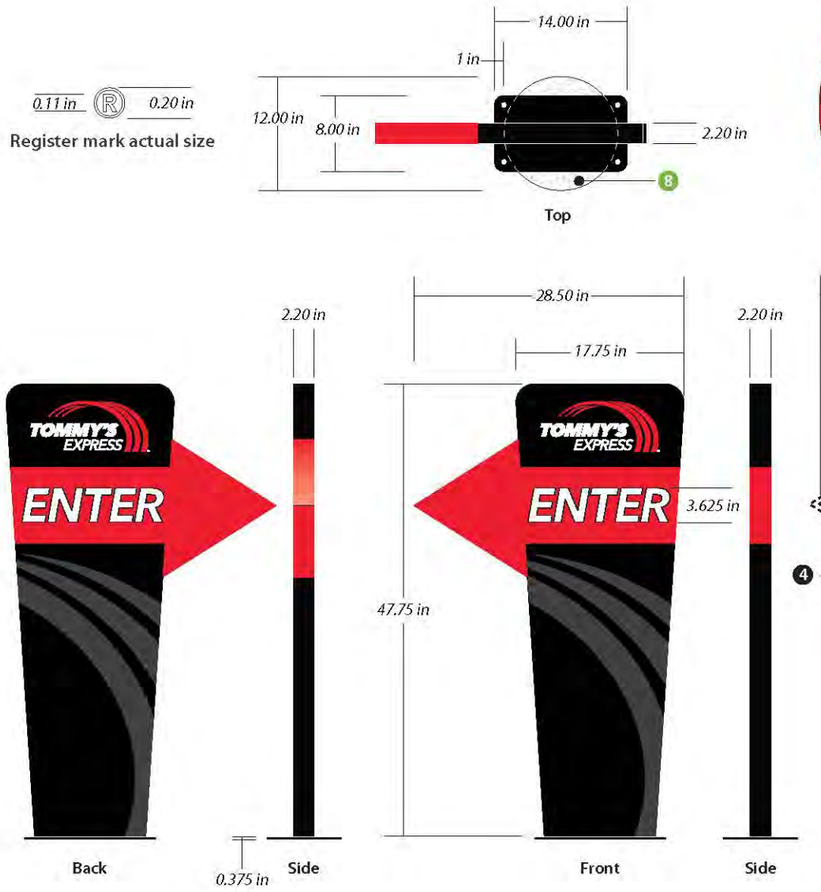
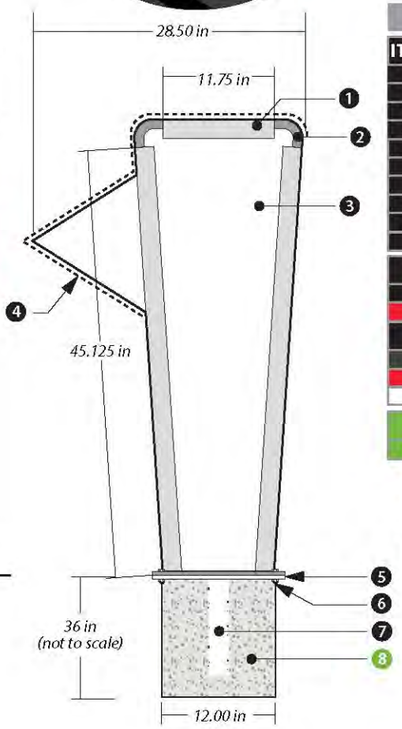
2553

DS.1 NEW D/F NON-ILLUMINATED DIRECTIONAL SIGN - EXTERIOR (Qty 3)





Perfect Match Red Scotchcal (#7725-263)
White Scotchcal (#7725-10)
Digital print on Opaque white w/ Gloss overlaminate (note: digitally printed Black outline)
Paint MAP MP80141 Red (Gloss)
Paint MAP Black (Gloss)
Dark Gray Scotchcal (#7725-41)



DIRECTIONAL SIGN	
ITEM	CABINET STRUCTURE
1	2" X 2" X .125" ALUM. TUBE
2	.100" ROUTED ALUM. RIBS (4x - REQ.)
3	.100" ROUTED ALUM. FACES
4	.063" ROLLED ALUM. SIDEWALL SECTION
5	8" X 14" X .375" ALUM. MATCH PLATES
	2x - REQUIRED
	4x - .50"Ø HOLES
6	.375"Ø X 1.25" GALV STEEL NUTS/BOLTS
7	2" x 3" x .125" x 32" LONG ALUM. STUB
	WELD TO BOTTOM MATCH PLATE
PAINT COLORS	
	MAP BLACK (GLOSS)
	MAP MP80141 RED (GLOSS)
VINYL COLORS	
	DARK GRAY SCOTCHCAL (#7725-41)
	PERFECT MATCH RED SCOTCHCAL (#7725-263)
	WHITE SCOTCHCAL (#7725-10)
INSTALLATION	
8	12"DIA. x 36"D CONCRETE FOOTING

SIGN CODE:	DIR-EN-P
SCALE:	3/4" = 1'
DATE:	3.02.21
QUANTITY:	3

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE
CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
27.0

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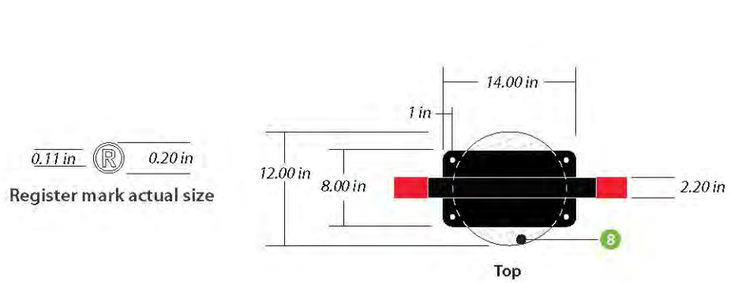
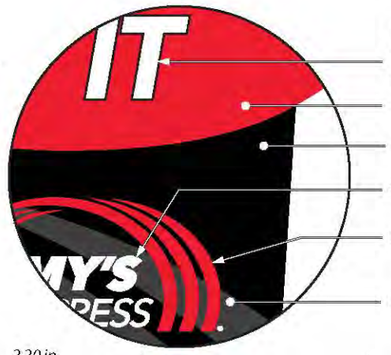
2554

DS.2 NEW D/F NON-ILLUMINATED DIRECTIONAL SIGN - EXTERIOR (Qty 1)





Digital print on Opaque white w/ Gloss overlaminate (note: digitally printed Black outline)

Paint MAP MP80141 Red (Gloss)

Paint MAP Black (Gloss)

White Scotchcal (#7725-10)

Perfect Match Red Scotchcal (#7725-263)

Dark Gray Scotchcal (#7725-41)



Back

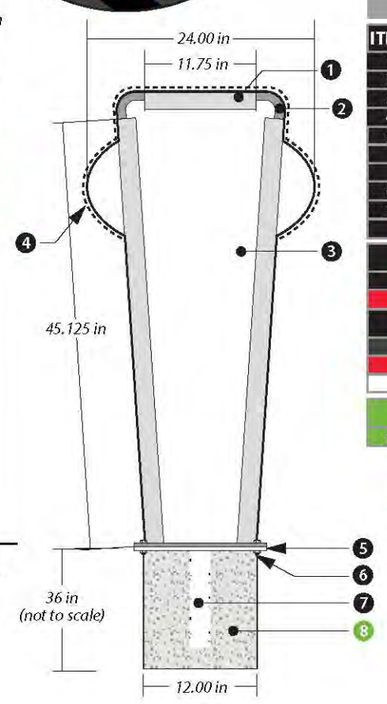
Side



Front



Side



DIRECTIONAL SIGN	
ITEM	CABINET STRUCTURE
1	2" X 2" X .125" ALUM. TUBE
2	.100" ROUTED ALUM. RIBS (4x - REQ.)
3	.100" ROUTED ALUM. FACES
4	.063" ROLLED ALUM. SIDEWALL SECTION
5	8" X 14" X .375" ALUM. MATCH PLATES
	2x - REQUIRED
	4x - .50"Ø HOLES
6	.375"Ø X 1.25" GALV STEEL NUTS/BOLTS
7	2" x 3" x .125" x 32" LONG ALUM. STUB
	WELD TO BOTTOM MATCH PLATE
PAINT COLORS	
	MAP BLACK (GLOSS)
	MAP MP80141 RED (GLOSS)
VINYL COLORS	
	DARK GRAY SCOTCHCAL (#7725-41)
	PERFECT MATCH RED SCOTCHCAL (#7725-263)
	WHITE SCOTCHCAL (#7725-10)
INSTALLATION	
8	12"DIA. x 36"D CONCRETE FOOTING

SIGN CODE:	DIR-CCEIC-P
SCALE:	3/4" = 1'
DATE:	3.02.21
QUANTITY:	1

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A Mortensen Company

JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
28.0

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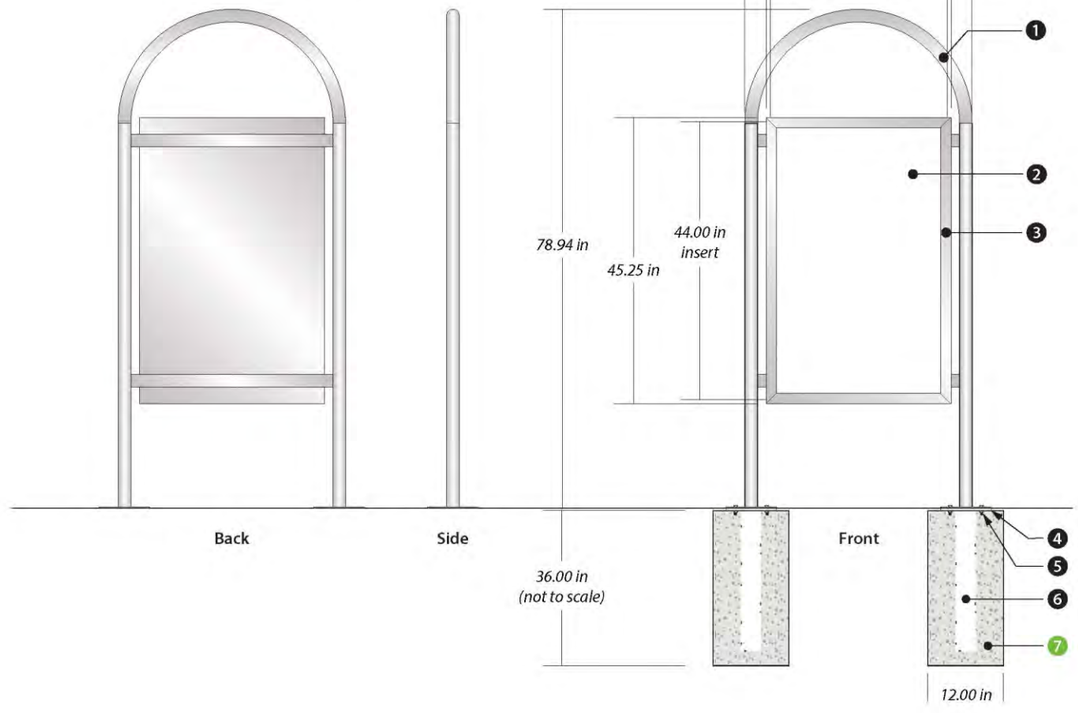
A SF.1 NEW S/F NON-ILLUMINATED GROUND MOUNTED SNAP FRAME DISPLAY - EXTERIOR (Qty 4)



SIGN INSERTS / SCALE: 3/8" = 1'-0"



S/F GROUND MOUNTED SNAP FRAME	
ITEM	SIGN MATERIALS
1	2"Ø STAINLESS STEEL TUBE
2	44"h x 28"w INSERT ARTWORK (TYPE C)
3	S/F SILVER SNAP SIGN FRAME
4	8"Ø x .375" ALUM. MATCH PLATE
5	GALVANIZED STEEL HARDWARE SET:
	8X - .375" X 1.50" BOLT
	16X - .375" FLAT WASHER
	8X - .375" LOCK WASHER
	8X - .375" NUT
6	2" x 3" x .125" x 32" LONG ALUM. STUB, WELD TO BOTTOM MATCH PLATE

INSTALLATION	
7	12"DIA. x 36"D CONCRETE FOOTING

NOTES:
- Sign and graphic inserts supplied by Tommy's.
- Post stubs with match plates & hardware sets supplied by Valley City Sign.
- Sign installed by Valley City Sign.

SIGN CODE:	A
SCALE:	1/2" = 1'
DATE:	10.21.24l
QUANTITY:	

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
- ☐ FIELD SURVEY
- ☐ VECTOR ARTWORK
- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
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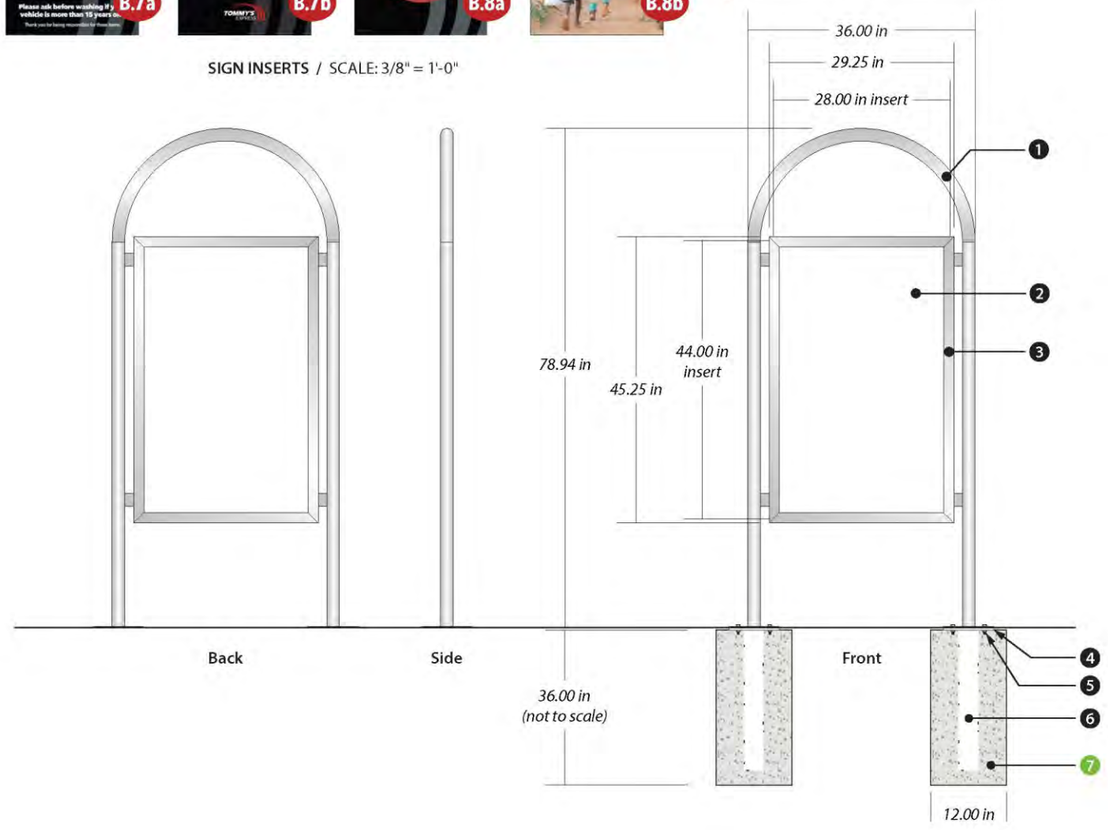
2556

B SF.2 NEW S/F NON-ILLUMINATED GROUND MOUNTED SNAP FRAME DISPLAY - EXTERIOR (Qty 2)



SIGN INSERTS / SCALE: 3/8" = 1'-0"



S/F GROUND MOUNTED SNAP FRAME	
ITEM	SIGN MATERIALS
1	2"Ø STAINLESS STEEL TUBE
2	44"h x 28"w INSERT ARTWORK (TYPE C)
3	S/F SILVER SNAP SIGN FRAME
4	8"Ø x .375" ALUM. MATCH PLATE
5	GALVANIZED STEEL HARDWARE SET:
	8X - .375" X 1.50" BOLT
	16X - .375" FLAT WASHER
	8X - .375" LOCK WASHER
	8X - .375" NUT
6	2" x 3" x .125" x 32" LONG ALUM. STUB, WELD TO BOTTOM MATCH PLATE
	INSTALLATION
7	12"DIA. x 36"D CONCRETE FOOTING

NOTES:
- Sign and graphic inserts supplied by Tommy's.
- Post stubs with match plates & hardware sets supplied by Valley City Sign.
- Sign installed by Valley City Sign.

SIGN CODE:	B
SCALE:	1/2" = 1'
DATE:	7.1.24D
QUANTITY:	

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
- ☐ FIELD SURVEY
- ☐ VECTOR ARTWORK
- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
30.0

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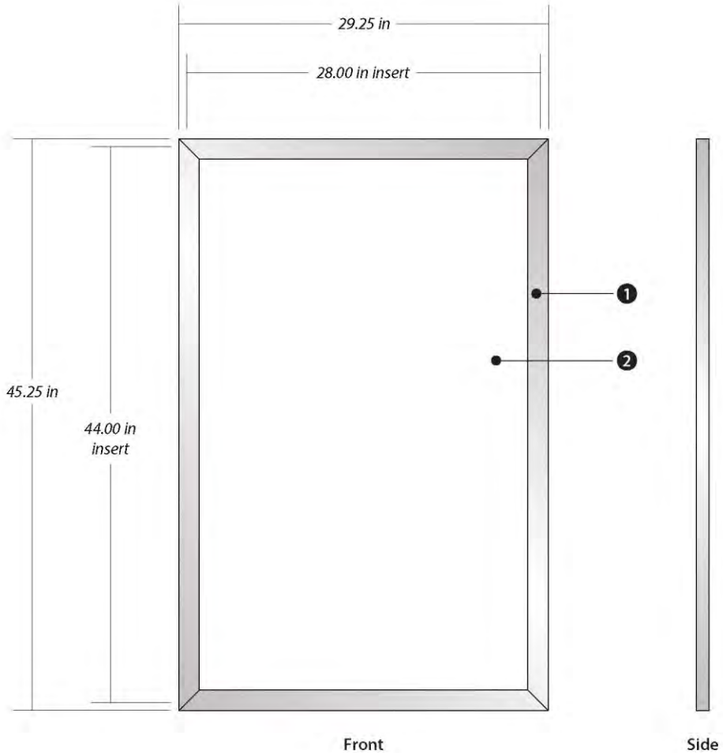
C SF.3 NEW S/F NON-ILLUMINATED WALL MOUNTED SNAP FRAME DISPLAY - EXTERIOR (Qty 2)







SIGN INSERTS / SCALE: 3/8" = 1'-0"

S/F WALL MOUNTED SNAP FRAME	
ITEM	SIGN MATERIALS
1	S/F SILVER SNAP SIGN FRAME
2	44"h x 28"w INSERT ARTWORK (TYPE C)

INSTALLATION
SCREW MOUNT TO CANOPY SUPPORT POLE

NOTES: Sign and graphic inserts supplied by Tommy's.
Sign installed by Valley City Sign.

SIGN CODE:	C
SCALE:	1" = 1'
DATE:	7.1.24F
QUANTITY:	2

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
31.0

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2558

M PN.1 NEW S/F NON-ILLUMINATED WALL PANEL DISPLAY - EXTERIOR (Qty 1)



S/F WALL PANEL	
ITEM	SIGN MATERIALS
1	3MM WHITE DIBOND PANEL
	1/2" RADIUS CORNERS

ITEM	VINYL COLORS
2	BLACK VINYL COPY

INSTALLATION
SCREW MOUNT FLUSH TO WALL

NOTES:	Sign supplied by Tommy's. Sign installed by Valley City Sign.

SIGN CODE:	M
SCALE:	1"= 1'
DATE:	10.15.21A
QUANTITY:	

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:

- ☐ FIELD SURVEY
- ☐ VECTOR ARTWORK
- ☐ PAINT / VINYL COLOR
- ☐ CLIENT PMS COLOR
- ☐ FONTS
- ☐ ENGINEERING

OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
32.0

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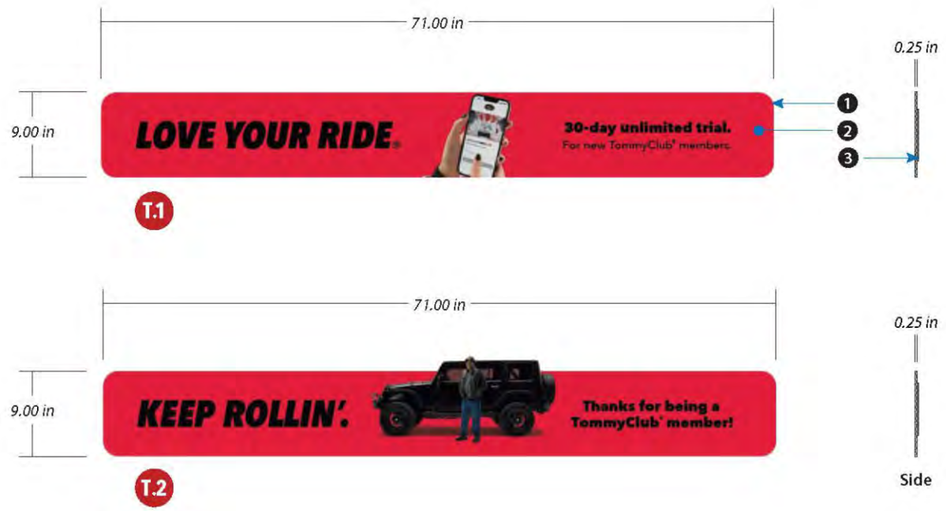
T PN.2 NEW S/F NON-ILLUMINATED GATE ARM PANEL DISPLAY - EXTERIOR (Qty 1 of EA)



S/F GATE ARM PANEL	
ITEM	SIGN MATERIALS
1	10MM WHITE COROPLAST PANEL
2	FULL FACE DIGITAL PRINT
3	EXTERIOR GRADE VELCRO

INSTALLATION
VELCRO MOUNT TO GATE ARM

NOTES: Sign & Velcro supplied by Tommy's. Sign installed by Valley City Sign.

SIGN CODE:	T
SCALE:	3/4" = 1'
DATE:	12.23.24D
QUANTITY:	2

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
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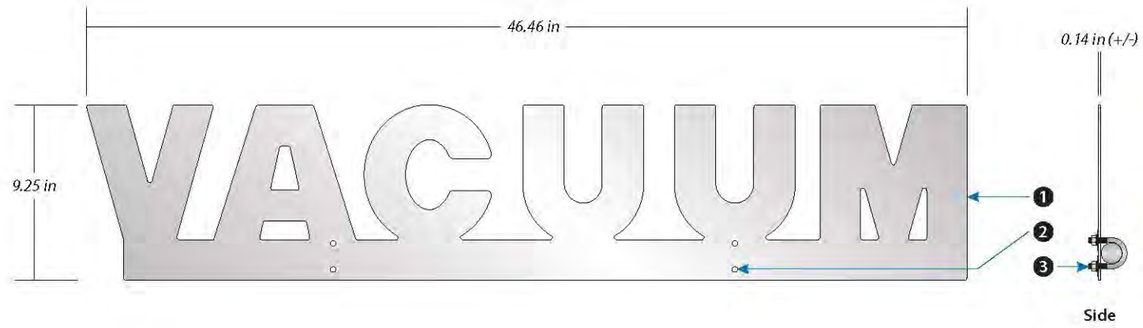
V FC.1 NEW NON-ILLUMINATED FLAT CUT-OUT LETTER DISPLAY - EXTERIOR (Qty 18)



VACUUM STALL LETTERING	
ITEM	SIGN MATERIALS
1	10GA STAINLESS STEEL
2	4x - .25"Ø HOLES REQUIRED
3	STAINLESS STEEL HARDWARE SET:
	2X - .25"-20 U-BOLT
	4X - .25" FLAT WASHER
	4X - .25" LOCK WASHER
	4X - .25"-20 NUT

INSTALLATION
U-BOLT MOUNT TO FRONT OF STAINLESS STEEL VACUUM STALL TUBE STRUCTURE

NOTES: Sign & hardware supplied by Tommy's.
Sign installed by Valley City Sign.

SIGN CODE:	V
SCALE:	1.1/2" = 1'
DATE:	10.18.21A
QUANTITY:	

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JOB #: 290974_R6_SSP
DATE: 12.15.2023
DESIGNER: J. CASTILLO
SALES REP: J. HADAYA
PROJ MGR: L. HORTON

REQUIRED:
☐ FIELD SURVEY ☐ PAINT / VINYL COLOR ☐ FONTS
☐ VECTOR ARTWORK ☐ CLIENT PMS COLOR ☐ ENGINEERING
OTHER:

LANDLORD APPROVAL DATE

CLIENT APPROVAL DATE

STABLE LANES

STABLE LANES
CLINTON KEITH &
STABLE LANES ROAD
WILDOMAR, CA 92595

SHEET NUMBER
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2561

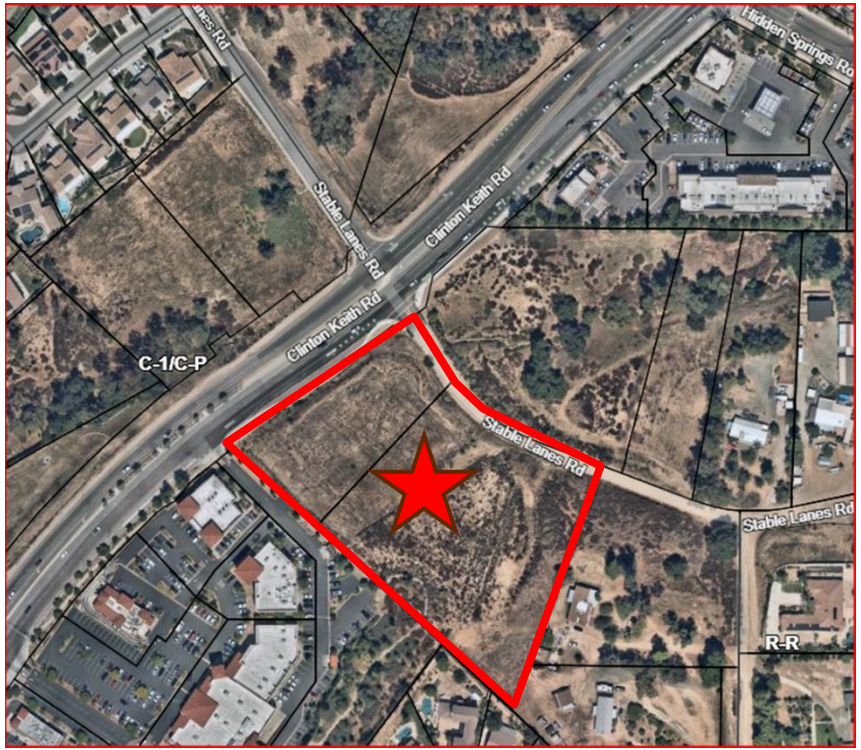
Stable Lanes Retail Center Architecture & Sign Program Revisions (PLN 24-0054):

Planning Commission Meeting

June 4, 2025

Agenda Item 3.1

Project Location



- Located at the SWC of Clinton Keith Road and Stable Lanes Road

Project Background:

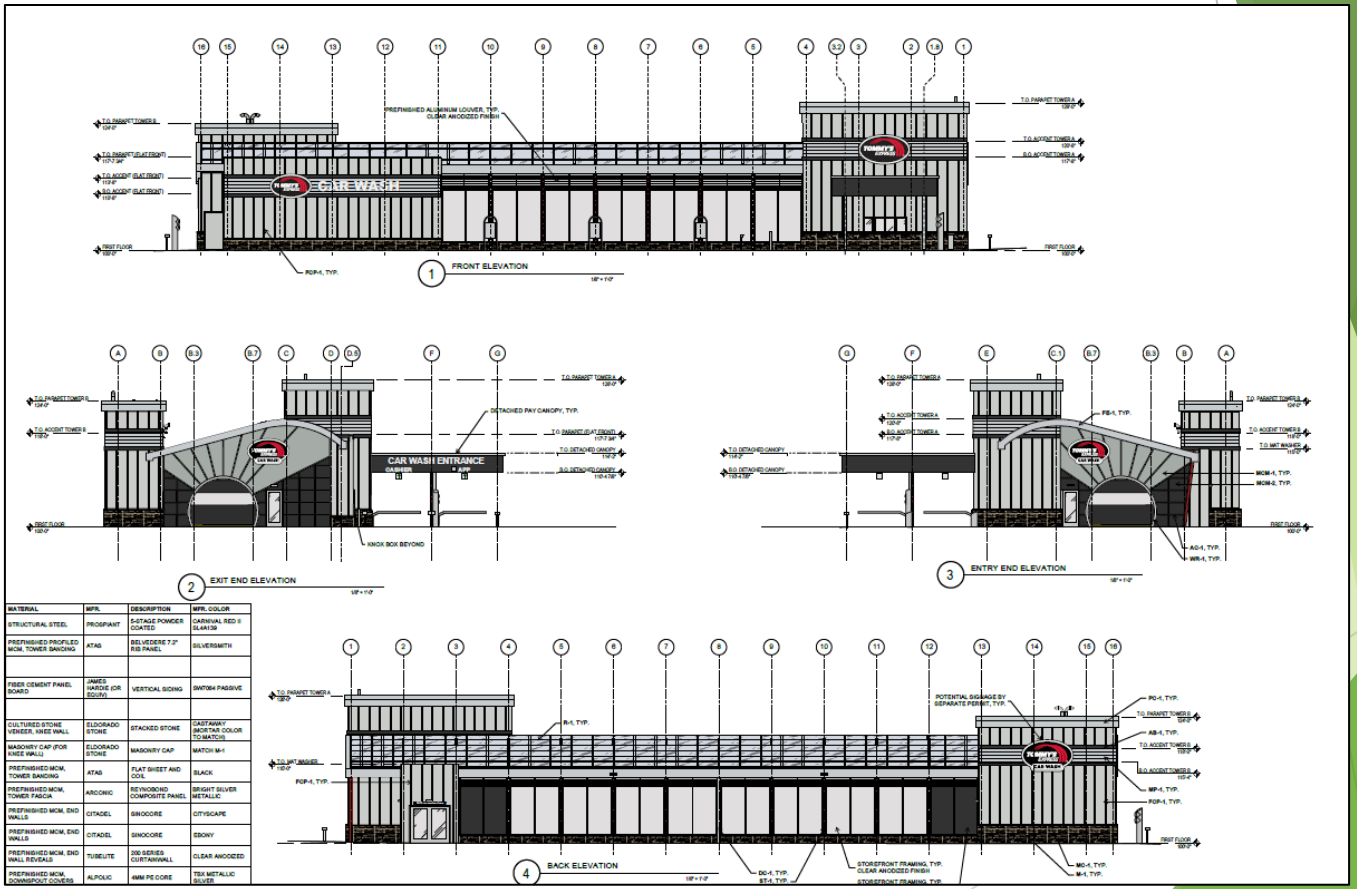
1) The Planning Commission approved a proposal to develop the Stable Lanes Retail Center project at the 12/4/2024 PC Meeting.

2) The PC added a COA requiring revised architectural elevations for the car wash and a revised sign program to go back to PC for approval.

Project Analysis:

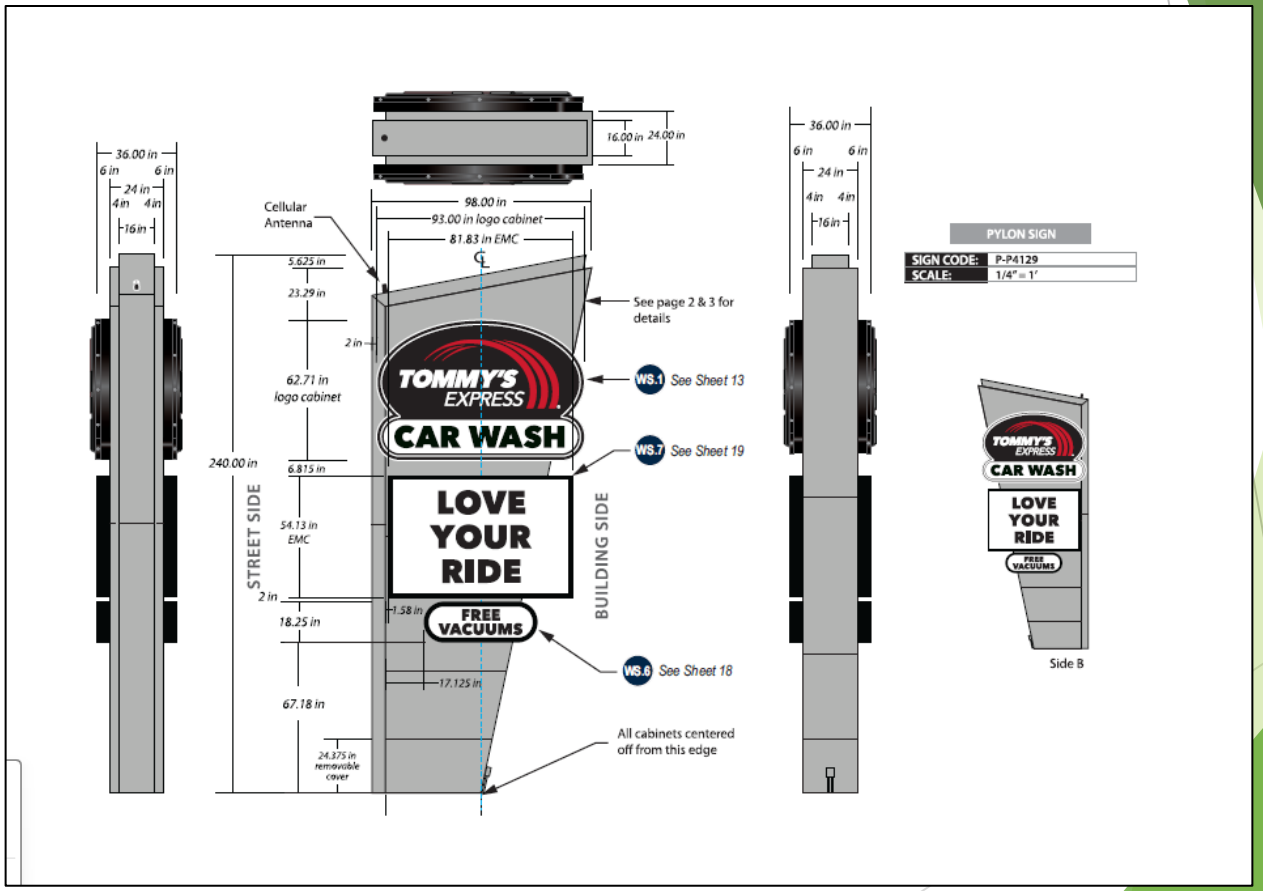
1) The applicant submitted revised architectural elevations for the approved car wash as well as a revised sign program addressing the PC requirements.
2) Applicant has eliminated the red color from the car wash/sign and removed the LED message board panel from the sign.
3) Staff has reviewed the changes and has determined that they meet the requirements set forth by the PC on 12/4/2024.

Updated Car Wash Elevation Exhibit



MATERIAL	MFR.	DESCRIPTION	MFR. COLOR
STRUCTURAL STEEL	PROSPAINT	5-STAGE POWDER COATED	CARNIVAL RED II SL4A139
PREFINISHED PROFILED MCM, TOWER SIDING	ATAS	BELVEDERE 7.3" RIB PANEL	SILVERSMITH
FIBER CEMENT PANEL BOARD	JAMES HARDIE (OR EQUIV)	VERTICAL SIDING	SW7064 PASSIVE
CULTURED STONE VENEER, KNEE WALL	ELDORADO STONE	STACKED STONE	CASTAWAY (MORTAR COLOR TO MATCH)
MASONRY CAP (FOR KNEE WALL)	ELDORADO STONE	MASONRY CAP	MATCH M-1
PREFINISHED MCM, TOWER SIDING	ATAS	FLAT SHEET AND COIL	BLACK
PREFINISHED MCM, TOWER FASCIA	ARCONIC	REYNOBOND COMPOSITE PANEL	BRIGHT SILVER METALLIC
PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	CITYSCAPE
PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	EBONY
PREFINISHED MCM, END WALL REVEALS	TUBELITE	200 SERIES CURTAINWALL	CLEAR ANODIZED
PREFINISHED MCM, DOWNSPOUT COVERS	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER

Updated Sign Program Exhibit



Planning Commission Recommendations

Staff recommends the Planning Commission take the following actions:

1) **Authorize Staff to stamp and approve the updated architectural plans.**
2) **Authorize Staff to stamp and approve the updated sign program.**

SUBJECT: Introduction of New Draft Greenhouse Gas (GHG) Emissions Methodology for (CEQA) Compliance for Projects Within the City of Wildomar

SUBMITTED BY: Steven Jones

PREPARED BY: Steven Jones

ACTION:
1. Determine this report is categorically exempt from the application of CEQA; and
2. Receive and file this report.

PROJECT DESCRIPTION:
In the absence of an adopted Climate Action Plan (CAP) or established city-specific GHG reduction thresholds, the City of Wildomar must ensure that development projects are analyzed in compliance with CEQA's GHG impact assessment requirements. Recent regulatory updates and court decisions emphasize the need for a standardized approach to assessing GHG emissions to determine whether a project would result in a significant environmental impact.

PROJECT ANALYSIS:

To maintain compliance with CEQA and provide a consistent framework for project evaluation, staff has reviewed best practices and regional methodologies for GHG analysis. The proposed methodology incorporates the following key components:

1. **Use of State and Regional Thresholds**
   - In the absence of a Climate Action Plan, the City will reference established GHG significance thresholds from the California Air Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), and other applicable regional air districts.
2. **Project-Level Analysis Using a Tiered Approach**
   - **Tier 1:** Projects consistent with statewide and regional GHG reduction strategies (e.g., SB 375, SB 32) may be deemed less than significant.
   - **Tier 2:** Projects that do not meet Tier 1 criteria will undergo quantification of projected emissions using recognized models such as CalEEMod.
   - **Tier 3:** If emissions exceed thresholds, the applicant must incorporate feasible mitigation measures, including energy efficiency, renewable energy integration, and sustainable transportation options.
3. **Application of Best Available Mitigation Measures**
   - Projects exceeding significance thresholds will be required to implement feasible mitigation strategies in line with CEQA Guidelines Section 15126.4(c).
4. **Consistency with State and Local Goals**

The methodology aligns with Senate Bill 32's goal of reducing emissions to 40% below 1990

levels by 2030 and Executive Order B-55-18's long-term carbon neutrality goal by 2045.

ENVIRONMENTAL ANALYSIS:

Pursuant to the California Environmental Quality Act (CEQA), Guidelines Section No. 15306 (Class 6, Information Collection), this report is categorically exempt from the application of CEQA. Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Categorical exemptions are for projects that have been determined to not have a significant effect on the environment, and as this report is solely for the purpose of information sharing, the collection of information is exempt from the requirement for the preparation of environmental documentation.

PUBLIC NOTICE:

No public hearing is required for the receipt of this report and the provisions of Ordinance No. 135 requiring notice and posting are inapplicable. Appropriate noticing and posting of future projects to which this collection and report of information would apply and occur as needed prior to consideration.

FISCAL IMPACT:

None. The methodology would be carried out by staff and/or consultants in the normal course of business of project and review initiated and funded by application fees.

ATTACHMENTS:

Wildomar-GHG-Reduction-Memo-DRAFT 03-21-2025.pdf

PLACEWORKS

MEMORANDUM

DATE March 21, 2025

TO Matthew Bassi, Planning Director

FROM Tammy L. Seale, Principal, Climate Action and Resiliency Services
Eli Krispi, Senior Associate

SUBJECT Wildomar Greenhouse Gas Emissions Inventory, Forecast, and Reduction Analysis

Executive Summary

As part of Envision Wildomar, the City's General Plan Update, the Project Team assessed current and future greenhouse gas emissions (GHGs) relative to the proposed buildout of the General Plan. As part of the Environmental Impact Report for the General Plan, the Project Team prepared a community-wide GHG emissions inventory and assessed the potential impacts of the General Plan to GHGs. The General Plan EIR determined that the potential GHG impacts of the project are significant and unavoidable and recommended mitigation measures to reduce GHG-related impacts. To support the City with the preparation of project-level characteristics that can reduce GHG emissions consistent with the State's GHG reduction goals, PlaceWorks conducted additional GHG emissions assessments, quantified local benefits of regional and subregional programs, and identified potential project-level design features or characteristics to reduce GHG impacts of new development. This memo presents the results of the analysis.

The Project Team found that, with implementation of all relevant state, regional, and Subregional CAP measures, Wildomar's emissions are projected to reach 228,040 $MTCO_2e$ by 2045, a two percent increase over 2019 emissions. [i] While emissions are projected to increase slightly compared to 2019, implementation of all state, local, regional, and Western Regional Council of Governments (WRCOG) Subregional Climate Action Plan (CAP), measures are projected to result in a 37 percent decrease in 2045 emissions compared to the business-as-usual forecast. Ninety-seven percent of these emissions savings come from implementation of State initiatives, primarily the State's Renewables Portfolio Standard and the State's Clean Car Standards. In 2045, development existing as of 2024 will generate approximately 68 percent of the community's emissions. When assessing the emission impact of local GHG emissions, the Project Team considered the activities that the City has committed to as part of the WRCOG Subregional CAP, as well as the City's existing telecommuting and zero-emission vehicle initiatives.

In addition, the Project Team identified and quantified the potential of six new project characteristics that, if applied to eligible projects, have the potential to reduce the community's GHG emissions by an estimated 47,030 $MTCO_2e$ by 2045. This would be sufficient to decrease community-wide emissions 19 percent below 2019 levels by 2045 despite the significant increase in population and job growth in Wildomar. It would also reduce emissions associated with new development to 26,490 MTCO2e by 2045, a 64 percent decline from the level of GHG emissions with the Subregional CAP. These project characteristics are:

» Residential Energy Design Rating

» Nonresidential Energy Design Rating

» Support for light duty zero-emission vehicles

» Support for heavy duty zero-emission vehicles

» Low-carbon refrigerants

» Zero-emission construction equipment

Wildomar is not limited to these standard conditions of approval and could consider additional mandates for discretionary projects to further reduce their GHG emissions. Additionally, the City may consider applying some of these standards to all development projects, including ministerial projects. The City should regularly evaluate the effectiveness of its GHG reduction activities and determine if further actions are needed, which may include new efforts or increased funding/staffing for existing programs.

GHG Emissions

A community GHG inventory is a snapshot of a community's GHG emissions in a single year, either in the past or as close to the present as possible. The inventory breaks down emissions by the sector or activity from which they are created. Examples of emissions-generating activities include residents driving cars, homes using water, and businesses using electricity. Conducting a GHG inventory helps the community better understand past and current emission patterns and which sectors and activities contribute the most to emissions.

A GHG emissions forecast looks ahead to project future emission levels. A business-as-usual forecast shows a community's future emissions in the absence of any new state, regional, or local efforts to reduce emissions. Both the inventory and forecast are useful tools for tracking emission trends over time, measuring the community's progress towards State emission targets, and determining the impact of new emission reduction measures.

For most sectors and activities, there are three steps involved in estimating current and future community GHG emissions: estimating community demographics, using demographic data to estimate levels of emissions-generating activities within different sectors, and then integrating activity data with emission factors to estimate GHG emissions. Depending on the type of data and tools available, emissions can sometimes be estimated without demographic or activity data.

GHG inventories and forecasts assess emissions in a unit called carbon dioxide equivalent (CO_2e), which is a combined unit of all GHGs analyzed in the inventory. As different GHGs have different effects on the processes that drive climate change, CO_2e is a weighted unit that reflects the relative potency of the different GHGs. These inventories report amounts of GHGs in metric tons of CO_2e ($MTCO_2e$), equal to 1,000 kilograms or approximately 2,205 pounds.

INVENTORY AND FORECAST METHOD

The Project Team conducted a community-wide inventory in 2023 as part of the Environmental Impact Report (SCH# 2023090064) buildout projections for Envision Wildomar 2040 (General Plan). This work included projecting changes in community demographics under the buildout of the General Plan between 2019 and 2045 and estimating 2045 emissions. The Project Team updated the inventory for 2024 and

revised the forecast building on the earlier work. [ii] The inventory addressed emissions from the following sectors:

- **On-road Transportation**: GHG emissions created by driving on-road vehicles, such as passenger and freight vehicles.
- **Building Electricity**: GHG emissions attributed to the use of electricity in residential and nonresidential buildings.
- **Building Natural Gas**: GHG emissions attributed to the use of natural gas in residential and nonresidential buildings.
- **Off-road equipment**: GHG emissions from equipment that does not provide on-road transportation, such as agricultural, construction, lawn and garden, and light commercial and industrial equipment.
- **Solid waste**: the GHG emissions released from trash collected in the City of Wildomar.
- **Refrigerants**: the GHG emissions released from use of refrigerant chemicals in building and vehicle air conditioners in Wildomar.
- **Water Use**: emissions resulting from electricity used to transport and treat water to residents and businesses in Wildomar.
- **Wastewater**: emissions from the electricity used to transport and treat wastewater from Wildomar residents and businesses, as well as direct emissions resulting from the processing of wastewater material.

Demographic Projections

Demographic projections show estimated numbers of residents, housing units, jobs, service population, and non-residential square footage in 2045 under buildout of the General Plan. The Project Team used demographic projections used in the General Plan to estimate future levels of GHG-generating activities. The Project Team estimated 2045 demographics in 2023 as part of the Environmental Impact Report buildout projections for the General Plan. **Table 1** shows the demographic projections that the Project Team used for this analysis. Details about the methodology the Project Team used to conduct demographic projections are in **Appendix A.**

Table 1: Wildomar Demographic Projections – General Plan

	2019	2024	2045	Percent Change 2019 to 2045
Housing Units	11,990	13,390	20,980	75%
Non-residential Square Feet	2,992,380	3,234,630	5,957,920	99%
Population	37,330	41,700	65,330	75%
Employment	5,840	6,550	12,120	107%

Service Population (Population + Employment)	43,170	48,240	77,440	79%

As shown in Table 2, by 2045, 36 percent of Wildomar's housing units will have been constructed between 2024 and 2045. Similarly, 46 percent of non-residential development, 36 percent of population, 46 percent of jobs, and 38 percent of the total service population will have been added after 2024.

Table 2: New and Existing Demographics by 2045

	2024	2045	Increase 2024 to 2045	Percent of General Plan Buildout Between 2024 and 2045
Housing Units	13,390	20,980	7,590	36%
Non-residential Square Feet	3,234,630	5,957,920	2,723,280	46%
Population	41,700	65,330	23,630	36%
Employment	6,550	12,120	5,570	46%
Service Population (Population + Employment)	48,240	77,440	29,200	38%

Activity Inventory and Projections

The Project Team used projected changes in community population and development to project changes in levels of GHG-generating activities. [iii] Activity estimates for 2024 and projections for 2045 appear in Table 3. New development activity is split to identify activity attributable to development occurring after 2024, as well as activity attributable to development that exists as of 2024.

Activity within all emission-generating categories is projected to increase significantly between 2024 and 2045. The greatest increases are projected to occur in nonresidential natural gas and electricity use, driven by a large increase in nonresidential activity.

Table 3: Community Activity Levels

Activity Category		2019	2024	2045 – All Development	2045 – Existing Development as of 2024	2045 – Development Occurring After 2024	Percent Change 2019 to 2045	Units
On-Road Transportation	Light Duty	282,180,340	315,360,360	446,211,650	315,360,360	130,851,290	58%	VMT
	Heavy Duty	31,542,370	35,251,260	57,580,010	35,251,260	2,328,750	83%	VMT
Building Electricity	Residential	91,443,0,50	102,146,050	160,033,740	102,146,050	57,887,690	75%	kWh
	Nonresidential	41,771,800	46,825,970	83,168,950	46,825,970	36,342,980	99%	kWh
Building Natural Gas	Residential	4,378,060	4,890,470	7,661,970	4,890,470	2,771,500	75%	Therms
	Nonresidential	617,080	691,750	1,228,630	617,080	611,550	99%	Therms
Solid Waste/ Landfills		20,960	23,420	37,600	23,420	14,180	79%	Tons
Water Use	Water	1,750	1,960	3,150	1,960	1,190	80%	MGY
	Electricity	9,308,760	10,403,330	16,699,570	10,403,330	6,296,240	79%	kWh
Wastewater Treatment	Wastewater	910	1,020	1,640	1,020	620	80%	MGY
	Electricity	1,369,660	1,530,710	2,457,120	1,530,710	926,410	79%	kWh

Note: Use of offroad equipment and use of refrigerants have tools and formulae available that permit the direct calculation of emissions. The Project Team thus did not calculate activity data for these sectors.

INVENTORY RESULTS

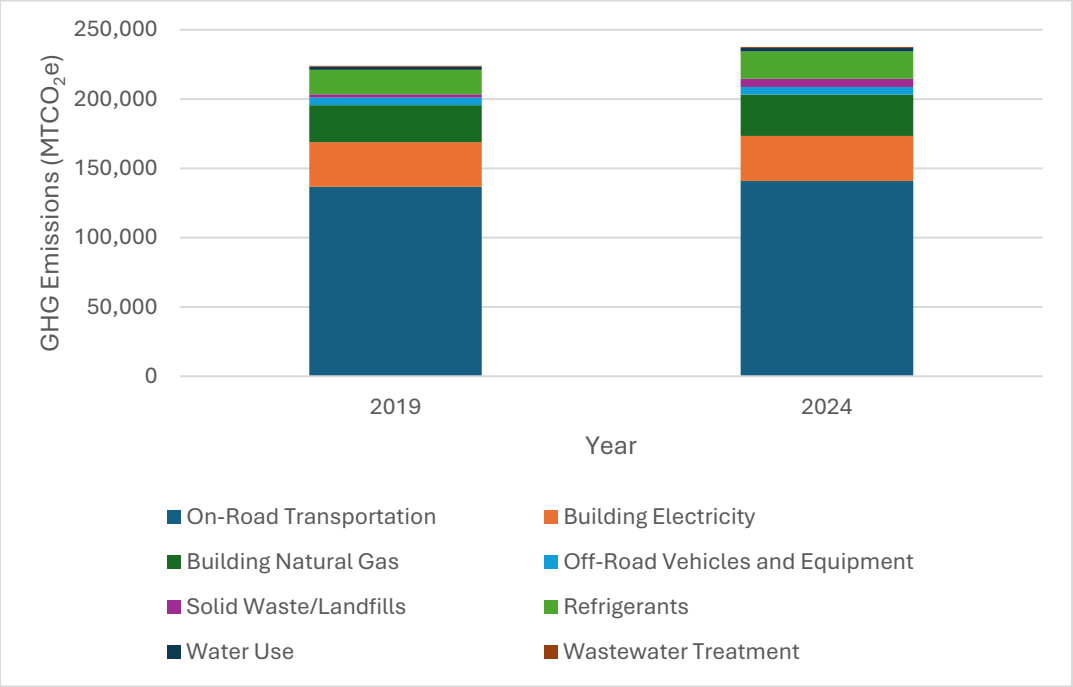
Wildomar produced an estimated 223,947 $MTCO_2e$ of GHG emissions in 2019 and 237,570 $MTCO_2e$ of GHG emissions in 2024, a six percent increase. On-road transportation was the largest emitting sector in both years, responsible for 61 percent of community emissions in 2019 and 59 percent of community emissions in 2024. Building electricity was responsible for 14 percent of emissions in both years, and building natural gas was responsible for 12 percent of community emissions in 2019 and 13 percent in 2024. The solid waste sector saw the largest increase in emissions, increasing 152 percent between 2019 and 2024. This significant increase in emissions may be due to a change in the method of calculating waste emissions between 2019 and 2024, as explained in Appendix B.

This sector breakdown is shown in **Table 4** and **Figure 1**. For additional details about how the Project Team conducted the inventory, see **Appendix B**.

Table 4: Inventory Results

Sector	2019 Emissions ($MTCO_2e$)	2024 Emissions ($MTCO_2e$)	Percent Change 2019 to 2024
On-Road Transportation	136,710	140,930	3%
Building Electricity	32,270	32,550	1%
Building Natural Gas	26,580	29,710	12%
Off-Road Vehicles and Equipment	5,550	5,610	1%
Solid Waste/Landfills	2,320	5,850	152%
Refrigerants	17,690	19,760	12%
Water Use	2,260	2,520	12%
Wastewater Treatment	570	640	12%
Total	223,950	237,570	6%
Note: Totals in individual rows may not add to value in final row due to rounding.			

Figure 1: Wildomar Community Emissions Inventory, 2019 and 2024



FORECAST RESULTS

Wildomar is projected to emit 360,510 $MTCO_2e$ of GHGs in 2045 if no additional emissions-reducing actions are taken at the state, regional, or local level. [iv] This represents a 52 percent increase in emissions compared to 2024 levels and 61 percent compared to 2019. In 2045, 65 percent of 2045 emissions are projected to come from development that existed in 2024, and the remaining 35 percent of emissions are projected to come from development occurring between 2024 and 2045.

As in 2019 and 2024, on-road transportation is projected to be the largest contributor to community emissions in 2045. On-road transportation is projected to produce 208,430 $MTCO_2e$ of GHG emissions in 2045, or 58 percent of community emissions. Building electricity use is projected to produce 53,160 $MTCO_2e$ of GHGs (15 percent of community total) and building natural gas use is projected to produce 47,310 $MTCO_2e$ of GHGs (13 percent of community total).

Sectors with the largest projected emission increases are nonresidential natural gas use (99 percent increase) and light commercial and industrial equipment (84 percent increase), largely driven by an increase in nonresidential square footage and associated jobs in Wildomar as shown in **Table 2**. Emissions from construction equipment are projected to remain relatively constant. Agricultural equipment is the only sector that is projected to experience a decline in emissions, due to a projected reduction in agricultural land in Wildomar.

Full forecast results are shown in **Table 5. Figure 2** shows total inventory and forecast emissions, while **Figure 3** shows the forecasted 2045 emissions split between existing and new development.

Table 5: GHG Forecast Results

Sector	2019 ($MTCO_2e$)	2024 ($MTCO_2e$)	2045 – All Development ($MTCO_2e$)	2045 – Development Existing as of 2024 ($MTCO_2e$)	2045 – Development Occurring After 2024 ($MTCO_2e$)	Percent Change 2019 to 2045 ($MTCO_2e$)
On-road Transportation	136,710	140,930	208,430	140,930	67,500	52%
Building Electricity	32,270	32,550	53,160	32,550	20,610	65%
Building Natural Gas	26,580	29,710	47,310	29,710	17,600	78%
Off-Road Vehicles and Equipment	5,560	5,610	6,180	1,300	4,880	11%
Solid Waste	2,320	5,850	9,400	5,850	3,550	305%
Refrigerants	17,690	19,760	30,960	19,760	11,200	75%
Water Use	2,260	2,520	4,040	2,520	1,520	79%
Wastewater Treatment	570	640	1,030	640	390	80%
Total	**223,950**	**237,570**	**360,510**	**233,260**	**127,250**	**61%**
Note: Totals in individual rows may not add to value in final row due to rounding.						

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Figure 2: GHG Forecast Results

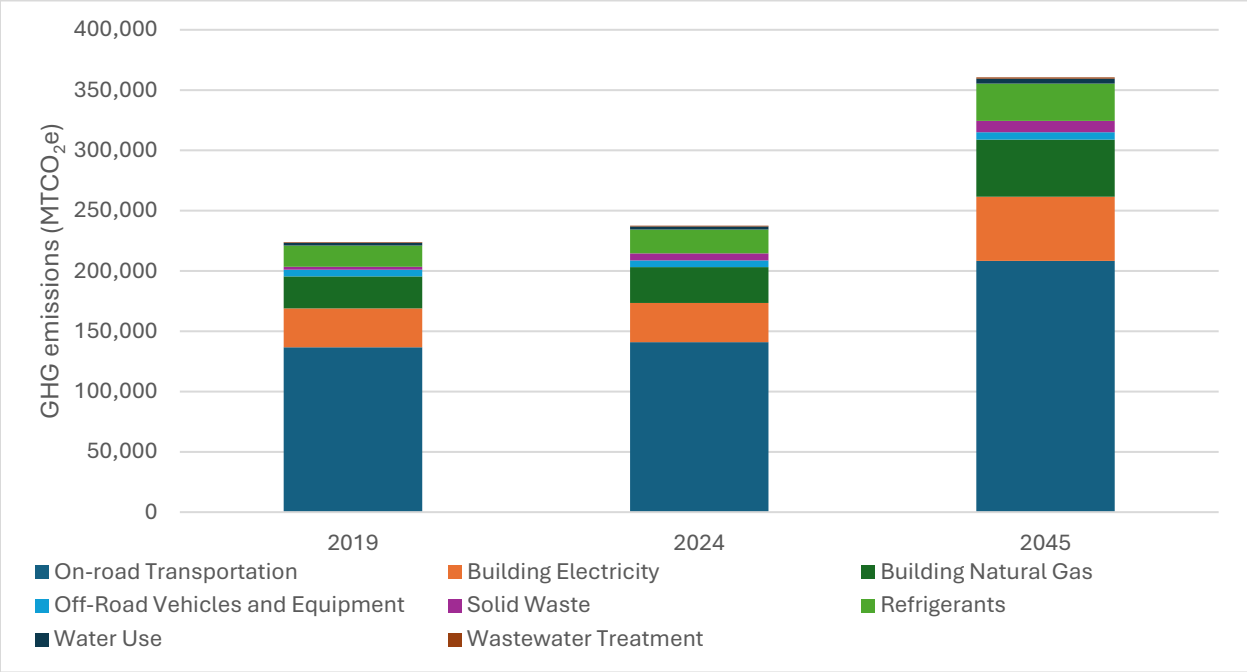
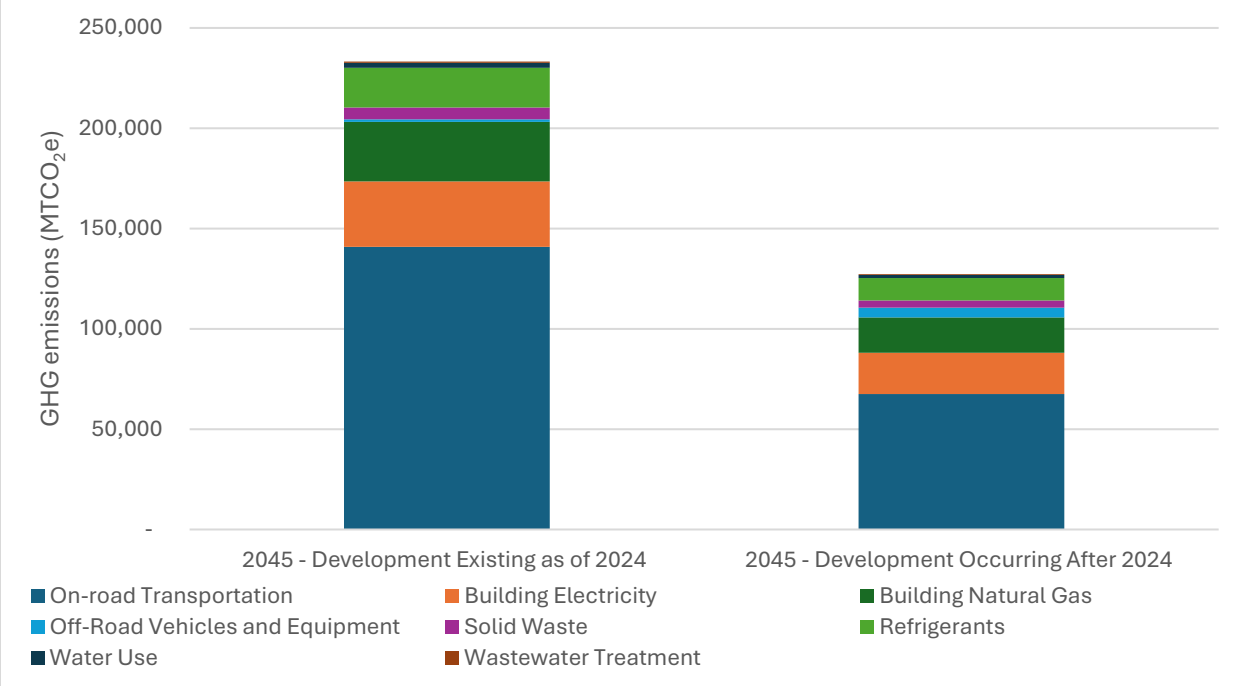


Figure 3: 2045 GHG Forecast, Existing and New Development



QUANTIFICATION OF EXISTING EMISSIONS-REDUCING MEASURES

The Project Team estimated 2045 GHG emissions savings from state, existing local, and planned local measures. This section describes the measures the Project Team quantified, quantification methodology, and results [v].

Quantification Methods

The Project Team estimated future GHG emissions savings using a process called quantification. Quantification uses activity data for each sector in the GHG inventory, and projected impacts on these activities attributable to each strategy, to calculate net GHG emissions savings. The "activity" in an inventory is the use of the resource, generally energy or a type of fossil fuel, that emits GHGs. For example, heating and cooling of buildings, water, and food can use electricity and natural gas, and that use is measured in different units – kilowatt hours for electricity and therms for natural gas. To estimate GHG emissions savings from policies, the Project Team estimates the activity reduction (reduced electricity use or vehicle miles traveled) and coverts those to GHG emissions. Each sector or source of emissions has activities that can be directly measured or estimated. The Project Team relies on reported or modeled activity data. In some cases, such as the State's Renewable Portfolio Standard (RPS), the level of activity occurring may not change, but the strategy that will change the rate at which the activity (in this case, electricity use) generates GHG emissions. The Project Team relied on WRCOG's recent regional climate action planning work to quantify savings from existing and planned local measures.

State Measures

California has adopted and committed to implementing policies to decrease GHG emissions statewide, including from several of the major GHG-emitting sectors that are also present in Wildomar. Many of these policies are identified in California's Climate Change Scoping Plan, which was originally adopted in 2008 in response to the California Global Warming Solutions Act. The Scoping Plan outlines several regulatory and market-based solutions to achieving California's GHG emissions reduction goals. Successive updates to the Scoping Plan in 2014, 2017, and 2022 have revised these State actions and identified additional opportunities for GHG emissions reductions.

The Project Team quantified GHG savings for the following state policies, actions, and programs:

- The Renewables Portfolio Standard (RPS), which requires increases in renewable electricity supplies.
- The Clean Car Standards, which require increased fuel efficiency of on-road vehicles and decreased carbon intensity of vehicle fuels.
- The updated Title 24 building energy-efficiency standards, which require new buildings to achieve increased energy-efficiency targets. The latest version of these standards went into effect January 1, 2023.
- The Low Carbon Fuel Standard (LCFS), which mandates reduced carbon intensity of fuels used in outdoor equipment.
- The Short-Lived Climate Pollutant Reduction Strategy, also known as SB 1383, which requires that jurisdictions provide organic waste collection services, qualifying businesses recover and donate

edible food, and that all individuals and businesses dispose of organic waste in their green waste collection carts.

- AB 1668 and SB 606, which establish guidelines for efficient water use and a framework for the implementation and oversight of the new standards, which were required to be implemented by 2022. Provisions include establishing water use objectives and long-term standards for efficient water use that apply to urban retail water suppliers, providing incentives for water suppliers to recycle water, and requiring urban and agricultural water supplies to set annual water budgets and prepare for drought.

Implementation of State measures is projected to result in 128,120 $MTCO_2e$ of GHG emissions reductions by 2045, compared to the GHG 2045 forecast. This represents a 36 percent reduction in emissions by 2045. Fifty-nine percent of the GHG emission reductions achieved by State measures in 2045 are reductions in GHG emissions from development that exists in 2024. The remaining 41 percent of reductions are projected to come from new development occurring between 2024 and 2045.

GHG reductions from implementation of state programs appear in Table 6.

Table 6: GHG Emissions Savings from State Measures

Measure	Emissions Reductions in 2045 ($MTCO_2e$)*
Renewable Portfolio Standard (RPS)	-57,800
Clean Car Standards	-56,810
Title 24	-9,200
Low Carbon Fuel Standards	-1,680
SB 1383	-2,530
AB 1668 and SB 606	-90
Total Emissions Reductions from State Measures	-128,120
*Savings in individual rows may not add to -128,120 due to rounding.	

With implementation of State measures, communitywide GHG emissions are projected to increase by approximately four percent between 2019 and 2045, as shown in Table 7. Figure 4 shows 2045 emissions with State reductions compared to the inventory years, while Figure 5 shows 2045 emissions with State reductions separated by emissions from new and existing development.

Table 7: Community Emissions Forecast with State Emission Reduction Measures

Sector	2019 Emissions ($MTCO_2e$)	2024 Emissions ($MTCO_2e$)	2045 Emissions ($MTCO_2e$)	2045 - Existing Development as of 2024 ($MTCO_2e$)	2045 - New Development Since 2024 ($MTCO_2e$)	Percent Change 2019 to 2045
On-Road Transportation	136,710	140,930	151,610	102,830	48,780	11%
Building Electricity	32,270	32,550	-	-	-	-100%
Building Natural Gas	26,580	29,710	38,320	29,710	8,610	44%
Off-Road Vehicles and Equipment	5,560	5,610	4,500	860	3,640	-19%
Solid Waste/Landfills	2,320	5,850	6,870	4,280	2,590	196%
Refrigerants	17,690	19,760	30,960	19,760	11,200	75%
Water Use	2,260	2,520	-	-	-	-100%
Wastewater Treatment	570	640	340	210	130	-41%
Total	**223,950**	**237,570**	**232,600**	**157,650**	**74,950**	4%

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Figure 4: GHG Forecast Results with State Emission Reduction Measures

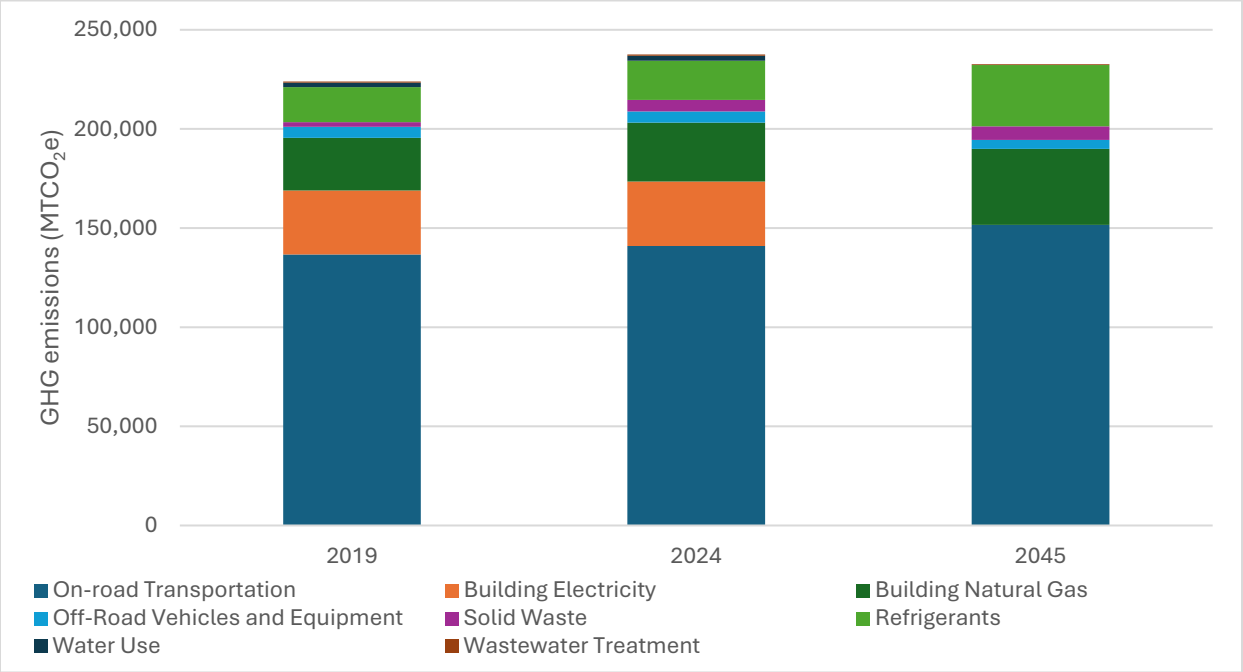
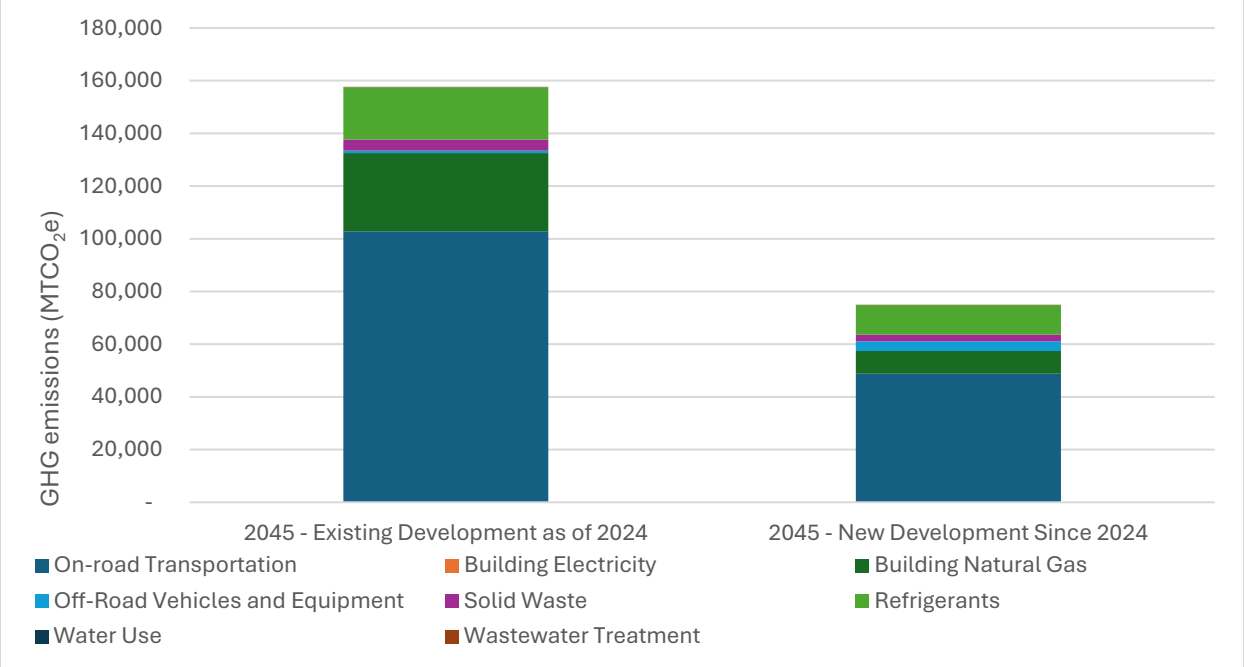


Figure 5: 2045 GHG Forecast with State Emission Reductions, Existing and New Development



The significant decline in emissions associated with electricity use is due to the implementation of the State's Renewable Performance Standards, with reduce electricity emissions by requiring the universal adoption of renewable electricity by 2045. The Low Carbon Fuel Standard, combined with a loss in

agricultural land, is responsible for the decline in emissions from off-road vehicles. Even with the implementation of State measures, local GHG emissions are projected to increase in on-road transportation, building natural gas, solid waste and landfills, and refrigerant use. These increases occur because State measures to address emissions are not sufficient to compensate for increases in activity between 2024 and 2045.

Subregional Measures

The City of Wildomar, as part of the Western Riverside Council of Governments (WRCOG), participated in the planning process for the WRCOG Subregional Climate Action Plan (WRCOG Subregional CAP), which provides a shared framework for GHG reductions by most of the jurisdictions in the WRCOG subregion. [1] As a part of the Subregional CAP, WRCOG has identified a handful of regional measures, which are those developed or administered by regional governments. They require local participation but are not administered by local governments. The City has already participated in several subregional measures to reduce GHG emissions. The Project Team quantified savings from two of these measures:

- **Telecommuting,** which assumes a reduction in VMT due to a reduction in commute VMT.
- **Regional ZEV Initiatives**, which assume a reduction in VMT-related emissions by increasing accessibility of electric vehicle charging infrastructure.

Implementation of these two measures is projected to save 1,290 $MTCO_2e$ in 2045, as shown in **Table 8**.

Table 8: GHG Emissions Savings from Subregional Measures

Measure	Emissions Reductions in 2045 ($MTCO_2e$)
Telecommuting	-1,270
Regional ZEV	-20
Total Emissions Reductions from Local and Regional Measures	-1,290

With implementation of both State and subregional measures, 2045 community emissions are projected to be 231,100 $MTCO_2e$, a three percent reduction from 2024 and a 36 percent reduction compared to 2045 business-as-usual forecast emissions. **Table 9** shows emissions with the State and subregional measures, compared to previous years.

[1] Visit https://wrcog.us/DocumentCenter/View/9987/Climate-Action-Plan-Toolkit to view the Subregional CAP.

Table 9: GHG Emission Savings from State and Subregional Measures

	2019 Emissions ($MTCO_2e$)	2024 Emissions ($MTCO_2e$)	2045 Emissions ($MTCO_2e$)	Percent Change 2019 to 2045
Business as Usual Forecasted Emissions	223,950	237,570	360,510	61%
Emissions with State Reductions	223,950	237,570	232,600	4%
Emissions with State and Subregional Reductions	223,950	237,570	231,310	3%
Percent Change, Business as Usual to State and Subregional Reductions	0%	0%	-36%	

Local Measures

In addition to the subregional measures discussed above, the Subregional CAP includes local measures, which are implemented by the local jurisdiction with support from WRCOG and other regional and subregional agencies. Each jurisdiction participating in the Subregional CAP selected its level of participation or implementation for each strategy, noted as High, Medium, and Low. Agency staff selected implementation levels based on availability of resources and local feasibility. Low levels of implementation correspond to a program that a city may promote through its website or outreach campaign, and High levels of implementation correspond to actions that the City could codify through the development and implementation of new programs, processes, ordinances, infrastructure improvements, or services.

The Project Team quantified GHG savings for nine measures from the Subregional CAP. Measure names, descriptions, and implementation level are listed in Table 10.

Table 10: Subregional CAP GHG Reduction Strategies

Measure	Description	Implementation Level
LE-3: Improve Energy Efficiency of Existing Buildings	Support utility programs that improve the energy efficiency of existing buildings and facilities (residential, commercial, industrial, and government); reduce plug loads	Low
LE-5: Traffic and Street Light Upgrades	Replace traffic signals and street light fixtures with LED or other high-efficiency bulbs.	High
LT-1: Bicycle Infrastructure Improvements	Improve bicycle infrastructure through implementation of a Bicycle Master Plan, Active Transportation Plan, and/or Safe Routes to School Plan. Expand Bike Share programs.	High

Measure	Description	Implementation Level
	Construct bicycle facilities such as bike lanes, bike parking, and end of trip facilities such as showers, changing rooms, and lockers.	
LT-2: Pedestrian Infrastructure Improvements	Improve pedestrian infrastructure through implementation of an Active Transportation Plan (ATP) or Safe Routes to School Plan. Construct sidewalks, crosswalks, curb ramps, pedestrian signals, or pedestrian crossings, and create pedestrian only spaces within public areas.	High
LT-3: Carshare and Carpool Programs	People employed or residing within the City have access to a shared fleet of vehicles on an as-needed basis.	Low
LT-5: Increase Transit Service/Frequency	Collaborate with local and regional transit providers to increase volume and frequency of transit service in the subregion, including more implementation of bus rapid transit (BRT).	Medium
LT-6: Traffic Signal Coordination	Incorporate technology to synchronize and coordinate traffic signals along local arterials.	Medium
LT-10: Local ZEV Programs	Support the regional EV plan by expanding EV infrastructure (charging stations) and EV car share. Require designated parking for fuel-efficient vehicles at new non-residential development. Adopt a comprehensive program to accommodate neighborhood EVs and supporting infrastructure.	Medium
LT-11: Subsidized Transit	Increase access to transit by providing free or discounted passes to residents, employees, and/or students.	Low

With implementation of the State, regional, and Subregional CAP measures, Wildomar is projected to emit 228,040 $MTCO_2e$ of GHGs in 2045. This represents a 37 percent reduction in 2045 GHG emissions compared to the business-as-usual forecast. It also represents a one percent reduction in 2045 GHG emissions over reductions achieved through the implementation of state and existing local and subregional initiatives. However, even with these reductions, 2045 emissions are expected to be two percent above 2019 levels. Development built after 2024 is projected to release 73,520 $MTCO_2e$ of GHGs, approximately one-third of community 2045 emissions and a 42 percent reduction compared to the business-as-usual forecast. Existing development is projected to create 154,500 $MTCO_2e$ of GHGs, representing two-thirds of 2045 community GHG emissions and a 34 percent decline from the business-as-usual forecast. Results of the quantification of all State, regional, and Subregional CAP measures are shown in Table 11. Figure 5 shows

emissions with the State reductions and Subregional CAP (including both subregional and local efforts), while Figure 6 shows the 2045 emissions split between existing and new development.

Table 11: Projected Community Emissions with Implementation of all State, Regional, and Subregional CAP Measures

Sector	2019 Emissions ($MTCO_2e$)	2024 Emissions ($MTCO_2e$)	2045 Emissions ($MTCO_2e$)	2045 - Existing Development as of 2024 ($MTCO_2e$)	2045 - New Development Since 2024 ($MTCO_2e$)	Percent Change 2019 to 2045	Percent of Total 2045 Emissions
On-Road Transportation	136,710	140,930	147,480	100,110	47,350	8%	65%
Building Electricity	32,270	32,550	-	-	-	-100%	Less than 1%
Building Natural Gas	26,580	29,710	37,890	29,280	8,610	42%	17%
Off-Road Vehicles and Equipment	5,560	5,610	4,500	860	3,640	-19%	2%
Solid Waste/Landfills	2,320	5,850	6,870	4,280	2,590	196%	3%
Refrigerants	17,690	19,760	30,960	19,760	11,200	75%	14%
Water Use	2,260	2,520	-	-	-	-100%	Less than 1%
Wastewater Treatment	570	640	340	210	130	-41%	Less than 1%
Total	**223,950**	**237,570**	**228,040**	**154,500**	**73,520**	2%	100%
Note: Totals in individual rows may not add to value in final row due to rounding.							

Figure 5: GHG Emission Results with Subregional CAP

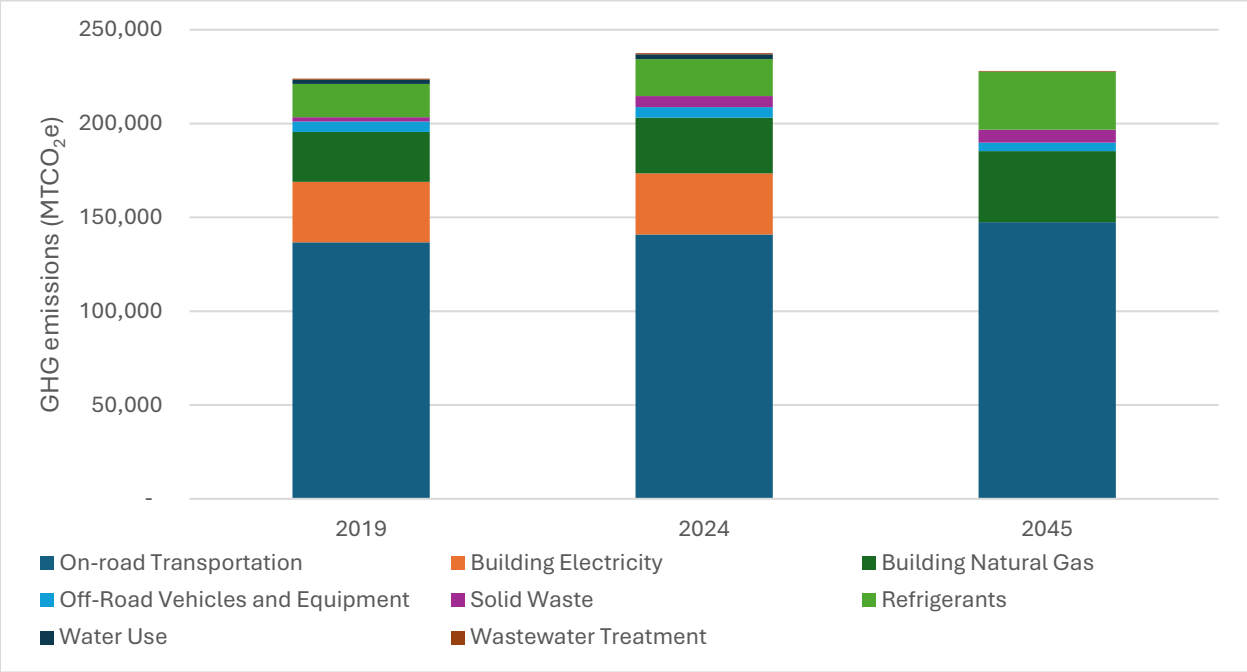


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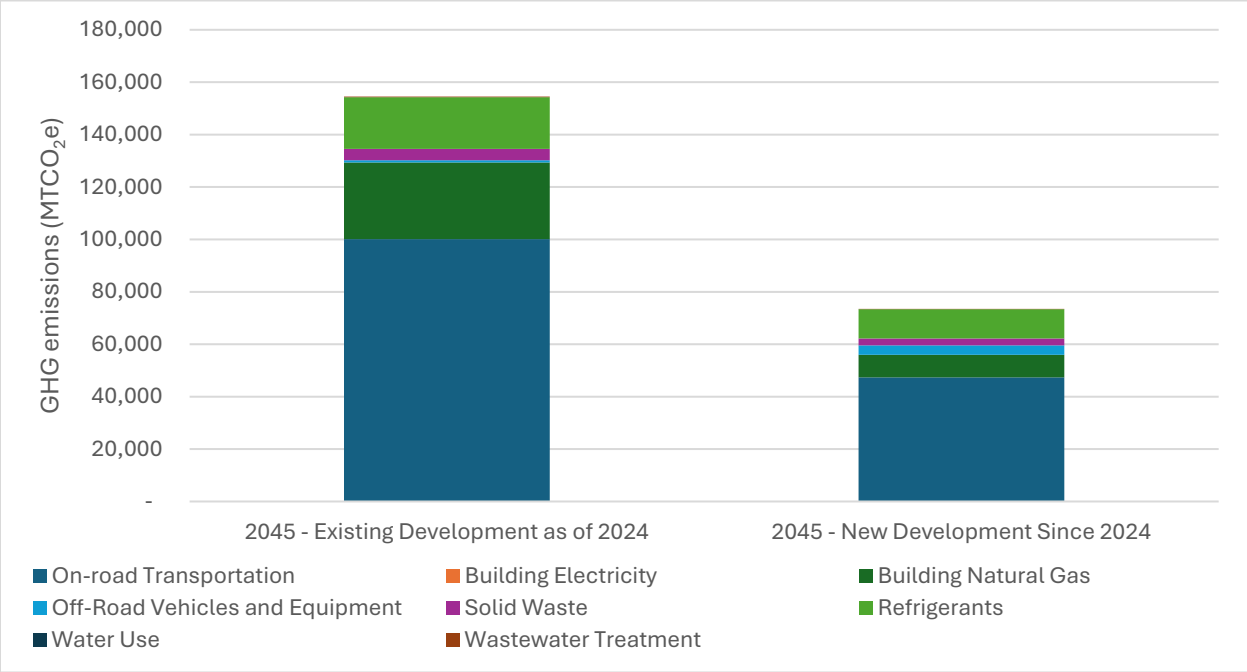
Figure 6: 2045 GHG Forecast with Subregional CAP Reductions, Existing and New Development



Under implementation of all measures, on-road transportation is projected to be the largest source of emissions in Wildomar. On-road transportation is projected to account for 65 percent of community emissions, building natural gas is projected to account for 17 percent of emissions, and refrigerants are projected to account for 14 percent.

2045 GHG EMISSIONS SUMMARY WITH SUBREGIONAL CAP

With implementation of all state, regional, and Subregional CAP measures described in this document, Wildomar's GHG emissions are projected to reach 227,840 $MTCO_2e$ by 2045, a two percent increase over 2019 emissions. While GHG emissions are projected to increase slightly compared to 2019, implementation of all state, local, regional, and Subregional CAP measures are projected to result in a 37 percent decrease in emissions compared to the business-as-usual forecast. Ninety-seven percent of these emissions savings come from implementation of state initiatives, primarily RPS and the state's Clean Car Standards.

By 2045, approximately two-thirds of the city's emissions are projected to come from development that already exists as of 2024, with the remaining one-third of emissions coming from development projected to be constructed between 2024 and 2045. Existing development will thus be responsible for a disproportionate amount of community emissions by 2045. This is largely due to the fact that Title 24, responsible for seven percent of total community emissions reductions between 2024 and 2045, only applies to new development.

Between 2019 and 2045, electricity emissions are projected to fall to zero due to RPS, resulting in reduced emissions in the building electricity, water use, wastewater, and off-road transportation sectors. Emissions in all other sectors are projected to increase.

With implementation of all measures, VMT is projected to increase by 55 percent between 2019 and 2045. While this is a significant increase, it is less than the 61 percent increase projected to occur under the business-as-usual forecast. Meanwhile, with implementation of all measures, transportation emissions are projected to increase by eight percent. Projected emission increases thus reflect a combination of growth-induced increases in VMT and initiatives to reduce VMT and promote electric vehicles, such as the state's Clean Car Standards, LT-1, LT-2, LT-3, LT-5, LT-6, LT-10, and LT-11.

With implementation of all measures, emissions from building natural gas are projected to increase by 42 percent between 2019 and 2045. Natural gas use is projected to increase by 42 percent during this same period. While this is a significant increase, it is lower than the 78 percent increase in natural gas use projected to occur under the business-as-usual forecast. Changes in natural gas use thus reflect a combination of increases driven by population growth and expansion in economic activity, combined with the impact of energy efficiency measures such as Title 24 and LE-3.

With implementation of all measures, emissions from solid waste are projected to increase by 196 percent between 2019 and 2045. As noted in the inventory section above, a significant portion of this increase is likely attributable to changes in the methodology for calculating solid waste emissions between the 2019 and 2024 inventories (as a basis for comparison, solid waste emissions are projected to increase by only 17 percent between 2024 and 2045). Solid waste emissions are projected to be 300 percent lower with the implementation of all measures than they would be under the business-as-usual forecast due to SB 1383.

Emissions from refrigerants are projected to increase by 75 percent between 2019 and 2045 due to the increase in Wildomar's population projected to occur during this period. This assumes that per-person refrigerant emissions, as identified by the California Air Resources Board's 2019 statewide GHG inventory, remains constant.

Population growth and expansion of economic activity are projected to increase the amount of resources used, waste created, and GHG emissions generated in Wildomar between 2019 and 2045. Implementation of all emission reduction activities described in this report will help keep emissions relatively stable between 2019 and 2045. However, based on current commitments and resources, the City will be primarily reliant on State initiatives to reduce emissions, initiatives that reduce emissions primarily by requiring conversion to electric vehicles, by mandating use of 100 percent renewable sources for electricity, and by requiring increased levels of energy efficiency for new development. By 2045, development existing as of 2024 will generate approximately 68 percent of the community's emissions.

Additional GHG Reduction Opportunities

The strategies in the Subregional CAP help to significantly reduce GHG emissions from new development in Wildomar. Emissions from new development are projected at 127,250 $MTCO_2e$ in 2045 without any of the efforts in the Subregional CAP to decrease emissions. With these efforts in place, emissions from new development are projected to be 73,520 $MTCO_2e$ in 2045, a decline of 42 percent. Wildomar now has an opportunity to go further with GHG emission reductions from new development, using these successes as a foundation for additional reduction efforts. While these efforts are intended to apply to new

development, they benefit the entire community through enhancements to infrastructure networks, reductions in local air pollution and improvements to public health, and support for the local economy.

Wildomar can further reduce the GHG emissions of new development through the discretionary review of proposed development projects in the community. This process allows the City to establish conditions of approval for these proposed projects, and such conditions may include requirements for GHG emission reductions. This section identifies some possible standard conditions of approval for new development.

ENERGY DESIGN RATING

California law requires all new and significantly renovated buildings to meet the requirements of Title 24, also known as the Building Standards Code. Part 6 of Title 24, known as the Energy Code, establishes standards for the energy performance of new and significantly renovated buildings. The Energy Code is regularly updated with more stringent requirements, resulting in new buildings being more energy efficient than older constructions. The "Title 24" item shown earlier in Table 6 identifies the reductions in new buildings having to achieve these stricter standards.

California allows local governments to establish standards that go beyond the minimum requirements of the Energy Code as long as the standards are cost-effective. [2] Under current laws, local governments can require new developments to achieve a minimum level of energy performance above what the state standards mandate. One approach to this is to require a minimum Energy Design Rating (EDR) for new developments. EDR refers to a building's energy performance, relative to the minimum requirements. [3] A condition of approval for a minimum EDR rating would allow proposed projects to improve their energy performance through whatever approaches are the most feasible and relevant. This may include improved insulation, high-efficiency or all-electric appliances, rooftop solar energy systems, battery storage systems, or other strategies. Project applicants can use models provided by the State to calculate the EDR rating of the project. As many projects already use these models to show that they meet the minimum requirements of the Energy Code, this is not a substantive burden to project applicants.

After reviewing the current cost effectiveness studies, an EDR rating of 3 appears to be the most viable starting point of a standard condition of approval. This rating requires a demonstrable increase in energy efficiency performance, but can be met through many different approaches, allowing for greater flexibility. In some cases, Wildomar may wish to consider a higher EDR rating. Although this memo considers applying a minimum EDR rating as a condition of approval for discretionary projects, many communities in California have amended their municipal code to require minimum EDR ratings for ministerial projects as well. This memo does not evaluate that option, but it is an option for the community.

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[2] The State regularly prepares studies showing the effectiveness of standards beyond the minimum energy code requirements that local governments can use to show cost-effectiveness. These studies are available at https://localenergycodes.com/content/reach-codes/electric-ready.

[3] A building that meets the minimum requirements of the Energy Code, but does not exceed them, has an EDR of 0. An EDR rating above 0 means that the building goes beyond the minimum level of energy performance in the Energy Code. The higher the EDR rating,

Recommended condition of approval (residential projects): *All new residential units shall be built to either be all-electric or to achieve a high degree of energy performance with an Energy Design Rating margin of at least 3.*

Recommended condition of approval (nonresidential projects): *All new retail, office, restaurant, and hotel developments shall be built to either be all-electric or to achieve a high degree of energy performance with an Energy Design Margin rating of at least 3. The City may adjust the nonresidential uses subject to this requirement based on the best available cost-effectiveness studies available from the State.*

Potential GHG reduction: 4,780 $MTCO_2e$ (residential); 1,070 $MTCO_2e$ (nonresidential); 5,850 $MTCO_2e$ (total).

SUPPORT FOR ZERO-EMISSION VEHICLES

The Subregional CAP includes Strategy LT-10, which calls on Wildomar to support the regional EV plan through expanded EV infrastructure, car-sharing programs, changes to parking, and support for neighborhood EVs. As modeled, this strategy is expected to have only a limited impact on Wildomar. The City has the opportunity to establish additional standards for new discretionary projects that can result in greater GHG emission reductions.

Wildomar can encourage greater adoption of EVs and other ZEVs by ensuring that there is sufficient parking with charging and other supportive infrastructure at new development. Having more options to charge EVs makes it easier for community members to lease or purchase one of these vehicles, as concerns about the lack of charging locations is often a barrier to greater EV adoption. Installing these chargers at homes and businesses helps to increase EV adoption for residents, employees, and business customers. The availability of charging infrastructure can also be a factor in people deciding to move into a home or to patronize a local business.

This support is not limited to "light duty" cars, trucks, and SUVs. It can also apply to "heavy duty" vehicles, such as large commercial delivery and freight vehicles. Heavy duty ZEVs require dedicated charging and fueling infrastructure different from the infrastructure that supports light duty ZEVs. Installing infrastructure for heavy duty ZEVs at locations such as warehouses, large retail loading docks, and other key logistics facilities helps make it easier for vehicle owners to transition from diesel to ZEVs. Some facilities, such as large retail operations, should have infrastructure for both light duty and heavy-duty ZEVs.

Recommended condition of approval (all development): *All single-family homes, two-family dwellings, and townhomes shall install at least one Level Two electric vehicle charger per unit. All multifamily developments and nonresidential developments shall meet the Tier 2 requirements for electric vehicle charging in the California Green Building Standards Code.*

Recommended condition of approval (additional standard for some nonresidential building types): *All retail and warehouses of at least 100,000 square feet shall install electric vehicle charging stations and/or zero-carbon fueling infrastructure capable of charging or fueling heavy-duty zero-emission vehicles.*

Potential GHG reduction: 20,560 $MTCO_2e$ (light duty ZEVs); 12,760 $MTCO_2e$ (heavy duty ZEVs); 33,320 $MTCO_2e$ (total).

LOW CARBON REFRIGERANTS

Air conditioners, heat pumps, and other types of cooling equipment commonly use refrigerants, which are fluids that allow for the effective transfer of heat. While these fluids are critical for these types of equipment to function, many modern refrigerants are extremely powerful GHGs, capable of trapping hundreds or thousands of times of the amount of heat as carbon dioxide (CO_2). This potency is measured using a metric called Global Warming Potential (GWP). CO_2 has a GWP of 1, and all other gases are measured relative to this. For example, methane, which traps about 28 times as much heat as CO_2, has a GWP of 28.

When these high-GWP refrigerants leak out of equipment, they contribute significantly to climate change, even though the amount of fluid lost from leaks is quite small. More equipment manufacturers are recognizing the impacts of having refrigerants that are GHGs and are transitioning to less harmful fluids, while also avoiding earlier refrigerants that contributed to the loss of ozone in Earth's atmosphere. Regulations and community pressure are supporting this transition.

Wildomar can require new developments to use equipment with refrigerants that do not contribute significantly to climate change. The California Air Resources Board identifies any refrigerant with a GWP of 150 or one that depletes the ozone layer as a high-GWP refrigerant. [4] This condition of approval would allow Wildomar to support transitioning away from these high-GWP refrigerants, helping to reduce a major source of GHG emissions projected as part of Wildomar's growth.

***Recommended condition of approval**: All air conditioners, refrigeration equipment, and other building components that use refrigerants shall use refrigerants with a GWP of 150 or less and is not an ozone-depleting substance, and preferably with a GWP of less than 10 if such equipment is available and appropriate for the building. If such equipment is not available, the project shall use refrigerants with the lowest Global Warming Potential that are available and appropriate and shall not be an ozone-depleting substance.*

Potential GHG reduction: 5,600 $MTCO_2e$.

ZERO-EMISSION CONSTRUCTION EQUIPMENT

As Wildomar grows, the community can expect to see continued emissions from construction equipment such as cranes, excavators, cement mixers, and many other types. These pieces of equipment run off diesel or gasoline fuel, meaning that they produce GHG emissions whenever they are used. Construction equipment and other types of portable equipment tend to be less fuel-efficient than transportation vehicles and can also produce higher levels of air pollution.

Wildomar can significantly reduce these emissions by requiring discretionary projects to use zero-emission construction equipment, such as those powered by electricity, wherever zero-emission models are

[4] More information about high-GWP refrigerants is available at https://ww2.arb.ca.gov/resources/documents/high-gwp-refrigerants.

available. The City can make exceptions for types of equipment for which there is not suitable electric-powered equipment on the market yet. The State has made reducing GHG emissions from construction equipment a key part of its strategy to reduce emissions, establishing a target of having 25 percent of construction equipment in California powered by electricity by 2030, and 75 percent by 2045.

Recommended condition of approval: *All equipment used to construct the project shall be zero-emission, to the extent that such equipment is available and suitable for the required tasks.*

Potential GHG reduction: 2,260 $MTCO_2e$.

TOTAL REDUCTIONS FROM CONDITIONS OF APPROVAL

Wildomar can apply these conditions of approval to most discretionary projects, although the project team assumed that some projects would be exempt from these conditions or that they would have a particular characteristic that makes these conditions infeasible. Table 12 shows the collective GHG emission reduction from these conditions of approval.

Table 12: GHG Emission Reductions from Standard Conditions of Approval

	2019 Emissions ($MTCO_2e$)	2024 Emissions ($MTCO_2e$)	2045 Emissions ($MTCO_2e$)	2045 - New Development Since 2024 ($MTCO_2e$)	Percent Change 2019 to 2045 (Total Emissions)
Total GHG emissions with Subregional CAP	**223,950**	**237,570**	**228,040**	**73,520**	**2%**
Residential Energy Design Rating	-		-4,780	-4,780	-
Nonresidential Energy Design Rating	-		-1,070	-1,070	-
Support for light duty zero-emission vehicles	-	-	-20,560	-20,560	-
Support for heavy duty zero-emission vehicles	-	-	-12,760	-12,760	-
Low-carbon refrigerants	-	-	-5,600	-5,600	-

	2019 Emissions ($MTCO_2e$)	2024 Emissions ($MTCO_2e$)	2045 Emissions ($MTCO_2e$)	2045 - New Development Since 2024 ($MTCO_2e$)	Percent Change 2019 to 2045 (Total Emissions)
Zero-emission construction equipment	-	-	-2,260	-2,260	-
All standard conditions of approval	-	-	-47,030	-47,030	-
Total GHG emissions with standard conditions of approval	223,950	237,570	181,010	26,490	-19%
Note: Totals in individual rows may not add to value in final row due to rounding.					

If Wildomar applied these conditions of approval regularly for new discretionary projects, it would reduce the community's GHG emissions an estimated 47,030 $MTCO_2e$ by 2045. This would be sufficient to decrease community-wide emissions 19 percent below 2019 levels by 2045 despite the significant increase in population and job growth in Wildomar. It would also reduce emissions associated with new development to 26,490 MTCO2e by 2045, a 64 percent decline from the level of GHG emissions with the subregional CAP.

Wildomar is not limited to these standard conditions of approval and could consider additional mandates for discretionary projects to further reduce their GHG emissions. Additionally, the City may consider applying some of these standards to all development projects, including ministerial projects. The City should regularly evaluate the effectiveness of its GHG reduction activities and determine if further actions are needed, which may include new efforts or increased funding/staffing for existing programs.

Appendix A: Demographic Projection Methodology

HOUSING UNITS

Housing unit estimates under the General Plan assume little or no intensification of development in areas where growth is not anticipated, including most of the city's established residential neighborhoods. The General Plan estimates include existing conditions, pending and approved projects (those not already complete or under construction), sites identified in the 2021-2029 Housing Element to accommodate the City's Regional Housing Needs Allocation (RHNA), and Accessory Dwelling Units (ADUs) projected during the planning period. The General Plan also includes growth associated with nine Focus Areas determined by the public and project team as those areas of the city most likely to experience change during the lifetime of the General Plan.

RESIDENTS

Projections for population size derive from housing unit projections. The housing occupancy rate assumed for the General Plan estimate is 96.1 percent based on data from the January 2022 CA DOF E-5. Based on data from the January 2022 CA DOF E-5 information, the persons per household (pph) factor used to estimate population for the Land Use Plan estimate is 3.24 pph.

NON-RESIDENTIAL BUILDING SQUARE FOOTAGE

Projections for non-residential building square footage under the General Plan include existing square footage with the addition of growth resulting from approved or in-progress development projects, with the addition of projected growth in non-residential square footage assumed within Focus Areas.

EMPLOYMENT

Employment generation factors represent the average amount of building square footage typically required per employee and are customized based on the land use designation. The project team used these factors by dividing the nonresidential building square footage by the employment generation factor results to estimate the number of jobs at buildout. This includes both full-and part-time jobs and is not a full-time equivalent measure. To estimate employment that is projected to result from the development projected under the General Plan, employment generation factors specific to Wildomar were developed using regionally-standard factors adjusted to reflect on-the-ground employment in Wildomar. These generation factors are included in Table A-1.

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Table A-1: Employment Generation Rates

Land Use	SF/Employee
Mixed Use	400
Commercial	400
Light Industrial	900
Business Park	400
Public Facilities	400

Appendix B: Inventory, Forecast, and Quantification Methodology

ACTIVITY INVENTORY AND PROJECTIONS

For most emission-generating activities, the Project Team used demographic projections to estimate future activity levels. The Project Team assumed that future activity levels will change over time at the same rate of change as their associated demographic proxy, as outlined in Table B-1.

Table B-1: Demographic Proxies for Emission-Generating Activities

Activity	Demographic Proxy
Light Duty VMT	Service Population
Heavy Duty VMT	Service Population
Residential Energy Use (electricity and natural gas)	Housing Units
Non-residential Energy Use (electricity and natural gas)	Jobs
Agricultural Equipment	Agricultural Land Area
Construction Equipment	Change in Service Population
Lawn and Garden Equipment	Households
Light Commercial and Industrial Equipment	Jobs
Refrigerants	Service Population
Water Use	Service Population
Wastewater Generation	Service Population

Some activities, including use of offroad equipment and use of refrigerants, have tools and formulae available that permit the direct calculation of emissions. However, in the case of offroad equipment, where emissions are calculated at the County level, demographic proxies are used to calculate the proportion of countywide emissions attributable to Wildomar. In the case of refrigerants, the Project Team calculated emissions directly from service population levels without an activity metric intermediary.

For 2024 transportation activity, the Project Team calculated light- and heavy-duty VMT assuming a constant rate of change between 2019 and 2024 in line with changes in service population. The Project Team calculated 2045 VMT with assistance from the California Air Resources Board's EMFAC tool, which projects proportions of heavy- and light-duty VMT for the Riverside County region in 2045. The Project Team multiplied these proportions by 2045 total VMT projections for 2045 contained in the General Plan buildout estimate.

Water and Wastewater Emissions

Wastewater generates direct emissions at rates proportional to the demographic proxies outlined in **Table B-1**. In addition, water and wastewater processing and conveyance also generate indirect emissions via the use of electricity. The Project Team calculated electricity use associated with water and wastewater conveyance and treatment using an electricity intensity factor, which measures electricity use per million gallons of water or wastewater. These electricity intensity factors are shown in **Table B-2**.

Table B-2: Electricity Intensity Factors for Water and Wastewater (kWh/MG)

Water	Wastewater
5,306	1,501

Total emissions associated with water and wastewater generation and use are the sum of direct and indirect emissions.

Waste Generation and Emissions

The GHG inventory included in the environmental impact report for the General Plan estimated that Wildomar generated 2,320 $MTCO_2e$ of GHG emissions from waste in 2019. The original waste emissions calculation used waste generation statistics from 2021 as a proxy for 2019 and estimated that Wildomar produced 29,020 tons of waste in 2021. The original GHG analysis used the California Air Resources Board's Landfill Emission Tool to estimate GHG waste emissions in 2019 and 2045.

As part of the inventory update, the Project Team obtained more accurate waste generation data for 2019. The Project Team estimated that Wildomar generated 20,960 tons of waste in 2019.The Project Team estimated waste emissions using CalRecycle statewide waste composition data and emissions generation factors for different types of waste, as shown in **Table B-3**.

Table B-3: Emission Factors by Waste Type

Waste Type	$MTCO_2e$/Ton
Newspaper	0.278995
Office Paper	1.320577
Corrugated Boxes	0.781186
Coated Paper	0.316194
Food	0.505291
Grass	0.247996
Leaves	0.083699
Branches	0.402993
Lumber	0.393718

Waste Type	$MTCO_2e$/Ton
Textiles	0.472461
Diapers	0.472461
Construction/Demolition	0.078744
Medical Waste	0.295288
Sludge/Manure	0.098429

EMISSIONS FACTORS

An emissions factor describes how many GHGs (measured in $MTCO_2e$) are released per unit of an activity. For instance, an emissions factor for electricity describes the GHGs produced per kilowatt-hour (kWh) of electricity used, or an emission factor for on-road transportation describes the GHGs produced per mile of driving. **Table B-1** shows emission factors for activities included in the inventory and forecast. These emission factors do not account for any state or regional initiatives to promote renewable energy.

Table B-1: Emission Factors

Activity	Emission Factor	Units
Light-duty Transportation	0.000316	$MTCO_2e$/VMT
Heavy-duty Transportation	0.001172	$MTCO_2e$/VMT
Electricity	0.000219	$MTCO_2e$/kWh
Natural Gas	0.005322	$MTCO_2e$/Therm
Solid Waste	0.249947	$MTCO_2e$/Ton
Refrigerants	0.473942	$MTCO_2e$/Person
Wastewater Direct Emissions	2.63×10^{-7}	$MTCO_2e$/Gallon

[i] City of Wildomar. 2024. *City of Wildomar Proposed General Plan Draft EIR, Appendix 5.3-1: Air Quality and Greenhouse Gas Modeling*.
[ii] City of Wildomar. 2024. *City of Wildomar Proposed General Plan Draft EIR, Appendix 5.3-1: Air Quality and Greenhouse Gas Modeling*.
[iii] City of Wildomar. 2024. *City of Wildomar Proposed General Plan Draft EIR, Appendix 5.3-1: Air Quality and Greenhouse Gas Modeling*.

[iv] City of Wildomar. 2024. *City of Wildomar Proposed General Plan Draft EIR, Appendix 5.3-1: Air Quality and Greenhouse Gas Modeling*.
[v] City of Wildomar. 2024. *City of Wildomar Proposed General Plan Draft EIR, Appendix 5.3-1: Air Quality and Greenhouse Gas Modeling*.

CITY OF WILDOMAR
PC - REGULAR MEETING
GENERAL BUSINESS
Agenda Staff Report # 3.3
Meeting Date: June 4, 2025

SUBJECT:

Request for Direction on the Placement of Metal Shipping Containers as Accessory Structures on Lots or Parcels Not Less Than 1/2 Acre in Size Within the Agricultural and Rural Residential Zones

SUBMITTED BY: Abdu Lachgar

PREPARED BY: Abdu Lachgar

ACTION:

1. Receive and file this report with no further action, or
2. Provide direction for staff to prepare an ordinance identifying solutions to impacts of the placement of metal shipping containers on certain areas of land within agricultural and rural residential zones for a duly noticed public hearing.

PROJECT DESCRIPTION:

Currently, the City of Wildomar permits the placement of metal shipping containers only on properties with a minimum of 5 acres in certain zones, subject to specific restrictions and development standards. These provisions aim to ensure that the use of such containers aligns with the City's land use goals, maintains neighborhood character, and minimizes adverse impacts.

Recent inquiries and requests have prompted a review of the existing regulations to consider the potential for broader use of metal shipping containers in the City's agricultural (A) and rural residential (RR) zones, subject to appropriate conditions.

PROJECT ANALYSIS:

Existing Standards:

- Metal shipping containers are only permitted on properties of at least 5 acres in certain zones.
- Containers must comply with setback, height, and aesthetic standards.
- Conditional use permits (CUPs) may be required in some cases to ensure compatibility with surrounding uses.

Public Comments and Potential Changes:

- Allowing metal shipping containers on smaller parcels within agricultural and rural

residential zones, subject to development standards.
- Implementing conditional use permit (CUP) requirements for containers exceeding a specified size or number.
- Requiring aesthetic enhancements (e.g., painting, screening) to minimize visual impacts.

Pros:

- Provides property owners with additional storage options.
- Supports agricultural uses with secure, weather-resistant storage.
- May reduce unauthorized placement of containers.

Cons:

- Potential for negative visual impact on residential areas.
- Risk of noncompliance or unauthorized container use.
- Possible conflict with residential neighborhood character in rural zones.

ENVIRONMENTAL ANALYSIS:

The proposed consideration is exempt from the California Environmental Quality Act (CEQA) under Section 15061(b)(3) – the “Common Sense Exemption” – as it can be determined with certainty that there is no possibility that the proposal will have a significant effect on the environment.

PUBLIC NOTICE:

No public hearing is required for receipt of this report and the provisions of Ordinance No. 135 requiring notice and posting are inapplicable. Appropriate noticing and posting of future projects to which this collection and report of information would apply and occur as needed prior to consideration. Future projects would be subject to a determination upon consideration.