Scio Township Planning Commission Agenda
Ann Arbor, MI 48103
October 11, 2021, 7:00 PM

Pursuant to the MCL 15.263a Sec. 3(a)(1)(b) the Scio Township Planning Commission will meet in Meeting Hall at Township Hall at 827 N. Zeeb Road. Planning Commission members and the public may join either in person at Township Hall, or via Zoom at https://us02web.zoom.us/j/86760055993 or http://zoom.us and entering Meeting ID 867 6005 5993 or by calling 1 312 626 6799 and entering Meeting ID 867 6005 5993.

Members of the public may contact members of Planning Commission by emailing planningcommission@sciotownship.org to provide input or ask questions on any business that will come before the Zoning Board of Appeals at the meeting.

Persons with disabilities requiring any accommodation for participation in this meeting should contact the Township Clerk at (734) 369-9400 or clerk@sciotownship.org.

1) CALL TO ORDER

2) ROLL CALL

Culbertson, Holland, Cheng, Courteau, Hyde, Moore, Sharma,

3) ADOPTION OF AGENDA

4) COMMUNICATIONS/CORRESPONDENCE

The Commission will be advised of communications and correspondence received.

5) PRESENTATIONS REQUESTED BY THE PLANNING COMMISSION

None.

6) PUBLIC COMMENT

Citizens wishing to address the Planning Commission on matters which are not on the public hearing portion of the agenda or seek information on any other matters. Such oral presentations shall be limited to three (3) minutes except a representative or spokesperson of an organization shall have five (5) minutes to address the Commission.

7) BUSINESS SESSION

a) Advertised Public Hearings: The Chairperson will declare such a meeting open and state its purpose and rules of procedure for the hearing. The applicant will be heard first. The Planning Commission may or may not take formal action on this or these matters at this meeting.

1. OA# 21005 PSP# 21012 KOC Knights of Columbus, rezoning,

b) Unfinished Business

None.

c) New Business

None.

8) REPORTS / COMMISSION ACTIVITY

1. Engineering Consultant – OHM
2. Planning Consultant – CWA
3. Chair Report - Culbertson
4. BOT Board of Trustees Report - Courteau
5. ZBA Zoning Board of Appeals - Culbertson
6. DDA – Holland
7. Road Commission Advisory Committee –
8. LPC Land Preservation Commission – Courteau
9. ZOA Zoning Ordinance Amendments - Cheng
10. Parks and Rec Advisory Board – Hyde
11. TAP committee – Cheng
12. HRWC – Hyde

9) APPROVAL OF MINUTES

1. Minutes of 2020-09-13,
2. Minutes of 2020-09-27, pending,
3. Minutes of 2020-09-27, joint, pending,

10) ADJOURNMENT

Specific items may be placed on the agenda by staff after consultation with the Commission Chairperson.

Jan Culbertson, Planning Commission Chair

Persons with disabilities are encouraged to participate. Accommodations, including sign language interpreters, may be arranged by contacting the Scio Township Clerk's Office at 734-369-9400 at least 7 days in advance.

Township of Scio

827 N. Zeeb Road · Ann Arbor, MI 48103
734/369-9400 · 734/665-0825 Fax
www.ScioTownship.org

Applications will not be processed until deemed complete.
Incomplete applications will be destroyed after 90 days.

ORDINANCE AMENDMENT 21005

PROPERTY ID NO. H-08-23-300-001; H-08-23-300-002

ZONING DISTRICT Recreation Conservation (RC)

PROPOSED DISTRICT Planned Unit Development (PUD)

APPLICATION DATE _____

PETITIONER:
Norfolk Development Corporation
AGENT/DEVELOPER
8178 Jackson Road, Suite D
STREET, NUMBER
Ann Arbor, MI 48103
CITY, STATE, ZIP
734-408-0777 - Jim Haeussler
PHONE
734-408-0780
FAX
Jhaeussler@norfolk-homes.com
EMAIL

OWNER:
Columbus Home Company of Ann Arbor
NAME
530 Elizabeth Street
STREET, NUMBER
Ann Arbor, MI 48104
CITY, STATE, ZIP
PHONE
FAX
EMAIL

PROPERTY ADDRESS: 3991 Dexter-Ann Arbor Road **SIZE OF PROPERTY (AREA):** 46.69 acres

LEGAL DESCRIPTION: ☒ ATTACHED

AREA DESCRIPTION: ATTACH SEPARATE INFORMATION PURSUANT TO SECTION 36-461 OF THE SCIO TOWNSHIP ZONING ORDINANCE.

PURPOSE OF AMENDMENT: The proposed development is a single family residential development with a proposed rezoning to a Planned Unit Development with clustering of the lots in order to provide additional open space with site amenities including pathways to the existing pavilion and preservation of natural features including trees and woodland.

I AGREE TO GIVE PERMISSION FOR OFFICIALS OF SCIO TOWNSHIP TO ENTER THE PROPERTY SUBJECT TO THIS APPLICATION FOR PURPOSES OF INSPECTION.

☑ *Property owner authorization letter attached.*

Norfolk Development Corp.
By: _____ 8/27/21
SIGNATURE OF PETITIONER — DATE

_____ _____
SIGNATURE OF OWNER — DATE

James G. Haeussler
Development Director
PRINT NAME

_____
PRINT NAME/TITLE

#1 – 20210903#0319125000 (1/3) Fees $3840.00 (1/3)

FOR OFFICE USE ONLY

THIS PETITION HAS BEEN REVIEWED FOR COMPLIANCE WITH THE TOWNSHIP ZONING ORDINANCE, AND FOR ACCURACY OF PROPERTY DESCRIPTION:

_____ _____
ORDINANCE ADMINISTRATOR — DATE

PUBLIC HEARING NOTICE: _____
PUBLIC HEARING DATE: _____
PLANNING COMM. RECOMMENDATION:
☐ APPROVED, DATE _____
☐ DENIED, DATE _____
TOWNSHIP BOARD OF TRUSTEES:
☐ APPROVED, DATE _____
☐ DENIED, DATE _____

APPLICATION RECEIVED:

_____ _____
TOWNSHIP CLERK — DATE

FEE RECEIVED _____ **DATE** _____

Township of Scio
827 N. Zeeb Road · Ann Arbor, MI 48103
734/369-9400 · 734/665-0825 Fax
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SITE PLAN 21012

☐ ADMINISTRATIVE SITE PLAN
☒ FULL SITE PLAN
DATE
PROPERTY ID NO. H-08-23-300-001, H-08-23-300-002
ZONING DISTRICT Recreation Conservation; rezoning to PUD

APPLICANT: Norfolk Development Corporation
AGENT/DEVELOPER
8178 Jackson Road, Suite D
STREET, NUMBER
Ann Arbor, MI 48103
CITY, STATE, ZIP
734-408-0777 - Jim Haeussler
PHONE
734-408-0780
FAX
Jhaeussler@norfolk-homes.com
EMAIL

OWNER: Columbus Home Company of Ann Arbor
NAME
530 Elizabeth Street
STREET, NUMBER
Ann Arbor, MI 48104
CITY, STATE, ZIP
PHONE
FAX
EMAIL

PROPOSED NAME OF DEVELOPMENT: 3991 Dexter-Ann Arbor Road
ADDRESS OF PROPERTY (OR POPULAR ADDRESS): 3991 Dexter-Ann Arbor Road
LEGAL DESCRIPTION: ☐ ATTACHED ☑ ON SITE PLAN
LOT SIZE: 46.69 acres (AREA) **DEED RESTRICTIONS:** ☑ NONE ☐ ATTACHED
DESCRIPTION OF PROPOSED USE: Single family residential planned unit development with community well and community wastewater facility and associated infrastructure, stormwater management, and lansdcaping.
STORIES: ☐ EXISTING ☑ NEW 2.5 stories max
SQ. FT.: ☐ ADDITION ☑ NEW TBD, 47 residential lots
SANITARY FACILITIES: ☐ SEWER ☑ SEPTIC Community wastewater facility
WATER: ☐ MUNICIPAL ☑ PRIVATE WELL

SQ. FT. BY USE:
☐ COMMERCIAL
☐ OFFICE
☐ WAREHOUSE
☐ MANUFACTURING
☑ OTHER Residential - 47 lots

I AGREE TO GIVE PERMISSION FOR OFFICIALS OF SCIO TOWNSHIP TO ENTER THE PROPERTY SUBJECT TO THIS APPLICATION FOR PURPOSES OF INSPECTION.

☑ *Property owner authorization letter attached.*

Norfolk Development Corp.
By: [signature]
SIGNATURE OF APPLICANT — DATE 8/27/21

SIGNATURE OF OWNER — DATE

James G. Haeussler
Development Director
PRINT NAME

PRINT NAME/TITLE

fees - SEE OA Application

FOR OFFICE USE ONLY

THIS APPLICATION HAS BEEN REVIEWED FOR COMPLIANCE WITH THE TOWNSHIP ZONING ORDINANCE, AND FOR ACCURACY OF PROPERTY DESCRIPTION:

ORDINANCE ADMINISTRATOR — DATE

PLANNING COMMISSION ACTION:
☐ APPROVED, DATE
☐ DENIED, DATE

TOWNSHIP BOARD:
☐ APPROVED, DATE
☐ DENIED, DATE

APPLICATION RECEIVED DATE:
FEE RECEIVED: CASH CHECK
SP DATE
SW
WA

EXPIRATION DATE:

SCIO TOWNSHIP
PLANNING COMMISSION

Pursuant to the MCL 15.263a Sec. 3(a)(1)(b) the Scio Township Planning Commission will meet in Meeting Hall at Township Hall at 827 N. Zeeb Road. Planning Commission members and the public may join either in person at Township Hall, or via Zoom at https://us02web.zoom.us/j/86760055993 or http://zoom.us and entering Meeting ID 867 6005 5993 or by calling 1 312 626 6799 and entering Meeting ID 867 6005 5993.

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NOTICE IS HEREBY GIVEN that a public meeting of the Scio Township Planning Commission will be held via zoom, Ann Arbor, Michigan, on **MONDAY, October 11, 2021,** at 7:00 PM. During this meeting the Planning Commission will hold a public hearing on the following matters:

Review of Preliminary PUD (Planned Unit Development) for a requested rezoning of approximately 43.6 acres from RC (Recreation-Conservation) to PUD (Planned Unit Development) for a new residential development. (OA 21005/PSP-PUD 21012)

H -08-23-300-001	3991	DEXTER-ANN ARBOR RD	COLUMBUS HOME CO
H -08-23-300-002	vacant	DEXTER-ANN ARBOR RD	COLUMBUS HOME CO

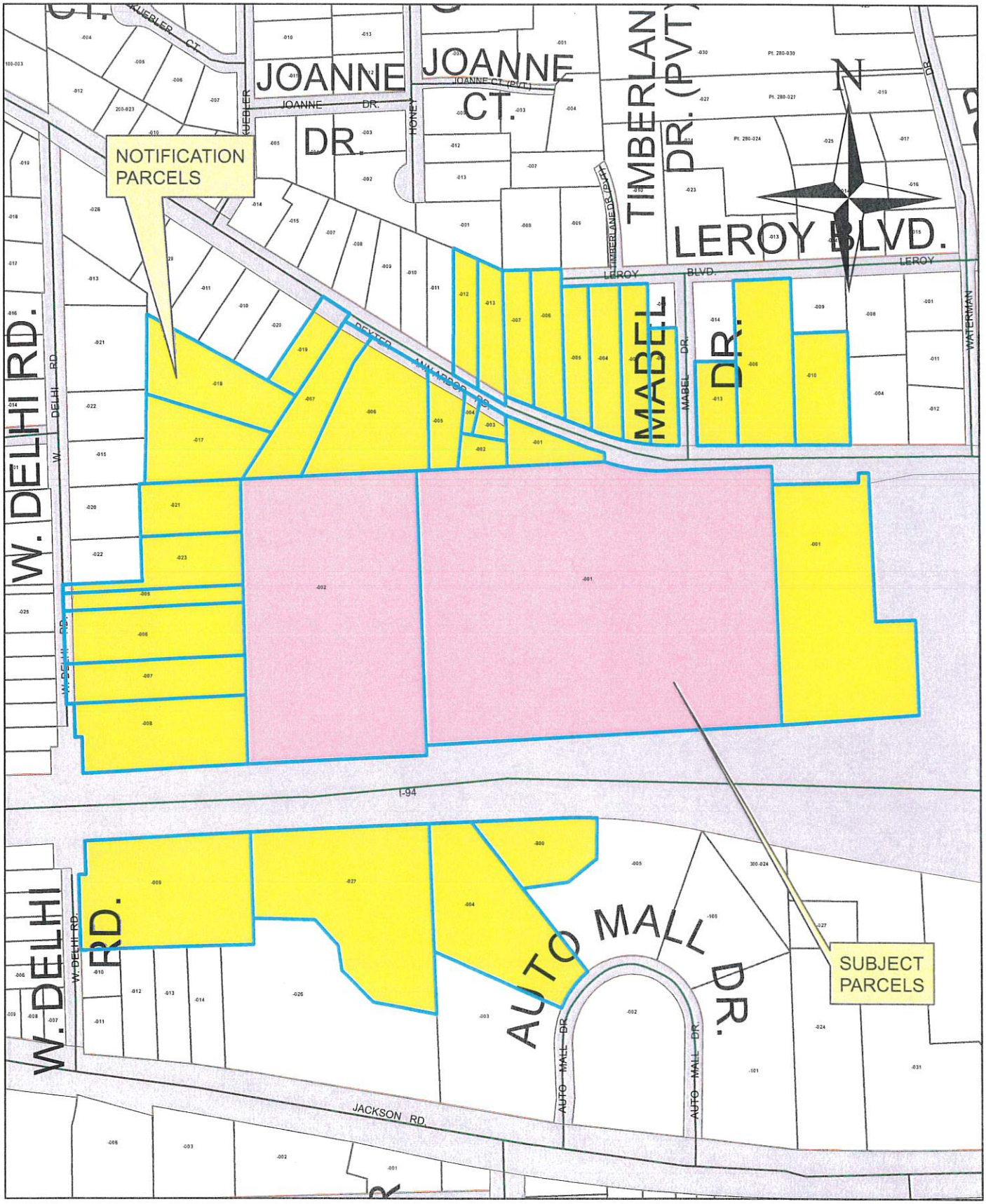
Details concerning the aforementioned matters may be examined at the Township Offices, 827 N. Zeeb Road by interested persons during office hour's weekdays, between 8:00 AM and 5:00 PM.

Any person having interest in said Township or their duly appointed representatives shall there and then be heard at the above described meetings or adjournment thereat relative to any matters that should come before the Planning Commission.

Scio Township will provide necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audio tapes of printed materials being considered at the meeting, to individuals with disabilities at the meeting/hearing upon 10 days notice to Scio Township. Individuals with disabilities requiring auxiliary aids or services should contact Scio Township by writing or calling the Scio Township Staff at (734) 369-9400.

Scio Township Clerk
SunTimes/Washtenaw Legal News
2021-09-22 / 2021-09-23

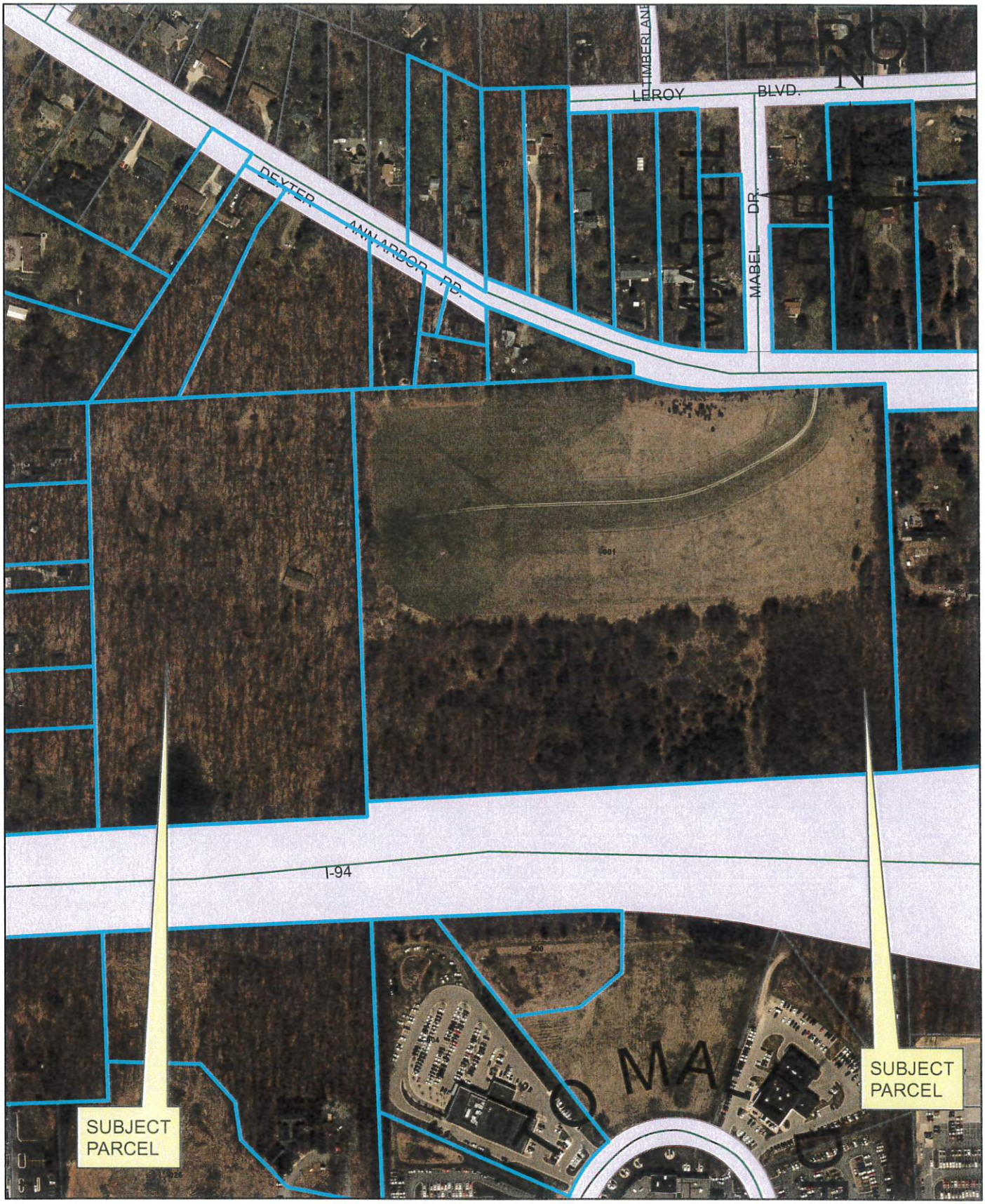
09/10/2021



REZONING OA# 21005
KNIGHTS OF COLUMBUS

0 0.0275 0.055 0.11 0.165 0.22 Miles

09/10/2021



REZONING OA# 21005
KNIGHTS OF COLUMBUS

0 0.0175 0.035 0.07 0.105 0.14
Miles

Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: October 6, 2021

Preliminary PUD / Rezoning Review
For
Scio Township, Michigan

File No.:	OA #21005 PUD / PSP #21012
Applicant:	Norfolk Development Corporation
Project Name:	Knights of Columbus (3991 Dexter-Ann Arbor Road)
Location:	South side Dexter-Ann Arbor Road between Wagner and W. Delhi, immediately north of I-94 (H-08-23-300-001 and H-08-23-300-002)
Current Zoning:	R-C, Recreation-Conservation
Plan Date:	August 27, 2021
Action Requested:	Preliminary PUD Review
Required Information:	As noted below.

PROJECT AND SITE DESCRIPTION

We are in receipt of the preliminary planned unit development (PUD) application for the former Knights of Columbus campground property located at 3991 Dexter-Ann Arbor Road for a detached, 46-unit single-family residential development. The development is located on the south side of Dexter-Ann Arbor Road between Wagner and W. Delhi Roads. The subject site encompasses two (2) properties containing 47 acres of vacant property containing woodlands, open water pond (wetland) and steep slopes. The property is zoned R-C, Recreation-Conservation. The applicant is proposing to cluster development in order to preserve natural features on the site. Approximately 70% (33 acres) of the site will be preserved as open space including the preservation of existing woodland, landmark trees and open water wetland.

A community wastewater system is proposed to be utilized to handle the development's sewage waste. Community wastewater systems require a conditional use approval. However, since the applicant is proposing a PUD, the community wastewater system will be reviewed during the PUD review process, and a separate conditional use application will not be required to be submitted and reviewed separately. The development will also utilize a community well for water supply.

The proposed residential gross density of the development is 1 unit per acre (46 dwelling units/47 gross acres). The project is noted to be constructed in a single phase. Allowable density based on a density parallel plan is discussed in in more detail below.

An aerial photograph of the subject site and its surroundings is provided below:



Zoning Classification of Parcel, Adjacent Parcels, and Current Land Use:

The subject site is currently vacant and most recently farmed containing woodlands, wetlands and steep slopes. Uses surrounding the subject site include existing single-family residential.

Direction	Zoning	Use
North	R-1, Single Family Residential	Existing Single-Family Residential
South	I-94	I-94
East	AG, General Agricultural	Existing Single-Family Residential
West	R-2, Single-Family Residential	Existing Single-Family Residential

Items to be Addressed: *None.*

PROJECT ELIGIBILITY

Section 36-245(c) requires the applicant demonstrate through the submission of both written documentation and site development plans that all of the following criteria are met:

1. *The PUD district is intended to permit flexibility in the regulation of land development, encourage innovation in land use and variety in design, layout and type of structures constructed, achieve economy and efficiency in the use of land, natural resources, energy and the provision of public services and utilizes, encourage useful open space, and provide better housing, employment and shopping opportunities particularly suited to the needs of residents.*

CWA Comments: The applicant's narrative states "this residential development meets the intent of the PUD ordinance by clustering of residential units to maximize open space on the site. This clustering of homes within the existing open field on the site also allows for the preservation of the existing natural features. The open space areas encompass approximately 71% of the site while still maintaining a density that aligns with the Scio Township Master Plan. The development includes several pedestrian pathways and sidewalk routes that provide connectivity within the development to promote recreation and social gathering activities within the community. The proposed planned unit development meets the overall goals of the Scio Township Master Plan, goals for the Huron river sub-area that included focused development along the Ann Arbor-Dexter Corridor, while preserving the majority of the Priority 3 bio-reserve that is identified on the site with the Scio Township Master Plan."

The applicant indicates the development preserves a large portion of the site for conservation of the Priority 3 bio-reserve, existing woodlands, wetlands, and steep slopes, as noted in other sections of this report, we are concerned with the proposed density and overall benefit(s) this development will bring to the community, and whether those benefits commensurate with the number and size of the requested deviations needed for the project. We note the applicant discuss conservation of the Priority 3 bio-reserve; however, its location and area to be conserved has not been outlined in the preliminary PUD site plan submittal. Preservation of the complete bio-reserve may be considered a community benefit.

2. *Approval of a PUD **must** result in one or more of the following:*

   (a) *A recognizable and material benefit to the ultimate users of the project and to the community, where such benefit would otherwise be unfeasible or unlikely to be achieved without application of the PUD regulations;*

(b) *Protection and preservation of natural resources and natural features of a quantity and/or quality that can be clearly demonstrated, where such benefit would otherwise be unfeasible or unlikely to be achieved without application of the PUD regulations; or*

(c) *A nonconforming use shall, to a material extent, be rendered more conforming to, and compatible with, the zoning district in which it is situated.*

CWA Comments: The most obvious recognizable and material benefit to the ultimate users of the project and the community is the preservation of significant open space, which includes woodland, wetland and steep slope preservation within the proposed development. It is likely without application of the PUD regulations this significant amount of open space would be reduced or nearly eliminated. As stated previous, the Planning Commission will need to affirm the proposed development meets one or more of the PUD eligibility criteria and find they commensurate with the number and size of the requested deviations needed for the project.

3. *The proposed type and density of use shall not result in an unreasonable increase in the need for or burden upon public services, facilities, roads, and utilities.*

CWA Comments: The density of the proposed residential portion of the development may be considered compatible with the Master Plan and surrounding uses and should not result in an unreasonable increase in the need for additional public facilities. However, additional information is needed in order to determine specific traffic impacts as 47 new homes will generate an average of 470 new vehicle trips per day. A traffic impact assessment should be included as a part of the preliminary PUD site plan and reviewed by the Washtenaw County Road Commission. Additionally, the applicant has provided the development will be served by a private community wastewater system and all water will be supplied by a community well. See our comments regarding these proposed facilities in the Essential Services section of this report. Furthermore, as stated previously, the applicant also proposes a contribution to Township Fire Services as part of this development project. Specific information related to the amount of contribution will need to be provided for the Planning Commission's consideration as a community benefit of the project.

4. *The proposed development shall be consistent with the public health, safety, and welfare of the township.*

CWA Comments: Generally, we feel the proposed development will be consistent with the public health, safety, and welfare of the Township. However, traffic impacts and community wastewater facility details are yet to be determined.

5. *The proposed development shall minimize any negative environmental impact of the subject site or surrounding land.*

CWA Comments: The applicant proposes to minimize negative environmental impacts primarily through a low-density development pattern and preservation of significant amounts of dedicated open space. Additionally, the stormwater management system includes implementation of best management practices throughout the site which include infiltration trench, naturalized infiltration/detention basins, and rear yard swales. As noted, the applicant should also consider preserving the entire bio-reserve area.

6. *The proposed development shall minimize any negative impact upon surrounding properties.*

CWA Comments: The applicant indicates "the proposed development is located along the Dexter-Ann Arbor Road corridor between the City of Dexter and City of Ann Arbor, which is identified as a target location for clustered residential development and natural feature preservation in the Township Master Plan." The applicant goes on to state, "clustered housing with an overall density consistent with the Township Master Plan reduces the overall impact on the surrounding lands". The required 100-foot buffer provides separation between the I-94/M-14 corridor and neighboring residential uses.

We note there are three (3) existing residential homes north of the site adjacent to Dexter-Ann Arbor Road. The closest (4179 Dexter-Ann Arbor Road) is located approximately 10 feet from the north property line of the development. The two (2) other adjacent existing homes are approximately 60 feet from the north property line. There is also an existing residential structure immediately to the east of the site with the home located approximately 30 feet from the east property line of the development. The applicant should demonstrate specific remedies to mitigate development impacts from surrounding existing residential properties.

7. *The proposed development shall be consistent with the goals and policies of the Township Master Plan.*

CWA Comments: Based on the information provided in the Master Plan section of this report, we feel the project is generally consistent with the goals and policies of the Township Master Plan but proposing the maximum density possible under the Master Plan.

Items to be Addressed: *1) The Planning Commission will need to affirm the proposed project meets the PUD eligibility criteria outlined in Section 36-245(c). 2) Demonstrate location and preservation of Priority 3 bio-reserve. 3) Demonstrate how impacts of project will be mitigated for those immediate residential neighbors.*

PUD STANDARDS

The Planning Commission shall review the preliminary PUD plan according to the provisions of Section 36-245 through 36-248. Following a public hearing, the Planning Commission shall make a recommendation to the Township Board based upon its findings. In making its recommendation, the Planning Commission shall determine that the proposed PUD meets the intent of the PUD district and the following standards. Most of these criteria are addressed in the body of this review:

1. *In relation to underlying zoning, the proposed type and density of use shall not result in a material increase in the need for public services, facilities, and utilities, and shall not place a material burden upon the subject or surrounding land or property owners and occupants or the natural environment.*

2. *The proposed development shall be compatible with the Township Master Plan and shall be consistent with the intent and spirit of the PUD Ordinance.*

3. *The PUD shall not change the essential character of the surrounding area.*

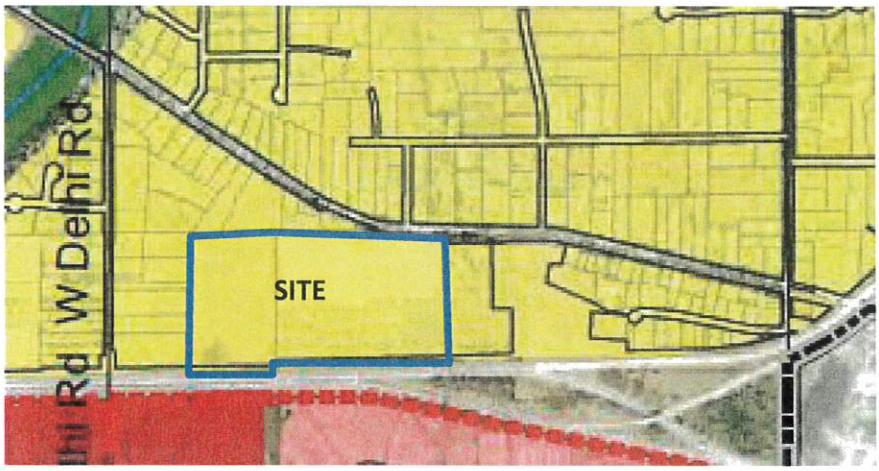
4. *The proposed PUD shall be under single ownership or control such that there is a single person or entity having responsibility for completing the project in conformity with this Ordinance. This provision shall not prohibit a transfer of ownership or control upon due notice to the Zoning Administrator.*

Items to be Addressed: *Planning Commission to determine if the PUD meets the intent and outlined standards of the PUD district.*

MASTER PLAN

The Master Plan depicts the subject site and the surrounding area as Low Density Residential (LDR) future land use classification (1 dwelling unit per every 1 to 2.5 acres). The intent of the LDR future land use category is to accommodate relatively low density single-family residential housing in areas that are suitable for septic systems and water wells.

Desirable land uses and elements listed in the LDR future land use classification include single-family residences in either clustered or conventional subdivision/site condominium development; and parks, open spaces, and conservation areas. The A-1 General Agriculture and R-1 Single-Family zoning districts are compatible to the LDR future land use designation in the Master Plan. While the gross density proposed is compatible to the upper limits of the Township Master Pan, we have concerns how total density was determined as outlined in our comments on the PUD density Plan.



Low Density Residential - 1 d.u./1 acre to 1 d.u./2.5 acres

Recreation/Conservation

Sanitary Sewer Service Area

The site is also located within the Huron River Sub Area of the Township. The Master Plan outlines the following applicable development strategies and design guidelines for the Huron River Sub Area:

Development Strategies:

- Continue to plan for future residential growth by requiring clustered development.
- Promote the establishment of non-motorized routes to provide an interconnected system of trails along major roads connecting existing parks, neighborhoods, Township facilities, Mill Creek, the Huron River, and adjacent communities.

Design Guidelines:

- Encourage Low Impact Development (LID) techniques for storm water management.
- Maintain vegetation along roadways and enhance with additional plantings of native, trees, shrubs, grasses, and perennials.
- Carefully site entrance drives and subdivision entrances.
- Separate pedestrian ways from cars and provide pathways connecting subdivisions.

Based upon the information supplied by the applicant, and the above principals outlined in the Master Plan, we find the general concept of the development meets the goals and objectives reflected in the Scio Township Master Plan. (See additional comments related to the Master Plan in the body of this report.)

Items to be Addressed: *Calculation of total density.*

AREA, WIDTH, HEIGHT, SETBACKS

The PUD ordinance provides *all regulations applicable to front, side and rear yard setbacks shall be met in relation to each respective land use in the development based upon zoning district regulations in which the proposed use is listed as a permitted principal or conditional use* (§36.248.b). We find the R-1 zoning designation is in conformance with the Master Plan designation for this site.

The applicant outlines proposed deviations to the R-1 zoning requirements in the Site Data Comparison Chart on Sheet 02. The R-1 Single Family Residential district regulations are outlined below:

R-1, Single Family Residential

	Required	Provided	Compliance
Lot Area	1 acre	7,800 SF (35,760 SF Deviation)	Deviation Requested
Lot Width	150 feet	65 feet (85-foot Deviation)	Deviation Requested
Building Setbacks			
Front	50 feet	25 feet (25-foot Deviation)	Deviation Requested
Side	20 feet	10 feet (10-foot Deviation)	Deviation Requested
Rear	50 feet	25 feet (25-foot Deviation)	Deviation Requested
Maximum Lot Coverage	20%	35% (15% Deviation)	Deviation Requested
Maximum Floor Area	20%	65% (45% Deviation)	Deviation Requested
Building Height	2.5 stories / 35 feet	2.5 stories / 35 feet	Checked during Zoning Compliance

The developer is proposing a site condominium development where 47 lots will be individually owned. A 100-foot buffer setback is provided along the perimeter of the property.

The Planning Commission will need to consider the requested deviations as they relate to the underlying R-1 zoning classification and the recognizable and material benefit produced by the project for community (see more in Project Eligibility section below). Specifically, do the benefits proposed warrant the zoning deviations proposed.

Items to be Addressed: *Planning Commission to consider requested deviations from R-1 zoning district standards.*

PROJECT DENSITY

The PUD ordinance states that, *the total number of dwelling units in a PUD project shall not exceed the number of dwelling units permitted in the underlying zoning districts or the density as proposed in the Township Master Plan. However, a density bonus of up to twenty-five percent (25%) shall be permitted if all of the following elements are included in the plan and a density bonus of up to fifteen percent (15%) if no less than two (2) of these elements are included* (§36.247(a)(1)):

1. *A high level of clustered development, where at least sixty percent (60%) of the PUD is left in open space as defined.*

   The applicant is proposing to preserve 70% (33 acres) as open space. This exceeds meet the 60% requirement. See the Open Space section of this report on Page 9 for additional information.

2. *Providing perimeter transition areas or greenbelts around all sides of the development that are at least one hundred (100) feet in depth.*

   A 100-foot buffer is demonstrated around all sides of the development. As noted above, there are several existing residential structures along the north and east sides of the proposed development that may require additional buffer/screening.

3. *The proposed site is designed to enhance surface water quality and ground water quality pursuant to Section 36-341, Stormwater Management and addresses at least 2 Best Management Practices (BMPs) of Section 36-75(12).*

   The applicant indicates in their narrative the site has been designed to meet all stormwater management requirements and provides for a minimum of two (2) BMPs on-site. Proposed BMPs include infiltration trench, naturalized infiltration/detention basins and rear yard swales.

   The Township Engineer and Washtenaw County Water Resource Commission will provide a full analysis of the proposed BMPs and the site's storm drainage system.

The parallel plan supplied in the proposal demonstrates developing the property under the provisions of the R-1 zoning district allotted for 38 lots – Sheet 13. However, we question the viability of the proposed layout as there are three (3) open ended street connections to the east, west and north that have no potential for future connection. In order to be a viable development, these three (3) connections would need to be converted to cul-de-sacs. Further, the lots proposed in the southwestern corner are shown were the open water wetland (pond) is located. The parallel plan should be revised and resubmitted demonstrating the following information:

- All existing natural features
- Lot dimensions
- Eliminate three (3) dead-ends
- Provide soils information to determine septic locations
- Address stormwater storage – show location

Based on these comments, we do not find the parallel plan as presented demonstrates a practical project for the subject parcel (Section 36-247(a)(2).

Items to be Addressed: *1) Review of proposed stormwater improvements by the Township Engineer and the Washtenaw County Water Resource Commission (verify use of at least 2 BMPs). 2) Reconsideration of the parallel plan layout based on the underlying zoning classification and applicable Township regulations demonstrating a practical project for the subject parcel (Section 36-247(a)(2)).*

NATURAL RESOURCES

Topography: The site is undulating with steep slopes in the western portion of the site (to be preserved).

Woodlands: A tree removal plan and tree inventory have been provided as part of the Preliminary PUD Site Plan submittal – Sheets 9-12. All removal information has been noted on the plan and inventory as required; mitigation calculations are provided on Sheet 04. Protected and landmark trees will be required to be mitigated as required in Section 36-346. Tree removal is not demonstrated in relation to the proposed built portion of the site. The tree removal plan will need to be demonstrated as a layer on the site plan to determine additional tree preservation can be accommodated.

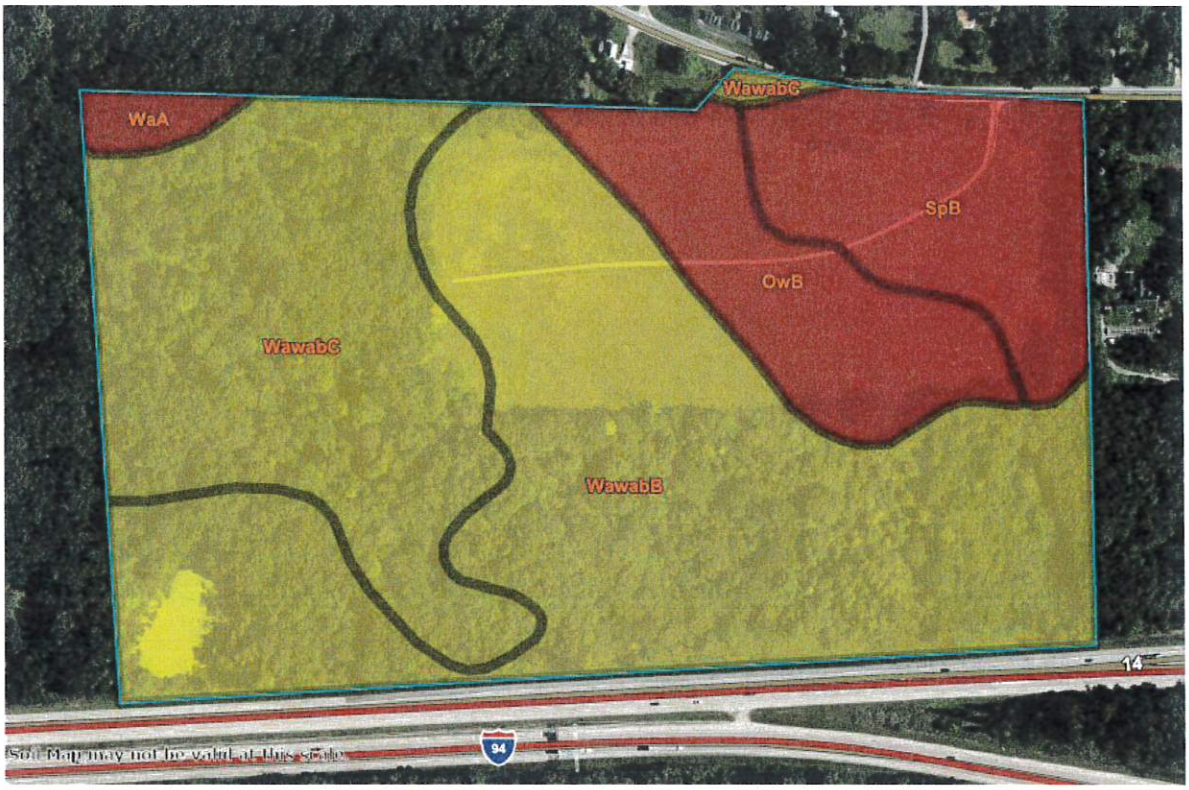
Wetlands: An "open water pond" is located in the southwest corner of the site. The wetland is located within the portion of the site to be preserved.

Soils: The applicant provides the following soil types are present on the site:

- Boyer loamy sand, 6-12% slopes
- Owosso-Miami complex, 2-6% slopes
- Spinks loamy sand, 0-6% slopes
- Spinks-Oshtemo loamy sand, 0-6% slopes
- Wasepi sandy loam, 0-4% slopes
- Wawasee loam, 2-6% slopes
- Wawasee loam, 6-12% slopes

The map below demonstrates the on-site soils as they are rated for septic tank absorption fields. Yellow areas are equivalent to a "somewhat limited" rating meaning: *that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation.* The red areas are considered "very limited" meaning: *the soil has one or more features that are unfavorable for the specified use The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected".*

As demonstrated on the soil map on the following page, it is unlikely the northeast corner of the site can be developed as shown in the parallel plan based on soil limitation associated with septic facilities.



Items to be Addressed: *Demonstrate tree removal on site plan.*

OPEN SPACE

Section 36-248(a) outlines the requirements for open spaces within PUD developments. Specifically, *when completed, the PUD shall have significant areas, but not less than thirty percent (30%) of total land area, devoted to open space, which shall remain in a natural state and/or be restricted for use for active and/or passive outdoor recreational purposes. Priority shall be on preserving the most important natural features on the site, as identified by a site analysis.*

Further open space is defined as:

> *Any parcel or area of land including wetland that is unimproved and set aside, dedicated, designated, or reserved for preservation purposes, and/or public or private use or enjoyment. In addition to unimproved areas, open space may also include the following:*
>
> 1. *Stormwater detention or retention ponds and facilities meeting the Low Impact Design criteria of the Washtenaw County Water Resources Commission. In addition, to be considered open space all stormwater detention or retention ponds and facilities must be constructed using vegetation native to this area and in a way that appears to be a natural feature of the subject site.*
>
> 2. *Outdoor recreation facilities including but not limited to bike paths, trails, golf courses, community swimming pools, playgrounds, ball fields, court games, and picnic areas.*

3. *All buffer and greenbelt areas. Required setbacks for individual residential parcels shall not be included as open space.*

The applicant has provided for 30 acres (70%) of the site to be maintained as open space. In addition to the percentage requirement, and the priority to preserve the most important natural features found on site, where possible, additional open spaces should be located and designed to provide active recreation; informal recreation and pathways; natural greenbelts along roadways; and preserve existing natural buffers between adjacent land uses. The applicant's open space calculation will need to be verified that only qualifying improvements are included in the open space calculation provided.

As presented on the site plan, development will be limited to the northeast portion of the site where the site has been cultivated over the years. Woodland areas around the periphery of the site will be preserved. Walking paths are demonstrated around the periphery of the developed portion of the site with paths leading to the existing pavilion which is proposed to remain with enhancements. We note the pathways are demonstrated as 5-foot-wide mowed paths. The applicant should consider a more formalized pathway network.

All open spaces are required to be maintained in perpetuity. The Township Board will not approve the proposed PUD development until documents pertaining to the maintenance and preservation of open spaces, common landscaped areas and common recreational facilities has been provided.

Items to be Addressed: *1) Applicant to verify open space calculation based on open space definition provided in Section 36-5. 2) Consider a more formalized pathway network than a mowed path. 3) Provide an open space maintenance agreement/contract during final site plan review.*

BUILDING LOCATION AND SITE ARRANGEMENT

The layout is intended to preserve the existing woodlands, wetland and steep slopes on the site. We noted previously, the 100-foot perimeter buffer has been utilized along all sides of the proposed developed areas.

As noted, we are concerned with the density and the number and extent of the deviations requested for the proposed development.

Items to be Addressed: *See other sections with concerns regarding project density and the number and extent of deviations being sought.*

SITE ACCESS AND CIRCULATION

The development will be accessed via a single access point from Dexter-Ann Arbor Road. No additional outlets/interconnectivity is proposed for vehicular traffic. Washtenaw County Road commission should provide input regarding the adequacy of the proposed point of access as the access point to the development is located a curve with an elevation change.

We note the proposed Dexter-Ann Arbor ROW is not shown on the plan depicting the future 120-foot ROW width.

Internal vehicular circulation will need to be reviewed by the Township Engineer and Fire Department. Additionally, the private road section provided on Sheet 04 demonstrates parallel parking will be accomplished on one side of the street. However, as provided the proposed private street does not meet the requirements of a Class A private road outlined in Section 24-5 of the Scio Township Codified Ordinances.

Emergency vehicle and garbage truck turning radii have not been provided for review.

Items to be Addressed: *1) Washtenaw County Road Commission review of access drive location. 2) Demonstrate Dexter-Ann Arbor Road's 120-foot future ROW width. 3) Demonstrate proposed private roads will meet Class A private road standards outlined in Section 24-5 of the Scio Township Codified Ordinance. 4) Provide emergency vehicle and garbage truck turning radii.*

TRAFFIC IMPACT

A traffic impact study has not been provided as part of the rezoning/preliminary site plan submittal. Due to potential impacts related to traffic, we recommend a traffic impact analysis be provided for review by the Washtenaw County Road Commission. We note that single-family residential homes generate approximately nine (9) vehicle trips daily each. With 47 proposed lots, an additional 400+ vehicle trips will be generated along Dexter-Ann Arbor Road daily.

Items to be Addressed: *Provide traffic impact study for review by the Washtenaw County Road Commission.*

ESSENTIAL FACILITIES AND SERVICES

The subject site will be served with a community well and community wastewater system. Section 36-318 outlines specific requirements related to the operation and location of community wastewater facilities. Setbacks from these facilities include:

- 200 feet from the nearest dwelling located within a development served by the community wastewater system.
- 200 feet from a property line shared with an adjacent property (above and below grade – as noted in the Community Wastewater Utility System definition (Section 34-193 - *The system shall include any individual septic tanks pumps, lines and appurtenances serving each dwelling unit or structure in addition to facilities, sewers and appurtenances that serve more than one dwelling unit or structure*).
- 1,500 feet from another approved community wastewater utility system (point of discharge).
- 2,000 feet from an established public wellhead protection area (point of discharge).
- 200 feet from a wetland (point of discharge).
- 200 feet from the ordinary high-water mark of any body of water.

From the information provided on the site plan, all components of the proposed community wastewater system do not appear to meet the required setbacks listed above. Further, all operations shall be enclosed by a fence not less than six (6) feet high. While details of the proposed community wastewater system

would typically be reviewed during final PUD site plan, Planning Commission may request additional information as part of PUD consideration.

We defer technical review of on-site utilities to the Washtenaw County Environmental Health Division, the Township Engineer, and the Township Utility Director.

Items to be Addressed: *1) Demonstrate all required setbacks listed in Section 36-318 and noted above can be met. 2) Review of community wastewater system details during final PUD plan review. 3) Review of essential facilities and services by the Washtenaw County Environmental Health Division, Township Engineer, and Township Utility Director.*

SAFETY PATHS/SIDEWALKS

Internal sidewalks are provided along both sides of all internal streets. Safety paths are not developed or planned along Dexter-Ann Arbor Road.

Items to be Addressed: *None.*

RECOMMENDATIONS

Based upon the information provided, we recommend the following items be addressed to the satisfaction of the Planning Commission prior to Preliminary PUD / Rezoning approval:

1. Planning Commission to consider requested deviations from R-1 zoning district standards.
2. The Planning Commission will need to affirm the proposed project meets the PUD eligibility criteria outlined in Section 36-245(c).
3. Demonstrate location and preservation of the Priority 3 bio-reserve.
4. Demonstrate how impacts of the project will be mitigated for those immediate residential neighbors.
5. Planning Commission to determine if the PUD meets the intent and outlined standards of the PUD district.
6. Calculation of total density.
7. Planning Commission to consider requested deviations from R-1 zoning district standards.
8. Review of proposed stormwater improvements by the Township Engineer and the Washtenaw County Water Resource Commission (verify use of at least 2 BMPs).
9. Reconsideration of the parallel plan layout based on the underlying zoning classification and applicable Township regulations demonstrating a practical project for the subject parcel (Section 36-247(a)(2)).
10. Demonstrate tree removal on site plan.
11. Applicant to verify open space calculation based on open space definition provided in Section 36-5.
12. Consider a more formalized pathway network than a mowed path.

13. Washtenaw County Road Commission review of access drive location.
14. Demonstrate Dexter-Ann Arbor Road's 120-foot future ROW width.
15. Demonstrate proposed private roads will meet Class A private road standards outlined in Section 24-5 of the Scio Township Codified Ordinance.
16. Provide emergency vehicle and garbage truck turning radii.
17. Provide traffic impact study for review by Washtenaw County Road Commission.
18. Demonstrate all required setbacks listed in Section 36-318 and noted above can be met.
19. Review of essential facilities and services by the Washtenaw County Environmental Health Division, Township Engineer, and Township Utility Director.

The following items will be required to be addressed during final site plan review:

1. Provide an open space maintenance agreement/contract during final site plan review.
2. Review of community wastewater system details during final PUD plan review.
3. Provide floor plans, building elevations and samples of proposed exterior materials at Final PUD.

CARLISLE/WORTMAN ASSOC., INC.
Douglas J. Lewan, AICP
Executive Vice President

CARLISLE/WORTMAN ASSOC., INC.
Laura K. Kreps, AICP
Senior Associate

124-2140

cc: Norfolk Development – Jim Haeussler via jhaeussler@norfolk-homes.com
Matt Parks, OHM
Sally Bos, OHM
Stacie Serder, OHM

September 21, 2021

Scio Township, Michigan
827 N. Zeeb Road
Ann Arbor, MI 48103

GENERAL INFORMATION

Application No:	PUD #21005		
Applicant:	Norfolk Development Corporation		
Project Name:	3991 Dexter-Ann Arbor Rd		
Plan Date:	August 27, 2021	Revision Date:	N/A
Location:	3991 Dexter-Ann Arbor Rd		
Parcel ID:	H-08-23-300-001, -002		
Action Requested:	Preliminary PUD Approval		

We have completed the first Preliminary PUD/Preliminary Site Plan Review of the plans dated August 27, 2021 and stamped received by OHM Advisors on September 3, 2021.

A brief description of the project has been provided below, followed by our comments and a list of anticipated required permits and approvals. At this time, the plans are not recommended for approval. The following comments shall be addressed prior to resubmittal.

A list of both PUD and preliminary site plan comments have been provided in our letter for the applicant's consideration and shall be addressed prior to resubmittal. Final site plan/detailed engineering comments were not provided due to the preliminary nature of the proposed PUD.

If the applicant would like to meet to discuss these comments further, we would be happy to make ourselves available to attend a Staff Review Meeting.

PROJECT AND SITE DESCRIPTION

The applicant is proposing a 47-unit site condominium on a 46-acre site located on Dexter-Ann Arbor Road. Approximately 70% of the site will be preserved as open space, including the preservation of existing woodland, landmark trees, and open water wetland.

The proposed development will be serviced by a community wastewater system and an on-site well. Three (3) stormwater detention basins are being proposed, as well as an underground stormwater conveyance system, to capture the proposed stormwater runoff.

PLANNED UNIT DEVELOPMENT (PUD) COMMENTS

1. The applicant shall clearly identify the proposed public benefits to be provided as part of the PUD re-zoning. We defer discussion, negotiation, and approval of the proposed public benefits to the Township Staff, Township Planning Commission, and Township Board of Trustees. We recommend that our office

be involved in the review of any portions of the PUD Agreement that relate to infrastructure improvements or contributions relating to off-site improvements.

2. The applicant shall provide a Traffic Impact Study (TIS) for the proposed site. A copy of the TIS shall be submitted to both this office and the Washtenaw County Road Commission (WCRC) for review and approval. All proposed improvements shall be shown on the plans for review.

3. The applicant shall address the following regarding the provided Parallel Plan:
    a. It is noted on the Parallel Plan that underground stormwater management is assumed; however, the applicant shall provide the stormwater management system on the plans, as required by the Washtenaw County Water Resources Commissioner's Standards, as well as Township Ordinance. Stormwater management including, but not limited to, pretreatment, infiltration, and detention, would still be required for the parallel plan if constructed.
    b. Provide the location of the proposed community/individual wells and the WWTP/individual septic systems on the plans.
    c. Provide cul-de-sac or other turnarounds on the plans for site accessibility. We defer to the Scio Township Fire Department on the review and approval of the parallel plan regarding site accessibility.

PRELIMINARY SITE PLAN (PSP) COMMENTS

SITE UTILITIES

1. The applicant shall address the following regarding the proposed Community Wastewater Utility System (CWUS):
    a. Provide a preliminary sanitary sewer basis of design.
    b. Provide a preliminary layout plan for all CWUS components, both above ground and below ground. The Township will require adequate screening to be provided around all proposed above ground or partially above ground components.
    c. The Washtenaw County Department of Public Health (WCDPH) will need to review and provide preliminary comments prior to the Planning Commission recommending approval of the plans.

2. The applicant shall note that the proposed community well and water distribution system shall be privately owned and operated. The water distribution system shall also be constructed per Scio Township Standards.

3. The applicant shall clarify if hydrants will be provided on the proposed water distribution system. This office defers to the Scio Township Fire Department on the review and approval of water accessibility.

4. The applicant shall provide the preliminary sizes of the proposed water main and sanitary sewer systems.

5. The applicant shall overlay all proposed utilities on the landscape plan (Sheet 04). The applicant shall also provide the location of all proposed trees and other impactful landscaping on the plans.

STORMWATER MANAGEMENT

6. The applicant shall address the following regarding the stormwater management calculations (Sheet 07) and revise all subsequent calculations accordingly:
    a. Provide the orifice calculations for the northwest detention basin,
    b. Provide separate calculations for each northeast infiltration basin,
    c. Verify the curve number for the grass soil Type A in the northeast infiltration basins,
    d. Verify Worksheet 11 for the northeast infiltration basins,
    e. Provide Worksheet 13 for the northeast infiltration basins, and
    f. Provide the outlet/orifice calculations for the northeast infiltration basins.

7. The applicant shall note that this is a known area of drainage concerns. It appears the proposed basins may not be adequately sized based on the existing concerns. The applicant shall verify the size of the proposed basins.

8. The applicant shall provide a preliminary drainage area map indicating which areas of the site will drain to which proposed detention basin. A detailed drainage area map, including acreages and C-factors for the site, that clearly shows what areas drain to each catch basin will be required as part of the detailed engineering/final PUD submittal. All C-factor calculations shall be provided on the plans.

9. The applicant shall clearly indicate the emergency overflow route on the plans.

10. The applicant shall also clarify how stormwater will be directed to the proposed detention basin at the northwest corner of the site.

11. The applicant shall provide a Certificate of Outlet, signed and sealed by a licensed engineer in the State of Michigan, on the plans for the ultimate stormwater outlet(s).

SITE LAYOUT

12. The applicant shall provide a turning template for the largest vehicle that will be accessing the site (fire truck, garbage truck, etc.) to ensure there is adequate space for maneuverability. The applicant shall also provide a standard detail, including dimensions, of the trucks.

PAVING/GRADING

13. The applicant shall clarify if the existing pavilion will be ADA accessible.

14. The applicant shall provide preliminary cross-sections for the proposed roadways, sidewalks, mowed paths, etc. on the plans. It is recommended that a minimum of 4 inches of HMA is provided for the proposed roadways for ease of maintenance in the future.

GENERAL

15. The applicant shall include a photometric plan within the plan set. This office defers to the Township Planning Consultant on the review and approval of the photometric plan.

16. The applicant shall clarify how garbage collection will be handled within the development (individual pickup or community dumpster).

17. The applicant shall provide elevation views of all proposed buildings. We defer to the Township Planner for review and approval.

18. The applicant shall note that the plans shall be signed and sealed by a licensed engineer in the State of Michigan.

REQUIRED PERMITS & APPROVALS

The following outside agency reviews and permits will be required for the project. Copies of any correspondence between the applicant and the review agencies, as well as the permit or waiver, shall be sent to both the Township and this office.

- **Scio Township Board of Trustees (BOT):** After approval of the preliminary PUD/PSP by the Township Planning Commission (PC) and Township Board of Trustees (BOT), detailed engineering/final PUD drawings are required and approvals from all applicable agencies will be required prior to final PUD approval by both the PC and the BOT.
- **Scio Township Fire Department:** Review and approval is required.
- **Scio Township Planning Consultant:** Review and approval is required.

- **Washtenaw County Road Commission (WCRC):** Review and approval is required. Permits may be required for both the connection to Dexter-Ann Arbor Road as well as the stormwater outlet to the Dexter-Ann Arbor Road Right-of-Way (ROW).
- **Washtenaw County Water Resources Commissioner's Office (WCWRC):** Review and approval is required.
- **Washtenaw County Department of Public Health (WCDPH):** Review, approval, and permitting of the on-site community well and wastewater systems will be required.
- **Washtenaw County SESC:** A permit will be required prior to construction.
- **Michigan Department of Environment, Great Lakes, and Energy (EGLE):** Review, approval, and permitting of the on-site community wastewater system will be required.
- **Michigan Department of Transportation (MDOT):** Review and approval of the proposed wastewater treatment plant and drainfield(s) may be required.
- Other permits/approvals/etc. may be required.

It is noted that additional comments may be generated from information presented in future submittals. If you have any questions, please contact us at (734) 522-6711.

Sincerely,
OHM Advisors,

Sally L. Bos, P.E.

Stacie L. Serdar

SLB/SLS

cc: Steve Wyzgoski, Township Utilities Director
Rich Hughes, Township Field Utilities Supervisor
Will Hathaway, Township Supervisor
Frances Szuma, Township Planning Coordinator
Kristy Aiken, Township Office Coordinator
Jessica Flintoft, Township Clerk
Andrew Houde, Township Fire Chief
Doug Lewan, CWA, Township Planner
Laura Kreps, CWA, Township Planner
Theresa Marsik, P.E., WCWRC
Gary Streight, P.E., WCRC
Jim Haeussler, Applicant, Norfolk Development Corporation
Tom Covert, P.E., Midwestern Consulting, LLC
Tina Fix, RLA, Midwestern Consulting, LLC
File

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MIDWESTERN CONSULTING

3815 Plaza Drive
Ann Arbor, Michigan 48108
734.995.0200

Land Development • Land Surveying • Municipal • Wireless Communications • Institutional • Transportation • Landfill Services

ENGINEER'S CERTIFICATE OF OUTLET

Date: 08/27/21

Development Name: 3991 Dexter Ann-Arbor Road

City, Village or Township of Scio Township Section: 23

Washtenaw County, Michigan

Based on the composition of existing sandy soils on-site and the design of the storm water management systems, the 100-year / 24-hour rain event for a majority of the developed site will be infiltrated in under 48 hours and will only contribute flow to the Dexter-Ann Arbor Road right-of-way during extreme events exceeding that amount of rainfall. For a small portion of the developed site a detention basin is sized to detain a volume equal to 120% of the 100-year / 24-hour rain event and slowly discharge water at a controlled rate meeting requirements of the Washtenaw County Water Resources Commissioner rules & guidelines. Therefore, discharge rates will be decreased significantly from existing conditions and will not have a detrimental impact to the downstream drainage courses. In light of the fact that a majority of the developed site will be fully infiltrated and only potentially contribute water downstream during storms exceeding the 100-year / 24-hour event, detailed outlet calculations have not been prepared.

I hereby certify that the existing drainage courses are the only reasonable achievable storm water outlets for the proposed storm water management systems and that the existing drainage courses have sufficient capacity to serve as adequate outlets for the proposed systems, without detriment to, or diminution of, the drainage service that the existing outlets presently provide.

Signed: Ted Hirsch

Ted Hirsch, PE #6201065179
Registered Professional Engineer

CONSULTING
GROUP

February 6, 2018

Mr. Scott Betzoldt, P.E., Principal
Director of Residential and
Commercial Development
Midwestern Consulting, LLC
3815 Plaza Drive
Ann Arbor, Michigan 48108

RE: Letter of Infiltration Evaluation
Knights of Columbus – Dexter Ann Arbor Road Infiltration Testing
3991 Dexter Ann Arbor Road
Scio Township, Washtenaw County, Michigan
G2 Project No. 183022

Dear Mr. Betzoldt:

In accordance with your request, we have completed the infiltration evaluation for the proposed Knights of Columbus development to be constructed within the vacant parcel at the aforementioned location. We understand the proposed project will consist of the construction of a new residential community. Associated utilities, asphalt paving, and a detention pond will also be constructed in conjunction with the project. Due to the increase in collected stormwater as a result of the new impervious areas, infiltration basins will be constructed to re-introduce the collected stormwater into the natural water cycle by means of subsurface infiltration.

We conducted our infiltration evaluation in general accordance with the Washtenaw County Water Resource Commissioner (WCWRC) revised "Rules and Guidelines – Procedures & Design Criteria for Stormwater Management Systems" dated October 17, 2016. The purpose of our infiltration investigation is to determine infiltration rates to be used to determine the suitability of soils for use in infiltration basins.

FIELD OPERATIONS

Midwestern Consulting selected the location of the test pits. The locations of the test pits were determined in the field by use of site maps. The approximate locations of the test pits are shown in Test Pit Location Plan, Plate No. 1. The ground surface elevation at the test pit locations was approximated from the topographical information shown on the soil boring location plan.

The test pits were excavated by a representative of Nixon Services using a CAT backhoe equipped with 36-inch bucket. Within each test pit, Reece R. Kurdyla, E.I.T. of G2 Consulting Group, LLC maintained logs of the encountered subsurface conditions including changes in stratigraphy and observed groundwater levels. Upon completion of the test pit operations, the resulting excavations were backfilled in an uncontrolled manner. The test pit logs are based on the results of the field and laboratory soil classification and testing.

FIELD AND LABORATORY TESTING

Field testing included performing the encased falling head permeability test as described within Section V, Part D of the WCWRC "Rules and Guidelines – Procedures & Design Criteria for Stormwater Management Systems" revised October 17, 2016. The test consists of embedding a 6-inch diameter casing into the ground a minimum of 6 inches. After completing the initial pre-soak of the tested soil plug, a head of approximately 12 inches is poured into the casing and the drop in the head of water is recorded over time. Several trials are conducted when performing the infiltration testing to verify that a stable rate-of-drop has been established.

Representative soil samples were obtained to determine soil parameters pertinent to the evaluation of the on-site soils for infiltration. Soil samples obtained in the field were stored in sealed bags and transported to our Ann Arbor office for laboratory testing and classification. An experienced geotechnical engineer classified the samples in accordance with the G2 General Notes Terminology. Laboratory testing included determinations in accordance with the following standards:

- ASTM D422 – Sieve Analysis (No Hydrometer)
- ASTM D2488 – Visual-Manual Unified Soil Classification System (USCS)

The results of the field and laboratory testing are indicated on the test pit logs at the depths samples were taken. The test pit logs are presented on Figure Nos. 1 through 4. The results of the grainsize distribution determinations are presented on Figure No. 5. The results of our field testing are presented on Figure Nos. 6 through 13 in the Appendix. We will hold the soil samples for a period of 60 days following the issuance of this report. If you would like the samples retained beyond this period, or if you would like the samples returned to you, please let us know.

SITE CONDITIONS

The proposed development lies within a vacant lot located on the south side of Dexter Ann Arbor Road and west of North Wagner Road. The development area is generally covered by a manicured grass area with minimal vegetation within the northeast quadrant, while the remainder of the development consists of wooded area. Based on the topographical information available, site grades appear to slope slightly upward from the roadway at the northwest corner of the site, flattening out within the middle of the site, then sloping downward toward the west end of the site.

The property lies within the Honey Creek Basin and is part of the Huron watershed. The proposed development property is bounded by residential properties to the east, west, and northwest, Dexter Ann Arbor Road to the northeast, and by I-94 to the south.

SOIL AND GROUNDWATER CONDITIONS

Approximately 15 to 23 inches of sandy topsoil are present at the ground surface of test pits TP-1 and TP-2, and approximately 11 to 12 inches of sandy topsoil are present at the ground surface of test pits TP-3 and TP-4. Silty sand is present below the topsoil within test pits TP-1 and TP-2, and extends to depths of 3-1/2 and 4 feet, respectively. Sand is present at 4 feet in test pit TP-1 and extends to the explored depth of 5 feet. Sand and gravel is present at 3-1/2 feet in test pit TP-2 and extends to the explored depth of 5 feet. Sandy silt is present below the topsoil within test pits TP-3 and TP-4 and extends to 3 feet and 4 feet, respectively. Silty sand is present below the sandy silt within test pit TP-3 and extends to the explored depth of 9 feet. Sand and silt is present below the sandy silt within test pit TP-4 and extends to the explored depth of 9 feet.

No groundwater was observed during excavation operations within test pits TP-1 through TP-4. Fluctuations in long-term groundwater levels should be anticipated due to seasonal variations and

following periods of prolonged precipitation.

INFILTRATION CONSIDERATIONS

The following table provides the results of our observations during test pit operations:

Test Pit No.	Ground Surface Elevation (ft)[1]	Ground Water Elevation (ft)[2]	Test Elevation (ft)	Soil Type (USCS[3])	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph[4])
TP-1	900	Dry	895	Sand with tr. silt (SP)	26.75	13.4
TP-2	899	Dry	894	Gravelly Sand (SM)	84.38	42.2
TP-3	891	Dry	883	Silty Sand (SM)	0.38	0.2
TP-4	889	Dry	882	Silty Sand (SM)	0.0	0.0

Notes:
1. Estimated based on available topographical information within Google Earth Pro.
2. Estimated at completion of excavation operations and not including perched groundwater.
3. Description in general accordance with Visual-Manual Unified Soil Classification System (ASTM D2488).
4. Infiltration rate (inches per hour) given using a design factor of safety of 2.

The resulting infiltration rates were calculated and equated to an effective infiltration rate over the period of one hour. A factor of safety of 2.0 has been used in presenting the design infiltration rate. Furthermore, it should be noted that the calculated infiltration rates do not include a reduction factor (R_f) due to the recent revisions within the WCWRC guidelines for testing.

Based on the results of our infiltration evaluation, we recommend the proposed infiltration basins be constructed to bear within the test elevations identified at the test pit locations within TP-1 and TP-2. We do not anticipate suitable infiltration will be available within the area of TP-3 and TP-4. Discrepancies between the design infiltration rate and the observed soil types can be attributed to the percentage of material passing the No. 200 sieve in addition to the in-situ relative density of the encountered soil types. Please refer to the sieve analysis presented in Figure No. 5 and test pit log Figure No. 3 in the appendix for the percentage of material passing the No. 200 sieve at the infiltration test elevations.

We recommend that a qualified geotechnical engineer or technician be present on-site during the excavation of the infiltration structure to verify that soils at the base of the proposed structure are consistent with soil conditions identified within this report.

GENERAL COMMENTS

If changes occur in the design, location, or concept of the project, conclusions and recommendations contained in this report are not valid unless G2 Consulting Group, LLC reviews the changes. G2 Consulting Group, LLC will then confirm any assumptions regarding the project scope presented herein or make changes in writing. The scope of the present investigation was limited to evaluation of subsurface conditions at the proposed test pit locations. No chemical or environmental testing or analyses were included in the scope of this investigation.

We base the analyses and recommendations submitted in this report upon the data from the test pits performed at the approximate locations shown on the Test Pit Location Plan, Plate No. 1. This report does not reflect variations that may occur between the actual test pit location and the actual infiltration basin location. The nature and extent of any such variations may not become clear until the time of construction. We recommend G2 Consulting Group, LLC observe all geotechnical related work, including subgrade preparation and engineered fill placement.

We appreciate the opportunity to be of service to Midwestern Consulting on this project and look forward to discussing the results presented. In the meantime, if you have any questions regarding this report or any other matter pertaining to the project, please call us.

Sincerely,

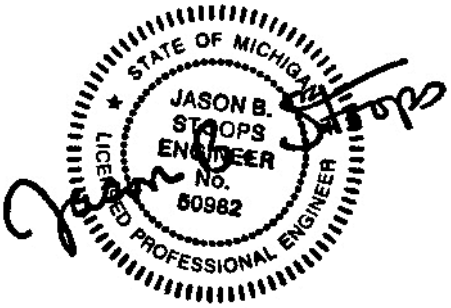
G2 Consulting Group, LLC

Reece R. Kurdyla, E.I.T.
Staff Engineer

Jason B. Stoops, P.E.
Associate / Project Manager

RRK/JBS/nab

Encl: Plate No. 1 – Test Pit Location Plan
Figure Nos. 1 through 4 – Test Pit Logs
Figure No. 5 – Grain Size Distribution
Figure Nos. 6 through 13 – Infiltration Test Logs
Figure No. 14 – General Notes Terminology





Legend

Test Pit Locations

Test Pit Location Plan

Knights of Columbus
3991 Dexter Ann Arbor Road
Scio Township, Michigan

2G CONSULTING GROUP	Project No. 183022	
	Drawn by: RRK	
	Date: 1/26/18	Plate No. 1
	Scale: NTS	

Project Name: Dexter-Ann Arbor Road Infiltration Testing

Project Location: Scio Township, Michigan

G2 Project No. 183022

Latitude: N/A Longitude: N/A

Test Pit No. TP-1

G2 CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 900.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (15 inches) 1.3		S-01				
		Brown Silty Sand with trace gravel 3.5		S-02				
895.0		Brown Sand with trace silt and gravel, occasional cobbles and boulders (Infiltration Rate = 13.38 iph) 5.0	5	S-03				
		End of Test Pit @ 5 ft						
890.0			10					
885.0			15					

Total Depth: 5 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

Figure No. 1

Project Name: Dexter-Ann Arbor Road Infiltration Testing

Project Location: Scio Township, Michigan

G2 Project No. 183022

Latitude: N/A Longitude: N/A

Test Pit No. TP-2

G2 CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 899.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (23 inches) 1.9		S-01				
		Brown Silty Sand with trace gravel 4.0		S-02				
894.0		Brown Sand and Gravel with trace silt, occasional cobbles and boulders (Infiltration Rate = 42.19 iph) 5.0	5	S-03				
		End of Test Pit @ 5 ft						
889.0			10					
884.0			15					

Total Depth: 5 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

Figure No. 2

Project Name: Dexter-Ann Arbor Road Infiltration Testing

Project Location: Scio Township, Michigan

G2 Project No. 183022

Latitude: N/A Longitude: N/A

Test Pit No. TP-3

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 891.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (12 inches)		S-01				
			1.0					
		Brown Sandy Silt with trace gravel		S-02				
			3.0					
886.0			5					
		Brown Silty Sand with trace gravel						
		(Infiltration Rate = 0.19 iph) Percent Finer Than No. 200 Sieve - 34.2%		S-03				
			9.0					
		End of Test Pit @ 9 ft						
881.0			10					
876.0			15					

Total Depth: 9 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

Figure No. 3

Project Name: Dexter-Ann Arbor Road Infiltration Testing

Project Location: Scio Township, Michigan

G2 Project No. 183022

Latitude: N/A Longitude: N/A

Test Pit No. TP-4

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 889.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (11 inches)		S-01				
			0.9					
		Brown Sandy Silt with trace gravel						
			4.0	S-02				
884.0			5					
		Brown Sand and Silt with trace gravel						
		(Infiltration Rate = 0.0 iph)		S-03				
			9.0					
		End of Test Pit @ 9 ft						
879.0			10					
874.0			15					

Total Depth: 9 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

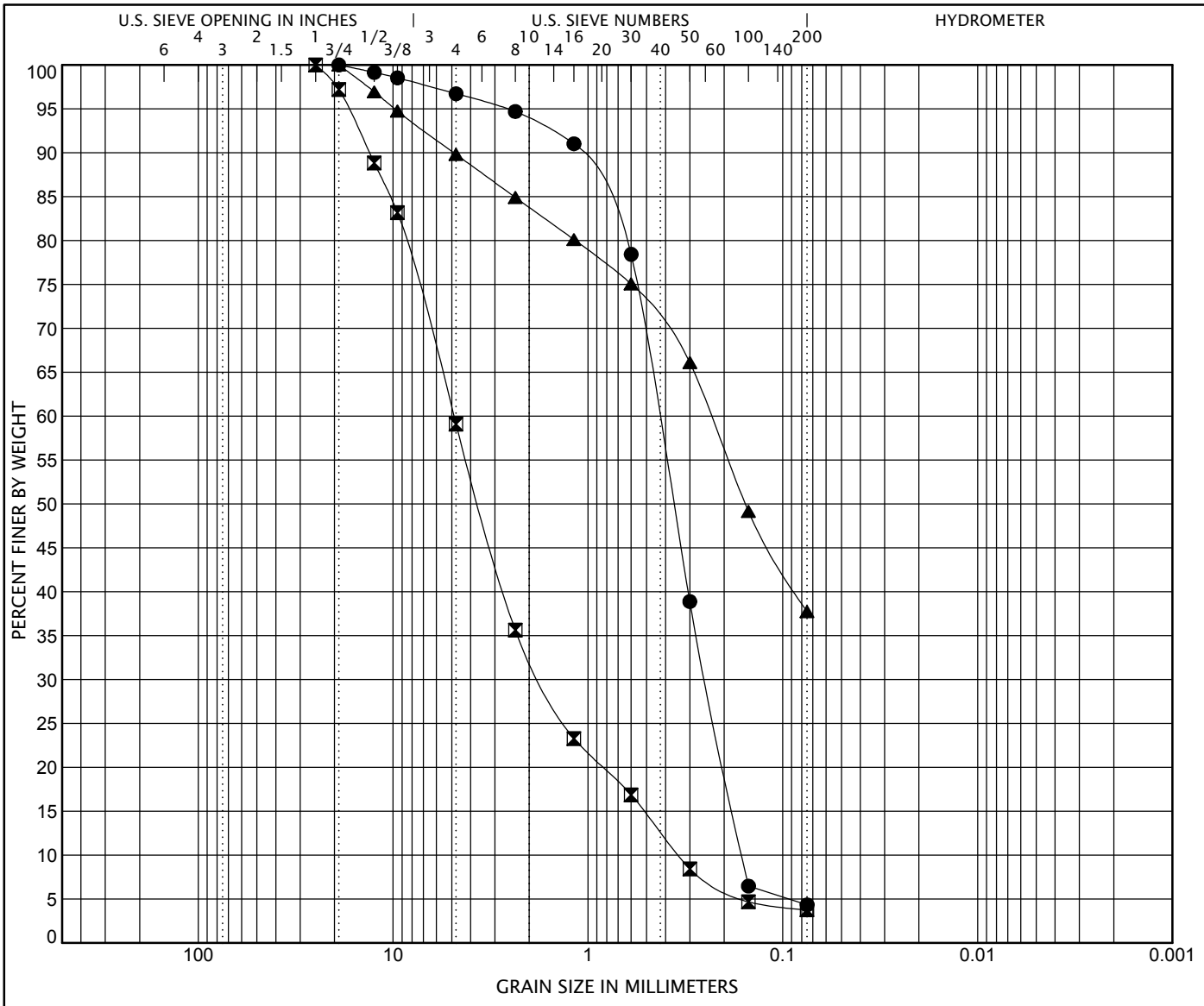
Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

Figure No. 4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen ID	Description	LL	PL	PI	Cc	Cu
●	TP-1 S-03	Brown Sand with trace silt and gravel				0.9	2.7
⊠	TP-2 S-03	Brown Sand and Gravel with trace silt				1.8	14.3
▲	TP-4 S-03	Brown Sand and Silt with trace gravel					

	Specimen ID	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP-1 S-03	19	0.434	0.248	0.162	3.3	92.4	4.3	
⊠	TP-2 S-03	25	4.875	1.721	0.341	40.9	55.3	3.8	
▲	TP-4 S-03	19	0.234			10.2	52.1	37.7	

GRAIN SIZE DISTRIBUTION

Project Name: Dexter-Ann Arbor Road Infiltration Testing

Project Location: Scio Township, Michigan

G2 Project No.: 183022

Figure No. 5

G2 CONSULTING GROUP

US_GRAIN_SIZE 183022.GPJ 20140820 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-1.1	Depth (in)	60 in
Description of Soil:	Brown Sand w/ tr. silt and gravel	Depth of Test (in):	60 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	4 2/16	0	3 10/16	0	3 10/16	
2	10	9 10/16	10	9 12/16	10	10 2/16	
3	20	13 4/16	20	13	20	13 8/16	←
4	30	16 6/16	30	15 12/16	30	16 8/16	←
5							
6							
7							
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	33.00	36.75	39.00
3	21.75	19.50	20.25
4	18.75	16.50	18.00
5	---	---	---
6	---	---	---
7	---	---	---
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	3	18.00	9.00

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 6

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-1.2	Depth (in)	60 in
Description of Soil:	Brown Sand w/ tr. silt and gravel	Depth of Test (in):	60 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	3 8/16	0	3 8/16	0	3 12/16	
2	10	12 6/16	10	12	10	12 10/16	←
3	20	17 2/16	20	17 2/16	20	17 14/16	←
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	53.25	51.00	53.25
3	28.50	30.75	31.50
4	---	---	---
5	---	---	---
6	---	---	---
7	---	---	---
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	5 4/16	31.50	15.75

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 7

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-2.1	Depth (in)	60 in
Description of Soil:	Brown Sand and Gravel w/ trace silt	Depth of Test (in):	60 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	4	0	4 12/16	0	3 4/16	←
2	10	17 4/16	10	17 4/16	10	17 4/16	←
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	79.50	75.00	84.00
3	---	---	---
4	---	---	---
5	---	---	---
6	---	---	---
7	---	---	---
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	14	84.00	42.00

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 8

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-2.2	Depth (in)	60 in
Description of Soil:	Brown Sand and Gravel w/ trace silt	Depth of Test (in):	60 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	4 4/16	0	3 14/16	0	3 10/16	←
2	10	17 12/16	10	17 12/16	10	17 12/16	←
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	81.00	83.25	84.75
3	---	---	---
4	---	---	---
5	---	---	---
6	---	---	---
7	---	---	---
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	14 2/16	84.75	42.38

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 9

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-3.1	Depth (in)	108 in
Description of Soil:	Brown Silty Sand w/ tr. gravel	Depth of Test (in):	96 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	3 10/16	0	4 2/16	0	4 4/16	
2	10	3 14/16	10	4 2/16	10	4 4/16	
3	20	4	20	4 2/16	20	4 4/16	
4	30	4	30	4 2/16	30	4 4/16	←
5	40	4	40	4 2/16	40	4 4/16	←
6	50	4	50	4 4/16	50	4 6/16	
7	60	4 2/16	60	4 4/16	60	4 6/16	
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	1.50	0.00	0.00
3	0.75	0.00	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.00
6	0.00	0.75	0.75
7	0.75	0.00	0.00
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	0	0.00	0.00

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 10

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-3.2	Depth (in)	108 in
Description of Soil:	Brown Silty Sand w/ tr. gravel	Depth of Test (in):	96 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	4 6/16	0	5 6/16	0	5 14/16	
2	10	4 14/16	10	5 6/16	10	6	
3	20	5	20	5 8/16	20	6	
4	30	5 2/16	30	5 10/16	30	6 2/16	
5	40	5 2/16	40	5 10/16	40	6 4/16	
6	50	5 4/16	50	5 12/16	50	6 4/16	←
7	60	5 6/16	60	5 14/16	60	6 6/16	←
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	3.00	0.00	0.75
3	0.75	0.75	0.00
4	0.75	0.75	0.75
5	0.00	0.00	0.75
6	0.75	0.75	0.00
7	0.75	0.75	0.75
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	2/16	0.75	0.38

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 11

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-4.1	Depth (in)	108 in
Description of Soil:	Brown Sand and Silt w/ tr. gravel	Depth of Test (in):	84 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	3 14/16	0	4	0	4 2/16	
2	10	4	10	4	10	4 2/16	
3	20	4	20	4 2/16	20	4 2/16	
4	30	4	30	4 2/16	30	4 2/16	
5	40	4	40	4 2/16	40	4 4/16	
6	50	4	50	4 2/16	50	4 4/16	←
7	60	4	60	4 2/16	60	4 4/16	←
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	0.75	0.00	0.00
3	0.00	0.75	0.00
4	0.00	0.00	0.00
5	0.00	0.00	0.75
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	0	0.00	0.00

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 12

G2 Consulting Group, LLC

Encased Falling Head Infiltration Test (WCWRC 2016)

Project:	Dexter - Ann Arbor Road Infiltration Testing	Job No.:	183022		
Location of Project:	Scio Township	Test Pit No.	TP-4.2	Depth (in)	108 in
Description of Soil:	Brown Sand and Silt w/ tr. gravel	Depth of Test (in):	84 in		
Tested By:	R. Kurdyla	Date of Testing:	1/25/2018		
Casing Diameter (in):	6	Casing Embedment (in):	6		
Initial Head of Water (in):	12	Pre-Soak Time (min):	120		

Reading No.	Trial 1		Trial 2		Trial 3		
	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	Elapsed Time (min)	Depth Reading (in)	
1	0	4 10/16	0	5	0	5 2/16	
2	10	4 14/16	10	5	10	5 2/16	
3	20	5	20	5	20	5 2/16	
4	30	5	30	5 2/16	30	5 2/16	
5	40	5	40	5 2/16	40	5 4/16	
6	50	5	50	5 2/16	50	5 4/16	←
7	60	5	60	5 2/16	60	5 4/16	←
8							
9							
10							
11							
12							
13							

Reading No.	Trial 1	Trial 2	Trial 3
	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)	Infiltration Rate (in/hr)
1	---	---	---
2	1.50	0.00	0.00
3	0.75	0.00	0.00
4	0.00	0.75	0.00
5	0.00	0.00	0.75
6	0.00	0.00	0.00
7	0.00	0.00	0.00
8	---	---	---
9	---	---	---
10	---	---	---
11	---	---	---
12	---	---	---
13	---	---	---

Elapsed Time (min)	Head Drop (in)	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph)
10	0	0.00	0.00

Notes:

1. Refer to "Rules and Guidelines - Procedures & Design Critera for Stormwater Management Systems", WCWRC, Rev. Oct. 2016.
2. ← = Used in Calculating Infiltration Rate
3. Design Infiltration Rate includes FOS = 2.

Figure No. 13

GENERAL NOTES TERMINOLOGY

Unless otherwise noted, all terms herein refer to the Standard Definitions presented in ASTM 653.

PARTICLE SIZE

Boulders		- greater than 12 inches
Cobbles		- 3 inches to 12 inches
Gravel	- Coarse	- 3/4 inches to 3 inches
	- Fine	- No. 4 to 3/4 inches
Sand	- Coarse	- No. 10 to No. 4
	- Medium	- No. 40 to No. 10
	- Fine	- No. 200 to No. 40
Silt		- 0.005mm to 0.074mm
Clay		- Less than 0.005mm

CLASSIFICATION

The major soil constituent is the principal noun, i.e. clay, silt, sand, gravel. The second major soil constituent and other minor constituents are reported as follows:

Second Major Constituent (percent by weight)	Minor Constituent (percent by weight)
Trace - 1 to 12%	Trace - 1 to 12%
Adjective - 12 to 35%	Little - 12 to 23%
And - over 35%	Some - 23 to 33%

COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, clay becomes the principal noun with the other major soil constituent as modifier, i.e. sandy clay. Other minor soil constituents may be included in accordance with the classification breakdown for cohesionless soils, i.e. silty clay, trace sand, little gravel.

Consistency	Unconfined Compressive Strength (psf)	Approximate Range of (N)
Very Soft	Below 500	0 - 2
Soft	500 - 1,000	3 - 4
Medium	1,000 - 2,000	5 - 8
Stiff	2,000 - 4,000	9 - 15
Very Stiff	4,000 - 8,000	16 - 30
Hard	8,000 - 16,000	31 - 50
Very Hard	Over 16,000	Over 50

Consistency of cohesive soils is based upon an evaluation of the observed resistance to deformation under load and not upon the Standard Penetration Resistance (N).

COHESIONLESS SOILS

Density Classification	Relative Density %	Approximate Range of (N)
Very Loose	0 - 15	0 - 4
Loose	16 - 35	5 - 10
Medium Compact	36 - 65	11 - 30
Compact	66 - 85	31 - 50
Very Compact	86 - 100	Over 50

Relative Density of cohesionless soils is based upon the evaluation of the Standard Penetration Resistance (N), modified as required for depth effects, sampling effects, etc.

SAMPLE DESIGNATIONS

AS - Auger Sample – Cuttings directly from auger flight
BS - Bottle or Bag Samples
S - Split Spoon Sample - ASTM D 1586
LS - Liner Sample with liner insert 3 inches in length
ST - Shelby Tube sample - 3 inch diameter unless otherwise noted
PS - Piston Sample - 3 inch diameter unless otherwise noted
RC - Rock Core - NX core unless otherwise noted

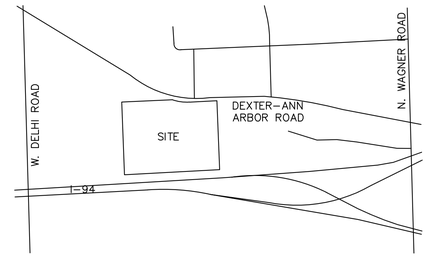
STANDARD PENETRATION TEST (ASTM D 1586) - A 2.0 inch outside-diameter, 1-3/8 inch inside-diameter split barrel sampler is driven into undisturbed soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The sampler is normally driven three successive 6-inch increments. The total number of blows required for the final 12 inches of penetration is the Standard Penetration Resistance (N).

Figure No. 14

3991 DEXTER-ANN ARBOR RD

SCIO TOWNSHIP, WASHTENAW, MICHIGAN

PRELIMINARY PLANNED UNIT DEVELOPMENT



VICINITY MAP
SCALE : NTS

OWNER

COLUMBUS HOME COMPANY OF ANN ARBOR
530 ELIZABETH STREET
ANN ARBOR, MICHIGAN 48104

DEVELOPER/APPLICANT

NORFOLK DEVELOPMENT CORPORATION
8178 JACKSON RD., SUITE D
ANN ARBOR, MI 48108
CONTACT: JIM HAEUSSLER
(734) 260-9678

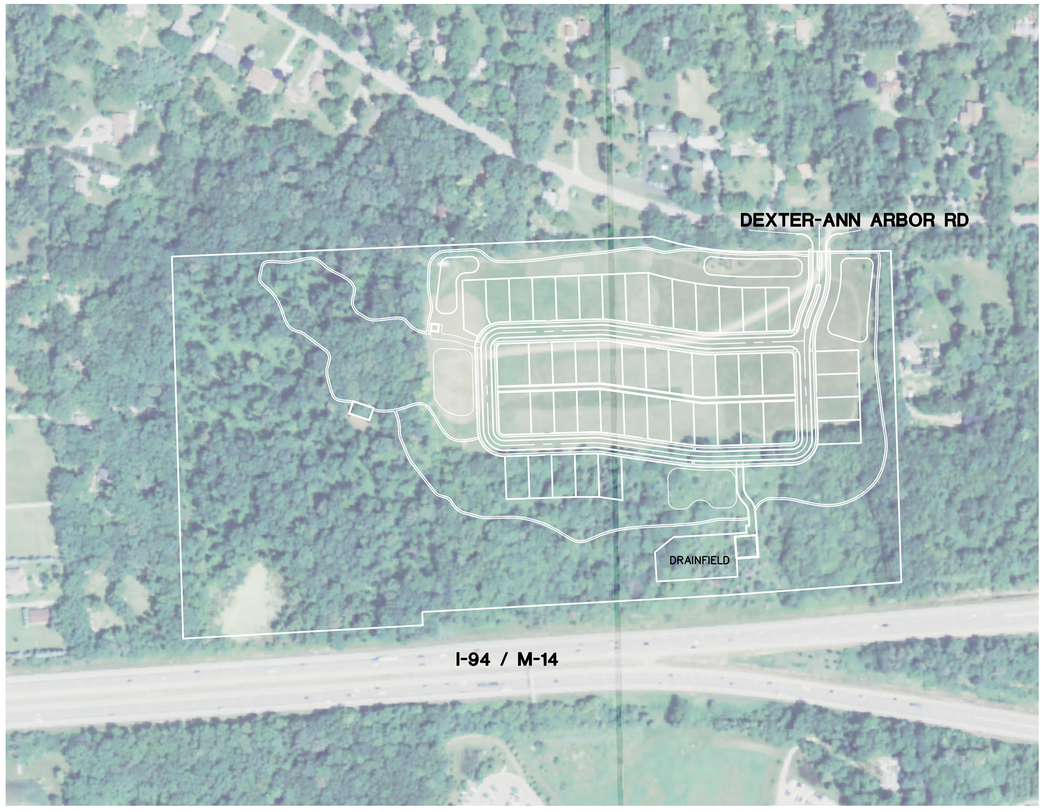
ENGINEER/SURVEY/LANDSCAPE ARCH.

MIDWESTERN CONSULTING, LLC
3815 PLAZA DR.
ANN ARBOR, MI 48108
CONTACT: TINA FIX, RLA
734-995-0200

PROJECT PUD NARRATIVE

THE PROPOSED PLANNED UNIT DEVELOPMENT IS A 47 UNIT SITE CONDOMINIUM ON A 46 ACRE SITE LOCATED ON DEXTER-ANN ARBOR ROAD. THE DEVELOPMENT INCLUDES SINGLE FAMILY RESIDENTIAL LOTS IN A CLUSTERED DEVELOPMENT IN ORDER TO PRESERVE NATURAL FEATURES ON THE SITE. APPROXIMATELY 70% OF THE SITE WILL BE PRESERVED AS OPEN SPACE INCLUDING THE PRESERVATION OF EXISTING WOODLAND, LANDMARK TREES, AND OPEN WATER WETLAND.

THE DEVELOPMENT WILL BE SERVICED BY A COMMUNITY WASTE WATER SYSTEM. ALL ONSITE WATER WILL BE SUPPLIED FROM A COMMUNITY WELL. THE SITE CONDOMINIUM WILL BE GOVERNED BY A HOMEOWNERS ASSOCIATION WITH GENERAL RULES AND REGULATIONS ESTABLISHED IN THE MASTER DEED AND BYLAWS. THE PRIVATE ROADS, WATER, COMMON ELEMENTS, AND OPEN SPACE WILL BE DEDICATED TO THE HOMEOWNERS ASSOCIATION UPON COMPLETION OF THE SITE DEVELOPMENT.



SITE MAP
SCALE : 1" = 200'

SHEET INDEX

#	SHEET TITLE
01	COVER SHEET
02	PROJECT NARRATIVES
03	EXISTING CONDITIONS AND BOUNDARY SURVEY
04	OVERALL LAYOUT AND LANDSCAPE PLAN
05	OVERALL UTILITY PLAN
06	PRELIMINARY GRADING & STORMWATER DRAINAGE PLAN
07	STORMWATER CALCULATIONS
08	TEST PIT LOGS
09	TREE REMOVAL PLAN 1 OF 2
10	TREE REMOVAL PLAN 2 OF 2
11	TREE LIST 1 OF 2
12	TREE LIST 2 OF 2
13	PARALLEL PLAN – R1

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3991 DEXTER-ANN ARBOR RD

JOB No. **17310**

DATE: 8/27/21
SHEET 01 OF 13

REVISIONS:

REV.	DATE

CADD: RML
ENG: RML2
PM: TJC
TECH:
/17310CV1

01

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Wireless Communications • Transportation • Landfill Services

RELEASED FOR:	DATE

P.E. #

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PUD NARRATIVE

3991 Dexter-Ann Arbor Road – PUD Narrative

a. The nature of the project, projected phases and timetable.

The proposed Planned Unit Development is a 47 unit condominium on a 46 acre site located on Dexter-Ann Arbor Road west of N. Wagner Road and east of W. Delhi Road and immediately north of I-94. The development includes detached single family residential lots in a clustered development in order to preserve open space and natural features on the site. Approximately 70% of the site (33 acres) will be open space that includes a 100 foot perimeter around the development and preservation of existing woodlands, landmark trees, and open water wetland. Preservation and restoration of the existing pavilion on the site and pedestrian pathways through the open space provide opportunity for social gatherings and recreational activities.

The development road network includes a boulevard entry from Dexter-Ann Arbor Road to a loop road within the existing open field area on the site. This roadway provides not only a vehicular but a pedestrian connected community.

The development will be constructed in a single phase served by a community wastewater treatment plant and community water well located on the site that will be maintained by the development.

b. The proposed density, number, and types of dwelling units.

The project will consist of single family residential lots. The residents will have access to extensive open space areas, including pathways, pavilion and play fields. The typical home is geared toward meeting the needs of the existing community by providing housing opportunities within the middle range of the single family residential market. The project has modest density, similar and consistent to development pattern along the Dexter-Ann Arbor road corridor, of one dwelling unit per acre while realizing 71% (33 acres) of the site as open space. See preliminary site data chart and typical lot detail. The proposed PUD density is consistent with the Scio Township Master Plan Future Land Use for the site as low density single family residential with one dwelling unit per acre.

c. A statement describing how the proposed project meets the objectives of the PUD District pursuant to section 36-245c.

36-244: Qualifications of subject parcel. *The applicant for a PUD must demonstrate through the submission of both written documentation and site development plans that all of the following criteria are met:*

1) The intent of section 36-244 is met.

This residential development meets the intent of the PUD ordinance by providing clustering of residential units to maximize open space on the site. This clustering of homes within the existing open field on the site also allows for the preservation of existing natural features. The open space areas encompass approximately 71% of the site while still maintaining a density that aligns with the Scio Township Master Plan.

The development includes several pedestrian pathways and sidewalk routes that provide connectivity within the development to promote recreational and social gathering activities within the community. The proposed planned unit development meets the overall goals of the Scio Township Master Plan, goals for the Huron River sub-area that includes focused development along the Ann Arbor-Dexter corridor, while preserving the majority of the Priority 3 bio-reserve that is identified on the site within the Scio Township Master Plan.

2) Approval of the PUD will result in one or more of the following:

a. Recognizable and material benefit:

Approval of the residential development PUD application will provide many positive benefits for the people that choose to live there and the general community. The clustered layout of residential lots and the vast amount of open space emphasizes the preserved natural features including natural drainage patterns, woodlands, and open water wetland. The proposed road network includes sidewalks throughout the site that connect to the proposed pedestrian pathways, play fields, and existing pavilion provide the opportunity for recreational use of the site. Park amenities within the woodland park area will be identified during the site planning process. Additionally, the applicant proposes contribution to Township Fire Services.

b. Protection and preservation of natural resources:

The proposed site density and layout limits the mass grading of the site and provides opportunity for preservation of over 33 acres (71% of the site) for preservation and open space. This includes contiguous woodlands, landmark trees, and open water wetland that might not otherwise be preserved if this parcel was developed as individual land divisions or as a conventional subdivision. Natural features preservation is estimated to include:

- Approximately 27 acres (~86%) of preserved woodland that includes a complex of open water wetland and drainage patterns.
- Approximately 26,271 DBH inches (~93%) of estimated protected/landmark tree preservation throughout the site including in the preserved woodlands noted above.
- Preserved drainage patterns/steep slopes and open water pond

3) The proposed type and density of use shall not result in an unreasonable increase in the need for or burden upon public services, facilities, roads, and utilities:

The Scio Township Master Plan identifies the Future Land Use designation for the site of low density residential at one dwelling unit per acre (consistent with R-1 zoning district). The R-1 concept plan illustrates 38 residential lots at the site, which equates to 47 residential lots with a 25% density bonus with the PUD.

The proposed development includes 47 dwelling units for a density of 1.01 dwelling units per acre which is harmonious with the Township Master Plan Future Land Use density. The number of proposed dwelling units, provision of private water / waste water facilities, and private roads results in less burden being placed on Scio Township public services, facilities, roads and utilities than might be realized with a typical development.

The development will be served by a private community waste water system. All on site water will be supplied from a community well. Both of these systems have rigorous testing, design standards, and maintenance requirements as mandated by the State and their permitting / approval process that are well beyond those of individual on-lot septic systems and wells. Therefore, these on-site systems are anticipated to better protect the health safety and welfare of the Township and adjacent properties.

The condominium will be governed by a Homeowners Association with General Rules and Regulations established in the Master Deed and Bylaws. The private roads, water, common elements, and open space will be dedicated to the Homeowners Association upon completion of the site development.

The Scio Township Fire and Rescue services and police protection (Washtenaw County Sheriff-Scio Township sub-station) are located within 2 miles of the site on N. Zeeb Road. Revenue for the Township will be generated from the development of the site that benefits both fire and police protection services. The proposed development would be within the Ann Arbor Public Schools district.

4) The proposed development shall be consistent with the public health, safety, and welfare of the township:

The proposed residential planned unit development is consistent and not different than other single family residential developments and would be consistent with the general public health, safety and welfare of the Township. The development is proposing to meet the published standards of the Township and County for site access, waste water treatment, water treatment, and stormwater management including infiltration.

5) The proposed development shall minimize any negative environmental impact of the subject site or surrounding land:

The site layout is designed to minimize any environmental impacts on the site or surrounding properties and includes a minimum 100 foot perimeter buffer between the proposed lots and the neighboring adjacent properties. Additionally, the proposed 33 acres of open space encompass additional buffering to adjacent properties, preservation of natural features, drainage patterns, and wildlife corridors that reduce the impact of the development on the site and the adjacent properties.

The stormwater management system includes implementation of best management practices throughout the site. These best management practices include infiltration trench, naturalized infiltration/detention basins, and rear yard swales.

The proposed wastewater treatment plant will be designed and maintained as required by the State of Michigan through the operation and maintenance permit in order to minimize impact to the environment to the greatest extent practicable. This is similar to permitting for Township wastewater treatment facilities. A qualified licensed operator will be required to operate and provide testing and reporting per State requirements.

6) The proposed development shall minimize any negative impact upon surrounding properties:

The proposed development is located along the Dexter-Ann Arbor Road corridor between the City of Dexter and City of Ann Arbor, which is identified as a target location for clustered residential development and natural feature preservation in the Township Master Plan. The extension of clustered housing with an overall density consistent with the Township Master Plan reduces the overall impact on the surrounding lands when incorporating clustering as promoted by the Master Plan and PUD ordinance. The proposed layout includes single family homes that are harmonious with the size and density of adjacent existing development along the Dexter-Ann Arbor Road corridor and within the Township. The proposed open space provides buffering between the I-94/M-14 corridor and the development as well as the Dexter-Ann Arbor Road residential corridor.

7) The proposed development shall be consistent with the goals and policies of the Township Master Plan:

As noted above, the residential development is consistent with the Scio Township Master Plan. The Future Land Use Map in the Township Master Plan identifies the site as Low Density Residential. The desired land uses for the low density residential land use (up to one dwelling unit per acre) includes single family residences in clustered development and parks, open spaces, and conservation areas. The proposed PUD proposes both of these land uses. The proposed overall density of 1.01 dwelling units per acre reflects the master plan and proximity to existing R-1 and R-2 zoning districts along the Dexter-Ann Arbor Road corridor where densities of up to 2 dwelling units per acre would be allowed.

The 33 acres of open space includes a Priority 3 bio-reserve identified in the Scio Township Master Plan and preserves a substantial amount of the natural features on the site. The proposed pedestrian pathways, restoration of the existing pavilion, construction of additional site amenities, and extensive open space provides connectivity throughout the site, active and passive recreation, and social gathering opportunities for homeowners. All while preserving natural features and existing drainage/wildlife corridors maintaining rural character.

d. A statement from a registered professional engineer describing how the proposed project will be served by public water, sanitary, and storm drainage.

The development will be serviced by a private community waste water system. The wastewater treatment plant will be monitored by a licensed operator and controlled with State maintenance and discharge permits. All on site water will be supplied from a community well permitted through the County and/or State. Stormwater will be managed onsite in a combination of detention and infiltration basins meeting the Washtenaw County Water Resource Commission design guidelines. Stormwater systems include best management practices of infiltration trench and establishment of native vegetation in stormwater basins and rear yard swales.

The condominium will be governed by a Homeowners Association with Rules and Regulations established in the Master Deed and Bylaws. The private roads, water, common elements, and open space will be dedicated to the Homeowners Association upon completion of the site development.

e. Proof of ownership or legal interest in property.

The owner has entered into an Agreement of Sale with the applicant for the property.

SITE DATA COMPARISON CHART

	Proposed Underlying per Master Plan - R-1 Single Family Residential		Allowed/ Required Planned Unit Development		Proposed - Planned Unit Development - Residential		Proposed Deviation from Underlying Zoning
Zoning							
Zoning District	Existing Zoning: RC Master Plan Future Land Use single family residential - 1du/acre				Underlying zoning standards: R-1 per Master Plan		
Land Use	Single Family Residential (Detached)		Single Family Residential (Detached)		Single Family Residential (Detached)		Complies
Site Area							
	2,033,677	sf gross		sf min	2,033,677	sf gross	Complies
	46.69	Acres Gross		acres min	46.69	Acres Gross	Complies
Site Requirements							
Front Setback	NA		50	ft min.	100	ft min.	Complies
Side Setback	NA	ft	50	ft min.	100	ft min.	Complies
Rear Setback			50	ft min.	100	ft min.	Complies
Perimeter setback	NA	ft	100	ft for density bonus	100	ft min.	Complies
Natural Features							
Wetland Setbacks	30	ft min. typical	30	ft min. typical	30	ft min.	Complies
Water Feature buffer zones	55	ft min. typical	55	ft min. typical	NA	ft	Complies
Dwelling Units							
Number of Units	46	Homes	38	per parallel plan	47	Homes	Complies
			47	with 25% density bonus			
Gross Lot Density	1.00	DU/Acre max.	1.01	DU/Acre	1.01	DU/Acre	Complies
Lots							
Min. Lot Area	43,560	sf min		sf	7,800	sf min.	**Deviates**
Average Lot Area					8,270	sf	**Deviates**
Min. Lot Width	150	ft min.			65	ft	**Deviates**
Setbacks Front	50	ft		ft	25	ft	**Deviates**
Side	20	ft		ft	10	ft	**Deviates**
Corner/Side	50	ft		ft	25	ft	**Deviates**
Rear	50	ft		ft	25	ft	**Deviates**
Lot Coverage	20%	Maximum			35.0%	Max.	**Deviates**
Max. Floor Area Coverage	20%	Maximum			65.0%	Max.	**Deviates**
Building Height	2.5	stories			2.5	stories	Complies
	35	ft			35	ft max.	Complies
Open Space							
			30%	minimum	>71%	proposed	Complies
			60%	for bonus	33.0	approx. acres	Complies
			2 BMPS	for bonus	2 BMPS to be provided		Complies

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8178 JACKSON RD., SUITE D
ANN ARBOR, MI 48108
JIM HAEUSSLER
(734) 260-9678

3991 DEXTER-ANN ARBOR RD
PRELIMINARY PLANNED UNIT DEVELOPMENT
PROJECT NARRATIVES

02

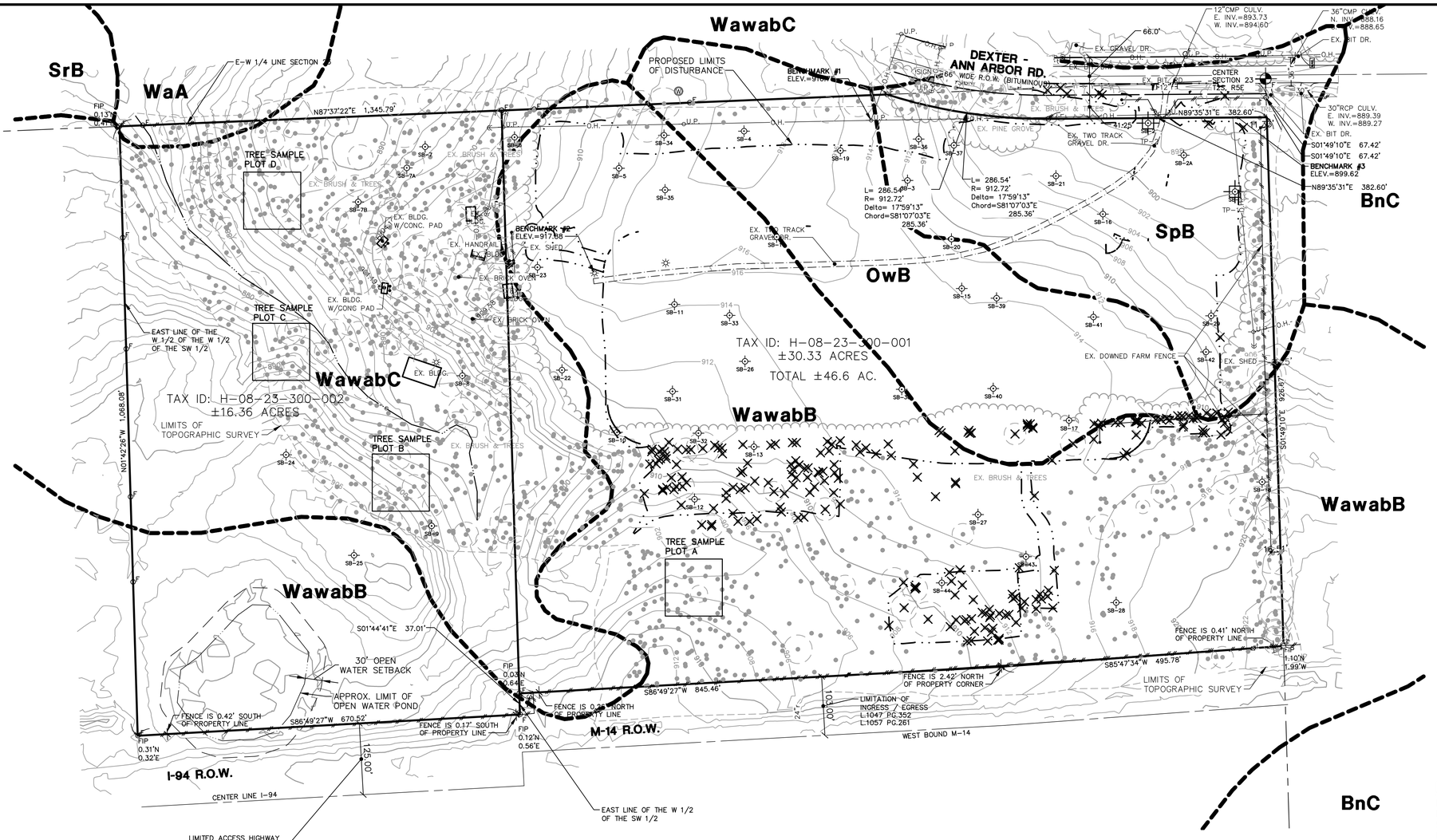
JOB No. 17310
REVISIONS:

REV.	DATE

DATE: 08/27/21
SHEET 02 OF 13
CADD: RWL
ENG: RWL2
PM: TJC
TECH:
J:\17310\DGV1

M:\Civil3d_Pro\17310\VP-elim PUD\17310CV1.dwg, 8/27/2021 1:00 PM, Chris T. Somers, 02 PROJECT NARRATIVES, MCLLC PDF.pc3
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LEGEND

827	EXIST. CONTOUR
×827.2	EXIST. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
	GUY WIRE
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. GAS VALVE
	CULVERT
	C/L OF DITCH
	SIGN
MBX	MAILBOX
T	TELEPHONE RISER
CATV	CABLE TELEVISION RISER
FIBER	FIBER OPTIC MARKER
	POST
	FENCE
	LIMITS OF DISTURBANCE
	OPEN WATER BOUNDARY
	OPEN WATER SETBACK
	SINGLE TREE
	LANDMARK TREE
	TREE OR BRUSH LIMIT
O F	FOUND IRON PIPE
	CONTROL PT.
TP-1	INFILTRATION TEST PITS
SB-1	SOIL BORINGS
BnC	SOIL TYPE
	EXISTING TREE TO BE REMOVED

LEGAL DESCRIPTION

THE LAND REFERRED TO IN THIS COMMITMENT IS LOCATED IN THE TOWNSHIP OF SCIO, COUNTY OF WASHTENAW, STATE OF MICHIGAN, AND DESCRIBED AS FOLLOWS:

PARCEL 1:

THE EAST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 23, TOWN 2 SOUTH, RANGE 5 EAST, SCIO TOWNSHIP, WASHTENAW COUNTY, MICHIGAN.

EXCEPT THAT PART LYING SOUTH OF A LINE 103 FEET NORTH OF MEASURED AT RIGHT ANGLES, AND PARALLEL WITH THE REFERENCE LINE OF WESTBOUND ROADWAY OF LIMITED ACCESS HIGHWAY M-14.

THE REFERENCE LINE OF WESTBOUND M-14 IS DESCRIBED AS FOLLOWS: COMMENCING AT THE WEST 1/4 CORNER OF SECTION 23, TOWN 2 SOUTH, RANGE 5 EAST; THENCE SOUTH 1 DEGREES 22' 21" EAST 1202.48 FEET ALONG SECTION LINE; THENCE NORTH 87 DEGREES 07' 17" EAST ALONG REFERENCE LINE OF I-94, 1328.13 FEET; THENCE NORTH 2 DEGREES 52' 43" WEST 59 FEET (ORIGINALLY RECORDED IN LIBER 1047, PAGE 352 AS 12 FEET THEN RE-RECORDED IN LIBER 1057, PAGE 261 AS 59 FEET) TO THE POINT OF BEGINNING; THENCE NORTH 87 DEGREES 07' 17" EAST 863.53 FEET; THENCE NORTH 86 DEGREES 05 '24" EAST 2666.55 FEET TO THE POINT OF CURVATURE OF A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 39 DEGREES 08' 27" AND A RADIUS OF 1637.02 FEET; THENCE NORTHEAST ALONG THE ARC OF SAID CURVE 1118.31 FEET TO THE POINT OF TANGENT; THENCE NORTH 46 DEGREES 56' 57" EAST 61.22 FEET TO A POINT OF ENDING IN PROPOSED CENTERLINE OF DEXTER ROAD, SAID POINT OF ENDING LYING 436.63 FEET SOUTH 1 DEGREES 03' 04" WEST; THENCE 124.64 FEET SOUTH 79 DEGREES 34' 28" EAST; THENCE 436.22 FEET SOUTH 75 DEGREES 33' 02" EAST FROM THE WEST 1/4 CORNER OF SECTION 24, TOWN 2 SOUTH, RANGE 5 EAST, WASHTENAW COUNTY, MICHIGAN.

ALSO EXCEPTING A STRIP 2-1/2 RODS WIDE ALONG AND ADJOINING THE HIGHWAY ON THE SOUTH SIDE ACROSS THE NORTH END OF THE EAST 1/2 OF THE SOUTHWEST 1/4.

PARCEL 2:

THAT PARCEL OF LAND APPROXIMATELY 13.8 ACRES MORE OR LESS LYING NORTH OF EXISTING INTERSTATE HIGHWAY I-94 AND BEING A PART OF THE FOLLOWING DESCRIBED PREMISES:

THE EAST 1/2 OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 23, TOWN 2 SOUTH, RANGE 5 EAST, SCIO TOWNSHIP, WASHTENAW COUNTY, MICHIGAN, LYING NORTH OF LAND CONVEYED BY H.C. COON, DEPUTY HIGHWAY COMMISSIONER OF THE STATE OF MICHIGAN TO H. ALBERT WENK AND EDWIN O. WENK BY DEED DATED MARCH 11, 1937, AND RECORDED JUNE 5, 1939 IN LIBER 3337 OF DEEDS, PAGE 341.

COMBINED PARCEL:

PART OF THE SOUTHWEST 1/4 OF SECTION 23, TOWN 2 SOUTH, RANGE 5 EAST, WASHTENAW COUNTY, MICHIGAN DESCRIBED AS: COMMENCING AT THE WEST 1/4 CORNER OF SAID SECTION; THENCE ALONG THE EAST-WEST 1/4 LINE OF SAID SECTION, NORTH 87 DEGREES 55' 12" EAST 669.66 FEET TO THE POINT OF BEGINNING, SAID POINT BEING THE NORTHWEST CORNER OF THE EAST 1/2 OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION; THENCE CONTINUING ALONG SAID EAST-WEST 1/4 LINE, NORTH 87 DEGREES 55' 12" EAST 1345.79 FEET TO A POINT ON THE SOUTH LINE OF DEXTER ANN ARBOR ROAD; THENCE ALONG SAID SOUTH LINE THE FOLLOWING TWO (2) COURSES, 1) 286.54 FEET ALONG THE ARC OF A 912.72 FEET RADIUS CIRCULAR CURVE CONCAVE TO THE NORTHEAST, SAID CURVE HAVING A CENTRAL ANGLE OF 17 DEGREES 59' 13" AND A CHORD WHICH BEARS SOUTH 81 DEGREES 07' 03" EAST 285.36 FEET, AND 2) NORTH 89 DEGREES 53' 21" EAST 382.60 FEET TO A POINT ON THE NORTH-SOUTH 1/4 LINE OF SAID SECTION, SAID POINT LYING SOUTH 01 DEGREES 31' 20" EAST 67.42 FEET FROM THE CENTER OF SAID SECTION 23; THENCE ALONG SAID NORTH- SOUTH 1/4, SOUTH 01 DEGREES 31' 20" EAST 926.67 FEET TO THE NORTH LINE OF M-14 LIMITED ACCESS HIGHWAY; THENCE ALONG SAID NORTH LINE THE FOLLOWING TWO (2) COURSES, 1) SOUTH 86 DEGREES 05' 24" WEST 495.78 FEET AND 2) SOUTH 87 DEGREES 07' 17" WEST 845.46 FEET TO THE EAST LINE OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 23; THENCE ALONG SAID EAST LINE SOUTH 01 DEGREES 26' 51" EAST 37.01 FEET TO THE NORTH LINE OF I-94, SOUTH 87 DEGREES 07' 17" WEST 670.52 FEET TO THE EAST LINE OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 23, THENCE ALONG SAID EAST LINE, NORTH 01 DEGREES 24' 36" WEST 1068.08 FEET TO THE POINT OF BEGINNING.

COMMONLY KNOWN AS: VACANT LAND – 3991 DEXTER-ANN ARBOR RD., ANN ARBOR, MI 48103.

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NATURAL FEATURES ASSESSMENT

THE SITE IS A FORMER KNIGHTS OF COLUMBUS CAMPGROUND WITH ASSOCIATED PAVILIONS AND OUTBUILDINGS. THE NORTHEASTERN PORTION OF THE SITE IS OPEN FIELD WITH AN EXISTING ACCESS ROUTE IN THE CENTRAL PORTION OF THE FIELD EXTENDING TO THE WEST. THE REMAINDER OF THE WESTERN AND SOUTHERN PORTION OF THE SITE IS WOODED WITH AN OPEN WATER WETLAND IN THE SOUTHWEST CORNER OF THE SITE. THE NATURAL FEATURES SITE ASSESSMENT HAS BEEN LIMITED TO ANTICIPATED LIMITS OF DISTURBANCE ON THE SITE.

PROMINENT VIEWS:
THERE IS AN EXISTING PAVILION WITHIN THE WOODED AREA THAT WILL BE PRESERVED WITH THE PROPOSED DEVELOPMENT. TREES AND BRUSH PROVIDE SCREENING BETWEEN OPEN FIELD AND I-94/M-14 CORRIDOR TO THE SOUTH.

WETLANDS/OPEN WATER:
AN OPEN WATER POND IS LOCATED IN THE SOUTHWESTERN CORNER OF THE SITE AND THE APPROXIMATE 30 FOOT WETLAND BUFFER HAS BEEN IDENTIFIED ON THE PLAN TO ILLUSTRATE NO PROPOSED IMPACTS TO THIS WATER FEATURE/WETLAND.

WATER FEATURES AND FLOODPLAIN:
THERE ARE NO WATERCOURSES IDENTIFIED ON THE SCIO TOWNSHIP WATER FEATURE AND WETLAND BUFFER MAP IN THE MASTER PLAN AND THERE IS NO FLOODPLAIN IDENTIFIED ON FEMA MAP 26161C0240E AND 26161C0241E DATED APRIL 3, 2012.
BASED ON TOPOGRAPHY, THERE IS A DRAINAGE PATH LOCATED WITHIN THE UNDISTURBED WOODED AREA ON THE WESTERN PORTION OF THE SITE WITH NO IMPACTS PROPOSED.

LANDMARK TREES AND WOODLAND:
A TREE SURVEY HAS BEEN PERFORMED FOR THE ANTICIPATED AREA OF DISTURBANCE AND HAS BEEN UTILIZED TO IDENTIFY FOUR SAMPLE PLOTS TO APPLY TOWARD WOODED AREAS THAT WERE NOT SURVEYED. THE WOODLAND IS IDENTIFIED AS A PRIORITY 3 BIORESERVE ON THE OPEN SPACE AND LAND PRESERVATION MAP IN THE SCIO TOWNSHIP MASTER PLAN.

STEEP SLOPES:
THERE ARE STEEP SLOPES RANGING FROM 1% TO 48% ALONG THE DRAINAGE PATH IN THE WESTERN PORTION OF THE SITE AS NOTED ABOVE.

THREATENED OR ENDANGERED SPECIES HABITAT:
NOT EVALUATED AT THIS TIME.

PROTECTED TREE SAMPLE PLOT CALCULATIONS

Existing Tree Plots

Plot	Size (SF)	Total dbh	Total DBH LM	Total DBH Protected
A	10000	308"	15"	293"
B	10000	271"	93"	178"
C	10000	287"	93"	194"
D	10000	270"	18"	252"
	Average	284"	55"	229"
Non-surveyed Area		336564sf		
Area /10,000sf		34sf		
Approximated Total DBH of Non-surveyed area		**1843"**		**7716"**

BENCHMARK

BENCHMARK #1: SPIKE IN THE SOUTH SIDE OF A UTILITY POLE LOCATED ±130 FEET SOUTH OF DEXTER – ANN ARBOR RD. AND THE SECOND UTILITY POLE WEST OF THE GRAVEL / TWO TRACK DR. ENTRANCE TO PROPERTY.

ELEVATION = 916.75 (NAVD 88 DATUM)

BENCHMARK #2: SPIKE IN THE SOUTH SIDE OF THE MOST WESTERLY LIGHT POLE NORTH OF THE TWO TRACK DR. IN THE MIDDLE OF THE FIELD ±122 FEET EAST OF THE EASTERLY EDGE OF WOOD IN THE MIDDLE OF THE PROPERTY.

ELEVATION = 917.88 (NAVD 88 DATUM)

BENCHMARK #3: SPIKE IN THE SOUTHWEST SIDE OF A UTILITY POLE LOCATED ±68 FEET SOUTH OF THE CENTER LINE OF DEXTER – ANN ARBOR RD., THE MOST EASTERLY UTILITY POLE ON THE NORTH END OF THE PROPERTY AND AROUND THE NORTHEAST CORNER OF PROPERTY.

ELEVATION = 899.62 (NAVD 88 DATUM)

NOTE

1. THE BASE SURVEY WAS PREPARED BY MIDWESTERN CONSULTING IN NOVEMBER 2017 AND UPDATED IN APRIL 2021. SURVEY WAS LIMITED TO ANTICIPATED POTENTIAL IMPACTS. ALL UNDERGROUND UTILITIES AND STRUCTURES HAVE BEEN SHOWN TO A REASONABLE DEGREE OF ACCURACY AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING WORK.
2. TREE SURVEY PERFORMED BY MIDWESTERN CONSULTING IN NOVEMBER 2017 AND UPDATED IN APRIL 2021. SURVEY WAS LIMITED TO ANTICIPATED POTENTIAL IMPACTS.
3. SEE TREE REMOVAL SHEETS FOR TREE TAG NUMBERS.

SOIL TYPE LEGEND

WASHTENAW COUNTY, MICHIGAN (MI161)
BnC – Boyer loamy sand, 6 to 12 percent slopes
OwB – Owosso-Miami complex, 2 to 6 percent slopes
SpB – Spinks loamy sand, 0 to 6 percent slopes
SrB – Spinks-Oshtemo loamy sands, 0 to 6 percent slopes
WaA – Wasepi sandy loam, 0 to 4 percent slopes
WawabB – Wawasee loam, 2 to 6 percent slopes
WawabC – Wawasee loam, 6 to 12 percent slopes

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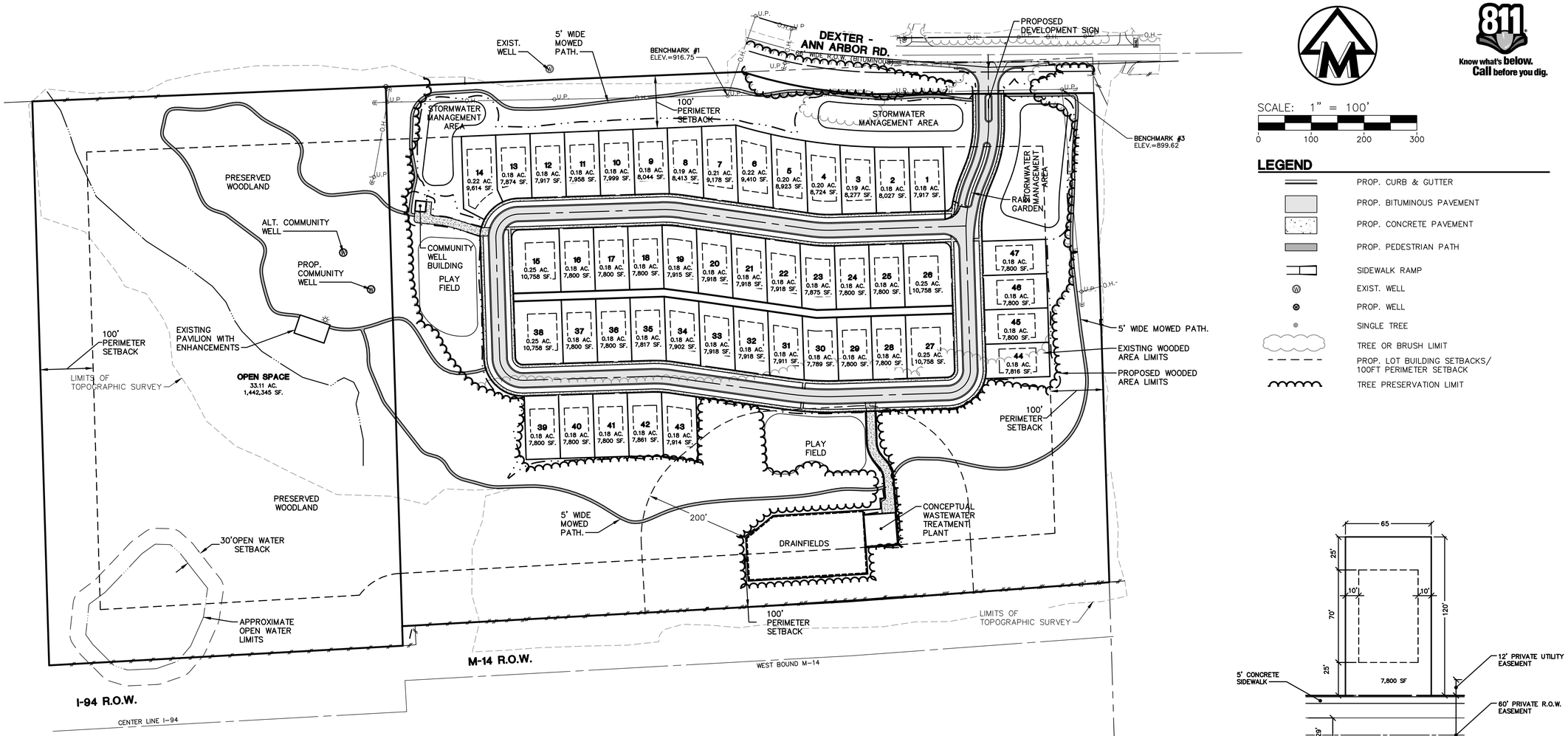
PRELIMINARY PLANNED UNIT DEVELOPMENT
EXISTING CONDITIONS AND BOUNDARY SURVEY

03

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SHEET 03 OF 13
CADD: RML
ENG: RML2
PM: TJC
TECH:
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JOB No. 17310
REVISIONS: REV. DATE

M:\Civil3d_Proj\17310\Prelim PUD\17310EX1.dwg, 8/27/2021 1:00 PM, Chris T. Somers, 03 EXISTING CONDITIONS AND BOUNDARY SURVEY, MCLLC PDF.pc3
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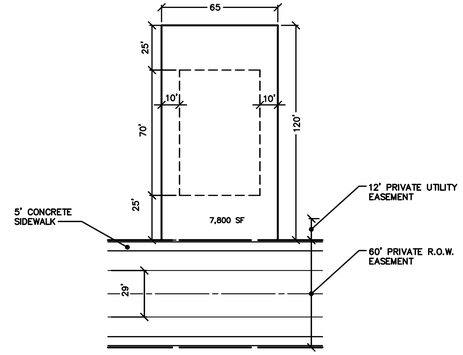


SCALE: 1" = 100'

0 100 200 300

LEGEND

- PROP. CURB & GUTTER
- PROP. BITUMINOUS PAVEMENT
- PROP. CONCRETE PAVEMENT
- PROP. PEDESTRIAN PATH
- SIDEWALK RAMP
- EXIST. WELL
- PROP. WELL
- SINGLE TREE
- TREE OR BRUSH LIMIT
- PROP. LOT BUILDING SETBACKS/ 100FT PERIMETER SETBACK
- TREE PRESERVATION LIMIT



TYPICAL LOT DETAIL

NOT TO SCALE

LANDSCAPE REQUIREMENTS

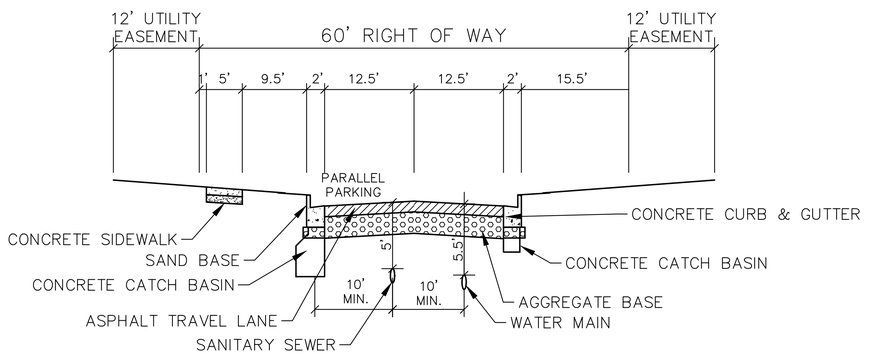
	Required Landscaping	Calculations	Proposed Landscaping
Front Greenbelt	1 per 30 linear feet - trees 6 per 30 linear feet - shrubs	670lf = 23 trees, 134 shrubs	Existing and proposed trees - total 23 trees, 134 shrubs
Subdivision and condominium landscaping			
Street trees	1 per 40 linear feet	~5,236lf / 40 = 131 trees	131 trees along road corridors
Screening from public roads	6ft screening / 80% opacity		Existing and proposed front greenbelt plantings
Site Landscaping	25% site landscaping		>59% site - woodland preservation
Solid Waste	6ft ht masonry wall for trash enclosures	Not applicable	Individual bins per unit - stored in garages
Parking Lot			
interior islands	24 spaces per row, 1 island per 8 spaces for parking lots with 16+ spaces	Not applicable	Not applicable
interior island trees	1 tree per island	Not applicable	Not applicable
perimeter	screen from adjacent residential and public ROW	Not applicable	Not applicable
Foundation landscaping	1 ornamental tree, 6 shrubs per 30lf building frontage along ROW	Not applicable	Not applicable
Tree Mitigation			
Landmark Trees	50% DBH removed	Approximately 332" DBH removed x 0.50 = 166" DBH mitigation required = 67 trees (2.5" cal)*	Required mitigation trees will be installed on site within open space areas and/or perimeter setback
Protected Trees	20% removal without mitigation; 1 tree (2.5" cal. or 6'ht evergreen) per 6"dbh removed beyond 20%	Existing protected = 21,325" DBH 21,325" x 0.2 = 4,265" DBH removal without mitigation Approximately 1,374" removal = no mitigation required*	None

*Note: Approximate landmark and protected tree impacts are based on conceptual limits of disturbance, surveyed trees, and estimated tree impacts in areas that have not been surveyed. Tree impacts and required mitigation will be updated during grading refinement during final site plans. Tree mitigation will be provided for tree impacts to extent required by the Sco Township zoning ordinance.

NATURAL FEATURES IMPACT AND LANDSCAPE SUMMARY

THE CLUSTERED RESIDENTIAL LOT DEVELOPMENT MINIMIZES THE IMPACT TO NATURAL FEATURES ON THE SITE WITH RESIDENTIAL UNITS BEING PRIMARILY LOCATED WITHIN EXISTING OPEN FIELD. THE DEVELOPMENT PRESERVES APPROXIMATELY 27 ACRES OF WOODLAND (86% OF TOTAL WOODED AREAS) AND ASSOCIATED WETLAND/DRAINAGE PATTERNS, AND APPROXIMATELY 26,271 DBH INCHES Of THE ESTIMATED LANDMARK/PROTECTED TREES (93% OF TOTAL ESTIMATED LANDMARK/PROTECTED TREES) LOCATED ON THE SITE. IMPACTS TO LANDMARK AND PROTECTED TREES WILL BE MITIGATED AS REQUIRED PER TOWNSHIP ZONING ORDINANCE AND MITIGATION TREES WILL BE PLANTED WITHIN OPEN SPACE AND/OR THE PERIMETER SETBACK TO PROVIDE SCREENING FROM ADJACENT PROPERTIES.

THE DEVELOPMENT INCLUDES APPROXIMATELY 33 ACRES OF OPEN SPACE (71% OF THE SITE). OPEN SPACE BETWEEN RESIDENTIAL UNITS AND WITHIN PLAY FIELDS WILL BE MANICURED LAWN. THE REAR YARD SWALES AND STORMWATER MANAGEMENT BASINS WILL BE ESTABLISHED WITH NATIVE VEGETATION. REQUIRED TREES AND SHRUBS PER THE ZONING ORDINANCE WILL BE PLANTED ALONG THE DEXTER-ANN ARBOR ROAD FRONT GREENBELT AND REQUIRED STREET TREES WILL BE PLANTED ALONG THE ROAD NETWORK DISTRIBUTED THROUGHOUT THE DEVELOPMENT. ADDITIONALLY, THE EXISTING PAVILION WILL BE PRESERVED AND ADDITIONAL OPEN SPACE AMENITIES WILL BE DETERMINED DURING THE SITE PLANNING PROCESS. PEDESTRIAN PATHWAYS WILL BE INSTALLED WITHIN THE OPEN SPACE TO PROVIDE CONNECTIVITY AND PROMOTE RECREATIONAL AND SOCIAL GATHERING OPPORTUNITIES ON THE SITE.



PRIVATE ROAD SECTION

NOT TO SCALE

The underground utilities shown have been located from field survey information and existing records. 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 the information available.

M:\Civil\34_Proj\17310\Prelim PUD\17310SP1.dwg, 8/27/2021 1:00 PM, Chris T. Somers, 04 OVERALL LAYOUT AND LANDSCAPE PLAN, MCLLC PDF.pc3
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PRELIMINARY PLANNED UNIT DEVELOPMENT
OVERALL LAYOUT AND LANDSCAPE PLAN

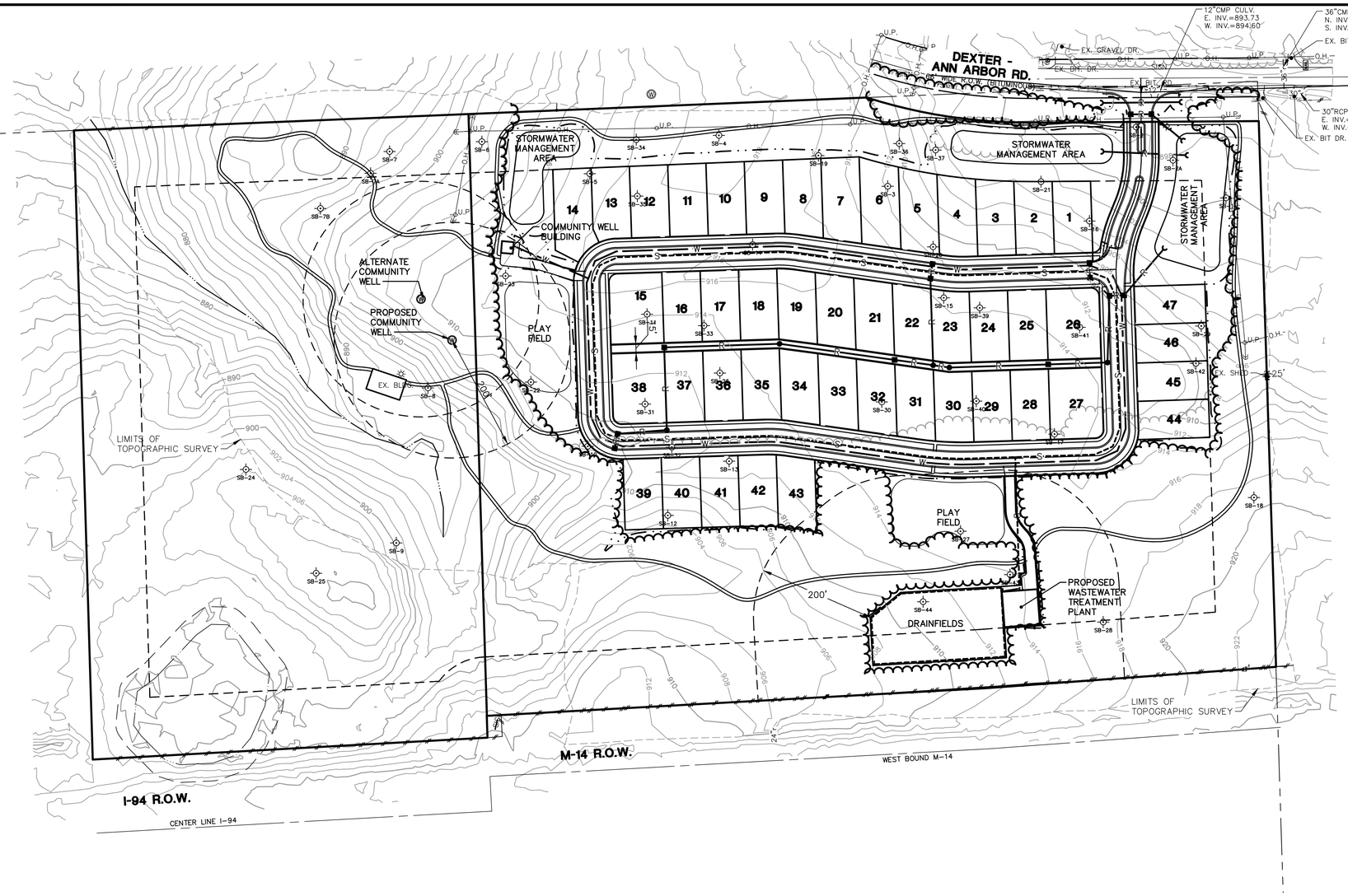
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SHEET 04 OF 13
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ENG: RMJ.2
PM: TJC
TECH: 17310SP1

JOB No. 17310

REVISIONS:

REV.	DATE



SCALE: 1" = 100'

0 100 200 300

LEGEND

- EXIST. CONTOUR
- PROP. CONTOUR
- EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- EXIST. OVERHEAD UTILITY LINE
- EXIST. LIGHT POLE
- EXIST. TELEPHONE LINE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- TELEPHONE RISER
- ELECTRIC METER
- WATER METER
- GAS METER
- GAS LINE MARKER
- EXIST. STORM SEWER
- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- END SECTION
- CULVERT
- PROP. COMMUNITY WELL
- SIGN
- MAILBOX
- FENCE
- GUARDRAIL
- POST
- TREE OR BRUSH LIMIT
- PROPOSED GRADING LIMITS

UTILITIES NOTES

1. SANITARY SEWER WILL BE DIRECTED TO THE WASTEWATER TREATMENT PLANT LOCATED ON-SITE WITH LOW PRESSURE SEWER SYSTEM USING ENVIRONMENT ONE GRINDER PUMPS OR APPROVED EQUIVALENT.
2. LOTS WILL BE SERVED BY A COMMUNITY WELL.

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PRELIMINARY PLANNED UNIT DEVELOPMENT
OVERALL UTILITY PLAN

05

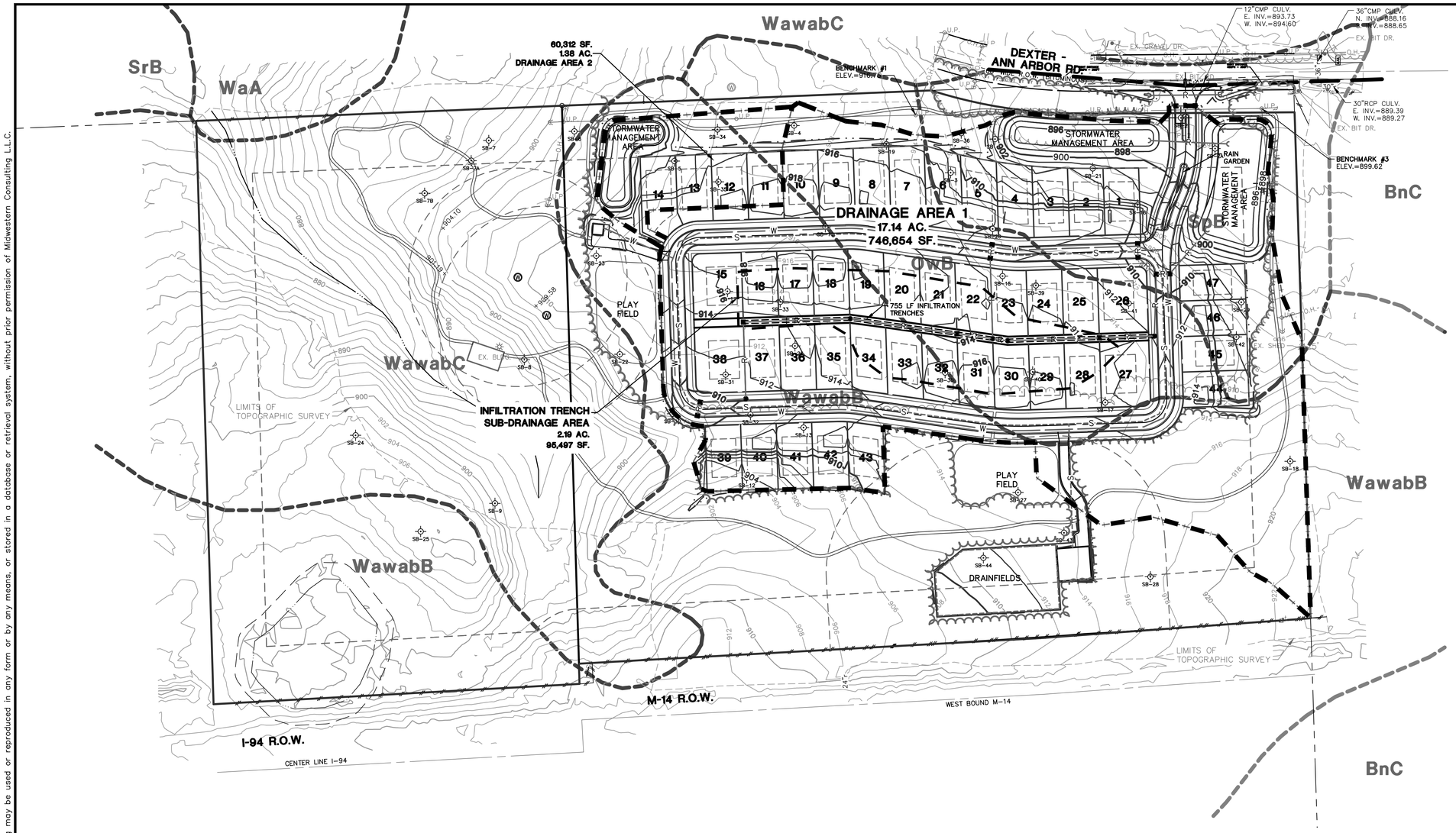
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DATE: 8/27/21
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M:\Civil3xLPro\17310\Prelim PUD\17310PE1.dwg, 8/27/2021 1:01 PM, Chris T. Somers, 06 PRELIMINARY GRADING & STORMWATER DRAINAGE PLAN, MCLLC PDF pc3

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SCALE: 1" = 100'

0 100 200 300

LEGEND

- EXIST. CONTOUR
- PROP. CONTOUR
- EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- EXIST. OVERHEAD UTILITY LINE
- EXIST. LIGHT POLE
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- EXIST. GAS LINE
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
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- ELECTRIC METER
- WATER METER
- GAS METER
- GAS LINE MARKER
- EXIST. STORM SEWER
- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- END SECTION
- CULVERT
- SIGN
- MAILBOX
- FENCE
- GUARDRAIL
- POST
- SINGLE TREE
- TREE OR BRUSH LIMIT
- PROPOSED GRADING LIMITS
- PROPOSED DRAINAGE LIMITS

STORM WATER NARRATIVE

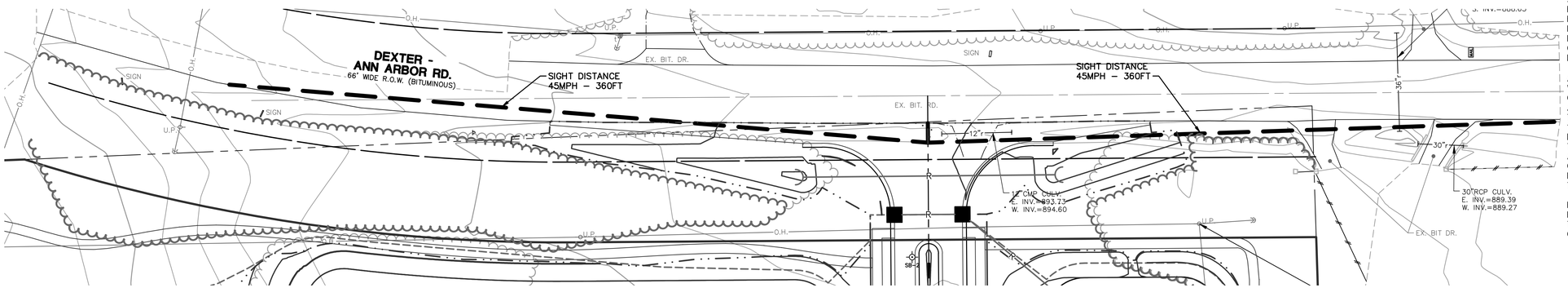
THE FOLLOWING STATEMENTS HAVE BEEN PREPARED USING PRELIMINARY STORM WATER CALCULATIONS AND DATA COLLECTED FROM THE SITE. THE PRELIMINARY DESIGN IS IN ACCORDANCE WITH THE 2016 WCWRC RULES AND GUIDELINES MANUAL TO DEVELOP IN WASHTENAW COUNTY, THESE RULES REQUIRE STORM WATER DETENTION AND INFILTRATION, IF FEASIBLE.

EXISTING CONDITIONS:
THE SITE CURRENTLY CONTAINS NO STORM WATER TREATMENT OR DETENTION FACILITIES. APPROXIMATELY 12 ACRES OF THE SITE SHEET FLOWS TOWARD THE NORTHEAST CORNER AND INTO THE DEXTER–ANN ARBOR ROAD RIGHT–OF–WAY. APPROXIMATELY 31.2 ACRES FLOWS TOWARD A DRAINAGE DITCH THE STARTS TO FORM NEAR THE WESTERN THIRD OF THE PROPERTY AND CONVEYS RUNOFF TO THE NORTHWEST CORNER, CONTINUING OFF–SITE. APPROXIMATELY 3.5 ACRES NEAR THE SOUTHWEST CORNER FLOWS INTO AN EXISTING OPEN WATER POND THAT EXISTS MOSTLY JUST NORTH OF THE I–94 RIGHT–OF–WAY.

PROPOSED CONDITIONS:
THE PROPOSED DEVELOPMENT INCLUDES NEW IMPERVIOUS BUILDING ROOF, PAVEMENT, AND SIDEWALK AREAS ESTIMATED AT APPROXIMATELY 5.7 ACRES. RUNOFF FROM APPROXIMATELY 17 ACRES OF PROPOSED DEVELOPED AREA (INCLUDING 5.4 ACRES OF IMPERVIOUS BUILDING/PAVEMENT AREA) IS DESIGNED TO BE CONVEYED THROUGH THE PROPOSED STORM SEWER NETWORK OR TO FLOW OVER LAND TOWARD ONE OF TWO HYDRAULICALLY CONNECTED INFILTRATION BASINS AT THE NORTHEAST CORNER OF THE SITE. PORTIONS OF THE PROPOSED LOTS IN THE CENTER OF THE DEVELOPMENT (ROUGHLY 2.2 ACRES) WILL FLOW INTO A SERIES OF INFILTRATION TRENCHES THROUGH REAR YARD INLETS BEFORE ULTIMATELY FLOWING TOWARD THE MAIN INFILTRATION BASINS. THE INFILTRATION BASINS ARE DESIGNED TO FULLY INFILTRATE THE 100–YEAR STORM FOR THEIR TRIBUTARY AREA. AN EMERGENCY OVERFLOW ROUTE WILL OCCUR NEAR THE NORTHEAST CORNER OF THE PROPERTY WHICH WILL ALLOW WATER TO DISCHARGE INTO THE DEXTER–ANN ARBOR ROAD RIGHT–OF–WAY.

APPROXIMATELY 1.4 ACRES, CONSISTING OF (4) PROPOSED LOTS, WILL FLOW TOWARD A DETENTION BASIN AT THE NORTHWEST CORNER OF THE DEVELOPMENT. THE SOILS ENCOUNTERED IN THIS AREA WERE NOT FOUND TO EXHIBIT CAPACITY FOR INFILTRATION. THEREFORE THE BASIN IS DESIGNED TO DETAIN VOLUME EQUAL TO 120% OF THE 100–YEAR STORM FOR THIS TRIBUTARY AREA. THE DETENTION BASIN WILL INCLUDE AN OUTLET CONTROL STRUCTURE THAT WILL ALLOW STORM WATER TO BE DETAINED IN THE BASIN AND DISCHARGE AT A CONTROLLED RATE. THE DISCHARGE WILL OCCUR ON THE WEST SIDE OF THE BASIN, ALLOWING WATER TO FLOW GENERALLY TO THE NORTHWEST AND EVENTUALLY TOWARD THE EXISTING DRAINAGE DITCH AND OFF–SITE.

PORTIONS OF LAND THAT ARE NOT TO BE DEVELOPED WITH HOMES, ROADWAYS, OR SIDEWALKS WILL CONTINUE TO DRAIN AS THEY DO TODAY – EITHER TOWARD THE EXISTING DRAINAGE DITCH OR TOWARD THE EXISTING OPEN WATER POND.



WCRC ENTRANCE DETAIL

SCALE: 1" = 30 FEET

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PRELIMINARY PLANNED UNIT DEVELOPMENT
PRELIMINARY GRADING & STORMWATER DRAINAGE PLAN

06

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PM: TJC
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Northwest Detention Basin

REV 8/26/2021

W1 - Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Rational Method Variables

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Driveways		10,000	0.23	0.95	0.22
Pavement/Sidwalk/paths		0	0.00	0.95	0.00
Grass	A	0	0.00	0	0.00
Grass	B	40,776	0.94	0.33	0.31
Grass	C	0	0.00	0.00	0.00
Grass	D	0	0.00	0.00	0.00
Water Surface		9,536	0.22	1.00	0.22
Total		60,312	1.38		0.75
			Weighted C = (Sum(C)x(Area))/(Area Total)=		0.54

NRCS Variables (Pervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Grass	A	0	0.00	0	0.00
Grass	B	40,776	0.94	58	0.54
Grass	C	0	0.00	0	0.00
Grass	D	0	0.00	0	0.00
Total		40,776	0.94		0.54
			Weighted CN = (Sum(CN)x(Area))/(Area Total)=		58

NCRS Variables (Impervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Building/Driveways		10,000	0.23	98	0.22
Pavement/Sidwalk/paths		0	0.00	98	0.00
Water Surface		9,536	0.22	98	0.21
Total		19,536	0.45		0.44
			Weighted CN = (Sum(CN)x(Area))/(Area Total)=		98

W2 - W2 - First Flush Runoff Calculations (Vff)

A. V_{ff} = 1" x 1'/12" x 43560 sft/ac x A x C — where A= 1.38 — and where C= 0.54

V_{ff} = 1" x 1'/12" x 43560 sft/ac x 1.38 x 0.54 = 2,714 cf

W3 - W3 - Pre-Development Bankfull Runoff Calculations ($V_{bf\text{-}pre}$)

A.	2 year / 24 hour storm event:	P=	2.35 in
B.	Pre-Development CN (Meadow, 0% Type A, 100% Type B, 0% Type C, 0% Type D, Soils)	CN=	58
C.	S = (1000 / CN) - 10	S=	7.241 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	0.100 in
E.	Total Site Area excluding "Self-Crediting" BMPs		60,312 sft
F.	$V_{bf\text{-}pre}$ = Q x (1/12) x Area	$V_{bf\text{-}pre}$ =	502 cft

W4 - Pervious Cover Post-Development Bankfull Runoff Calculations ($V_{bf\text{-}per\text{-}post}$)

A.	2 year / 24 hour storm event:	P=	2.35 in
B.	Pervious Cover CN From Worksheet 1	CN=	58
C.	S = (1000 / CN) - 10	S=	7.241 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	0.100 in
E.	Pervious Cover Area from Worksheet 1		40,776 sft
F.	$V_{bf\text{-}per\text{-}post}$ = Q x (1/12) x Area	$V_{bf\text{-}per\text{-}post}$ =	339 cft

W5 - W5 - Impervious Cover Post-Development Bankfull Runoff Calculations ($V_{bf\text{-}imp\text{-}post}$)

A.	2 year / 24 hour storm event:	P=	2.35 in
B.	Impervious Cover CN From Worksheet 1	CN=	98
C.	S = (1000 / CN) - 10	S=	0.204 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	2.122 in
E.	Impervious Cover Area from Worksheet 1		19,536 sft
F.	$V_{bf\text{-}imp\text{-}post}$ = Q x (1/12) x Area	$V_{bf\text{-}imp\text{-}post}$ =	3,454 cft

W6 - W6 - Pervious Cover Post-Development 100-Year Runoff Calculations ($V_{100\text{-}per\text{-}post}$)

A.	100 year / 24 hour storm event:	P=	5.11 in
B.	Pervious Cover CN From Worksheet 1	CN=	58
C.	S = (1000 / CN) - 10	S=	7.241 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	1.230 in
E.	Pervious Cover Area from Worksheet 1		40,776 sft
F.	$V_{100\text{-}per\text{-}post}$ = Q x (1/12) x Area	$V_{100\text{-}per\text{-}post}$ =	4,179 cft

W7 - W7 - Impervious Cover Post-Development 100-Year Runoff Calculations ($V_{100\text{-}imp\text{-}post}$)

A.	100 year / 24 hour storm event:	P=	5.11 in
B.	Impervious Cover CN From Worksheet 1	CN=	98
C.	S = (1000 / CN) - 10	S=	0.204 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	4.873 in
E.	Impervious Cover Area from Worksheet 1		19,536 sft
F.	$V_{bf\text{-}imp\text{-}post}$ = Q x (1/12) x Area	$V_{bf\text{-}imp\text{-}post}$ =	7,933 cft

W8 - Time of Concentration (Tc-hrs)

A. Assume 15-minute minimum time of concentration — Tc= 0.25 hr

W9 - Runoff Summary & On-Site Infiltration Requirement

A.	Summary from Previous Worksheets	
	First Flush Volume (Vff)	**2,714 cft**
	Pre-Development Bankfull Runoff Volume (Vbf-pre)	**502 cft**
	Pervious Cover Post-Development Bankfull Volume (Vbf-per-post)	*339 cft*
	Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post)	*3,454 cft*
	Total BF Volume (Vbf-post)	**3,793 cft**
	Pervious Cover Post-Development 100-Year Volume (V100-per-post)	*4,179 cft*
	Impervious Cover Post-Development 100-Year Volume (V100-imp-post)	*7,933 cft*
	Total 100-Year Volume (V100)	**12,112 cft**
B.	Determine Onsite Infiltration Requirement	
	Subtract the Pre-Development Bankfull from the Post-Development Bankfull Volume	
	Total Post-Development Bankfull Volume (Vbf-post)	3,793 cft
	Pre-Development Bankfull Runoff Volume (Vbf-pre)	502 cft
	Bankfull Volume Difference	**3,292 cft**
	Infiltration Requirement (Vinf)	**3,292 cft**

W10 - Detention/Retention Requirement

A.	Q_P = 238.6 Tc^-0.82	743.63 cfs/(in x sq. mi)
B.	Total Site Area excluding "Self-Crediting" BMPs	1.38 ac
C.	Q_{100} = $Q_{100\text{-per}}$ + $Q_{100\text{-imp}}$ (from W6 and W7, respectively)	6.103 in
D.	Peak Flow (PF) = Q_P x Q_{100} x Area / 640	9.82 cfs
E.	Delta = PF - 0.15 x Area (ac)	9.61 cfs
	[0.15 x Area (ac)]	*0.21 cfs*
F.	V_{det} = Delta / PF x V_{100}	11,856 cft
	Required Detention not including infiltration credit or penalty.	
	Sediment Forebay Volume Required (5% of V100)	606 cft

W11 - Determine Applicable BMPs and Associated Volume Credits

		Storage Volume (cft)		Design Infilt. Rate (in/hr)	Infilt. Volume in 6-hr Drawdown (cft)	Total Volume Reduction (cft)
Proposed BMP	Area (sft)	Surface	In Soil			
Infiltration Basin	**5,966**			0.00	0	0
				Total Volume Reduction Credit by Proposed Structural BMPs (cft)		0
				Runoff Volume Infiltration Requirement (Vinf) from W9 (cft)		3,292
				Runoff Volume Credit (cft)		0

W13 - Site Summary of Infiltration & Detention

A. Stormwater Management Summary

Min Infiltration Requirement (V_{inf})	3,292	cft
Designed/Provided Infiltration Volume	0	cft
% Minimum Required Infiltration Provided	0	%
Total Calculated Detention Volume, V_{det}	11,856	cft
Net Required Detention Volume (V_{det} - Designed/Provided Infiltration Volume)	11,856	cft

B. Detention Volume Increase for sites where the required infiltration volume cannot be achieved.

% Required Infiltration NOT Provided	100.0	%
(100% - % Minimum Required Infiltration Provided)		
Net % Penalty (20% x % Required Infiltration NOT Provided)	20.0	%
Total Required Detention Volume, including penalty	**14,227**	**cft**
[(100% + Net % Penalty) x Required Detention Volume)]		

Detention Outlet Calculcations

A. Required Detention Volumes (Reduced by 6-hour infiltration)

Storm Event	Req'd Volume		less	Infil. Credit		=	Final Volume	
First Flush	2,714	cft	-	0	cft	=	**2,714**	cft
Bankfull	3,793	cft	-	0	cft	=	**3,793**	cft
100 -year	11,856	cft	-	0	cft	=	**11,856**	cft
100-year + Req'd Penalty	14,227	cft	-	0	cft	=	**14,227**	cft
Forebay Volume Required (5% of 100-yr)						=	**606**	cft

B. Detention Volumes Provided

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
905.0	2,819	0.0	0	0
906.0	1,760	1.0	2,269	2,269
907.0	6,858	1.0	4,031	6,300
908.0	9,112	1.0	7,958	14,258
909.0	11,524	1.0	10,294	24,552
909.5	12,789	0.5	6,076	30,628
			Total Volume =	30,628

Storage Elevation Calculation

First Flush Elevation (Xff)= (907.0 - 906.0) / (6,300 - 2,269) = X_{ff} - 906.0 / 2,714 - 2,269 — Xff = 906.11 ft

Bankfull Elevation (Xbf)= (907.0 - 906.0) / (6,300 - 2,269) = X_{bf} - 906.0 / 3,793 - 2,269 — Xbf = 906.38 ft

100-Year Elevation (X100)= (908.0 - 907.0) / (14,258 - 6,300) = X_{100} - 907.0 / 11,856 - 6,300 — X100 = 907.70 ft

Freeboard (X100)+1 — Freeboard = 908.70 ft

February 6, 2018
G2 Project No. 183022
Page 3

following periods of prolonged precipitation.

INFILTRATION CONSIDERATIONS

The following table provides the results of our observations during test pit operations:

Test Pit No.	Ground Surface Elevation (ft)[1]	Ground Water Elevation (ft)[2]	Test Elevation (ft)	Soil Type (USCS[3])	Observed Infiltration Rate (iph)	Design Infiltration Rate (iph[4])
TP-1	900	Dry	895	Sand with tr. silt (SP)	26.75	13.4
TP-2	899	Dry	894	Gravelly Sand (SM)	84.38	42.2
TP-3	891	Dry	883	Silty Sand (SM)	0.38	0.2
TP-4	889	Dry	882	Silty Sand (SM)	0.0	0.0

Notes:
1. Estimated based on available topographical information within Google Earth Pro.
2. Estimated at completion of excavation operations and not including perched groundwater.
3. Description in general accordance with Visual-Manual Unified Soil Classification System (ASTM D2488).
4. Infiltration rate (inches per hour) given using a design factor of safety of 2.

The resulting infiltration rates were calculated and equated to an effective infiltration rate over the period of one hour. A factor of safety of 2.0 has been used in presenting the design infiltration rate. Furthermore, it should be noted that the calculated infiltration rates do not include a reduction factor (R_f) due to the recent revisions within the WCWRC guidelines for testing.

Based on the results of our infiltration evaluation, we recommend the proposed infiltration basins be constructed to bear within the test elevations identified at the test pit locations within TP-1 and TP-2. We do not anticipate suitable infiltration will be available within the area of TP-3 and TP-4. Discrepancies between the design infiltration rate and the observed soil types can be attributed to the percentage of material passing the No. 200 sieve in addition to the in-situ relative density of the encountered soil types. Please refer to the sieve analysis presented in Figure No. 5 and test pit log Figure No. 3 in the appendix for the percentage of material passing the No. 200 sieve at the infiltration test elevations.

We recommend that a qualified geotechnical engineer or technician be present on-site during the excavation of the infiltration structure to verify that soils at the base of the proposed structure are consistent with soil conditions identified within this report.

GENERAL COMMENTS

If changes occur in the design, location, or concept of the project, conclusions and recommendations contained in this report are not valid unless G2 Consulting Group, LLC reviews the changes. G2 Consulting Group, LLC will then confirm any assumptions regarding the project scope presented herein or make changes in writing. The scope of the present investigation was limited to evaluation of subsurface conditions at the proposed test pit locations. No chemical or environmental testing or analyses were included in the scope of this investigation.

We base the analyses and recommendations submitted in this report upon the data from the test pits performed at the approximate locations shown on the Test Pit Location Plan, Plate No. 1. This report does not reflect variations that may occur between the actual test pit location and the actual infiltration basin location. The nature and extent of any such variations may not become clear until the time of construction. We recommend G2 Consulting Group, LLC observe all geotechnical related work, including subgrade preparation and engineered fill placement.

We appreciate the opportunity to be of service to Midwestern Consulting on this project and look forward to discussing the results presented. In the meantime, if you have any questions regarding this report or any other matter pertaining to the project, please call us.

Northeast Infiltration Basins

Rev 8/27/2021

W1 - Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Rational Method Variables

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Driveways		134,689	3.09	0.95	2.94
Pavement/Sidwalk/paths		102,102	2.34	0.95	2.23
Grass	A (4-8% slopes)	118,895	2.73	0.2	0.55
Grass	B (50% slopes 4-8%; 50% >8%)	356,685	8.19	0.33	2.70
Water Surface		34,283	0.79	1.00	0.79
Total		746,654	17.14		9.20
			Weighted C = (Sum(C)x(Area))/(Area Total)=		0.54

NRCS Variables (Pervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Grass	A	118,895	2.73	30	0.82
Grass	B	356,685	8.19	58	4.75
Total		475,580	10.92		5.57
			Weighted CN = (Sum(CN)x(Area))/(Area Total)=		51

NCRS Variables (Impervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Building/Driveways		134,689	3.09	98	3.03
Pavement/Sidwalk/paths		102,102	2.34	98	2.30
Water Surface		34,283	0.79	98	0.77
Total		271,074	6.22		6.10
			Weighted CN = (Sum(CN)x(Area))/(Area Total)=		98

W2 - W2 - First Flush Runoff Calculations (Vff)

A. V_{ff} = 1" x 1'/12" x 43560 sft/ac x A x C — where A= 17.14 — and where C= 0.54

V_{ff} = 1" x 1'/12" x 43560 sft/ac x 17.14 x 0.54 = 33,599 cf

W3 - W3 - Pre-Development Bankfull Runoff Calculations ($V_{bf\text{-}pre}$)

A.	2 year / 24 hour storm event:	P=	2.35 in
B.	Pre-Development CN (Meadow, 25% Type A, 75% Type B, 0% Type C, 0% Type D, Soils)	CN=	51
C.	S = (1000 / CN) - 10	S=	9.608 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	0.018 in
E.	Total Site Area excluding "Self-Crediting" BMPs		746,654 sft
F.	$V_{bf\text{-}pre}$ = Q x (1/12) x Area	$V_{bf\text{-}pre}$ =	1,138 cft

W4 - Pervious Cover Post-Development Bankfull Runoff Calculations ($V_{bf\text{-}per\text{-}post}$)

A.	2 year / 24 hour storm event:	P=	2.35 in
B.	Pervious Cover CN From Worksheet 1	CN=	51
C.	S = (1000 / CN) - 10	S=	9.608 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	0.018 in
E.	Pervious Cover Area from Worksheet 1		475,580 sft
F.	$V_{bf\text{-}per\text{-}post}$ = Q x (1/12) x Area	$V_{bf\text{-}per\text{-}post}$ =	725 cft

W5 - W5 - Impervious Cover Post-Development Bankfull Runoff Calculations ($V_{bf\text{-}imp\text{-}post}$)

A.	2 year / 24 hour storm event:	P=	2.35 in
B.	Impervious Cover CN From Worksheet 1	CN=	98
C.	S = (1000 / CN) - 10	S=	0.204 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	2.122 in
E.	Impervious Cover Area from Worksheet 1		271,074 sft
F.	$V_{bf\text{-}imp\text{-}post}$ = Q x (1/12) x Area	$V_{bf\text{-}imp\text{-}post}$ =	47,928 cft

W6 - W6 - Pervious Cover Post-Development 100-Year Runoff Calculations ($V_{100\text{-}per\text{-}post}$)

A.	100 year / 24 hour storm event:	P=	5.11 in
B.	Pervious Cover CN From Worksheet 1	CN=	51
C.	S = (1000 / CN) - 10	S=	9.608 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	0.794 in
E.	Pervious Cover Area from Worksheet 1		475,580 sft
F.	$V_{100\text{-}per\text{-}post}$ = Q x (1/12) x Area	$V_{100\text{-}per\text{-}post}$ =	31,486 cft

W7 - W7 - Impervious Cover Post-Development 100-Year Runoff Calculations ($V_{100\text{-}imp\text{-}post}$)

A.	100 year / 24 hour storm event:	P=	5.11 in
B.	Impervious Cover CN From Worksheet 1	CN=	98
C.	S = (1000 / CN) - 10	S=	0.204 in
D.	Q = [(P-0.2S)^2] / [P+0.8S]	Q=	4.873 in
E.	Impervious Cover Area from Worksheet 1		271,074 sft
F.	$V_{bf\text{-}imp\text{-}post}$ = Q x (1/12) x Area	$V_{100\text{-}imp\text{-}post}$ =	110,079 cft

W8 - Time of Concentration (Tc-hrs)

A. Assume 15-minute minimum time of concentration — Tc= 0.25 hr

W9 - Runoff Summary & On-Site Infiltration Requirement

A.	Summary from Previous Worksheets	
	First Flush Volume (Vff)	**33,599 cft**
	Pre-Development Bankfull Runoff Volume (Vbf-pre)	**1,138 cft**
	Pervious Cover Post-Development Bankfull Volume (Vbf-per-post)	*725 cft*
	Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post)	*47,928 cft*
	Total BF Volume (Vbf-post)	**48,652 cft**
	Pervious Cover Post-Development 100-Year Volume (V100-per-post)	*31,486 cft*
	Impervious Cover Post-Development 100-Year Volume (V100-imp-post)	*110,079 cft*
	Total 100-Year Volume (V100)	**141,564 cft**
B.	Determine Onsite Infiltration Requirement	
	Subtract the Pre-Development Bankfull from the Post-Development Bankfull Volume	
	Total Post-Development Bankfull Volume (Vbf-post)	48,652 cft
	Pre-Development Bankfull Runoff Volume (Vbf-pre)	1,138 cft
	Bankfull Volume Difference	**47,514 cft**
	Infiltration Requirement (Vinf)	**47,514 cft**

W10 - Detention/Retention Requirement

A.	Q_P = 238.6 Tc^-0.82	743.63 cfs/(in x sq. mi)
B.	Total Site Area excluding "Self-Crediting" BMPs	17.14 ac
C.	Q_{100} = $Q_{100\text{-per}}$ + $Q_{100\text{-imp}}$ (from W6 and W7, respectively)	5.667 in
D.	Peak Flow (PF) = Q_P x Q_{100} x Area / 640	112.88 cfs
E.	Delta = PF - 0.15 x Area (ac)	110.30 cfs
	[0.15 x Area (ac)]	*2.57 cfs*
F.	V_{det} = Delta / PF x V_{100}	138,340 cft
	Required Detention not including infiltration credit or penalty.	
	Sediment Forebay Volume Required (5% of V100)	7,078 cft

W11 - Determine Applicable BMPs and Associated Volume Credits

		Storage Volume (cft)			Infilt. Volume in 6-hr Drawdown (cft)	Total Volume Reduction (cft)
Proposed BMP	Area (sft)	Surface	In Soil	Design Infilt. Rate (in/hr)		
Infiltration Basin	**31,278**	97,913	0	10.00	156,388	254,300
Infiltration Trenches	**4,908**	0	3,030	10.00	24,538	27,568
Raind Garden	**725**	486	0	10.00	3,625	4,111
				Total Volume Reduction Credit by Proposed Structural BMPs (cft)		138,340
				Runoff Volume Infiltration Requirement (Vinf) from W9 (cft)		47,514
Total Area (sf) = 36,910				Runoff Volume Credit (cft)		90,825

C. Full Infiltration Design

Total Storage Volume	**138,340**	cft
Infiltration Area	36910	sft
Infiltration Rate, Average	10.00	in/hr
Infiltration Flow Rate	30758.33	cft/hr
Time to Fully Drain	**4.5**	**hr**

This is less than 48 hours max, so the basin complies with the drawdown requirement.

M:\Civil3d_Proj\17310\Prelim PUD\17310DR1.dwg, 8/27/2021 1:01 PM, Chris T. Somers, 07 STORMWATER CALCULATIONS, MCLLC PDF.pc3
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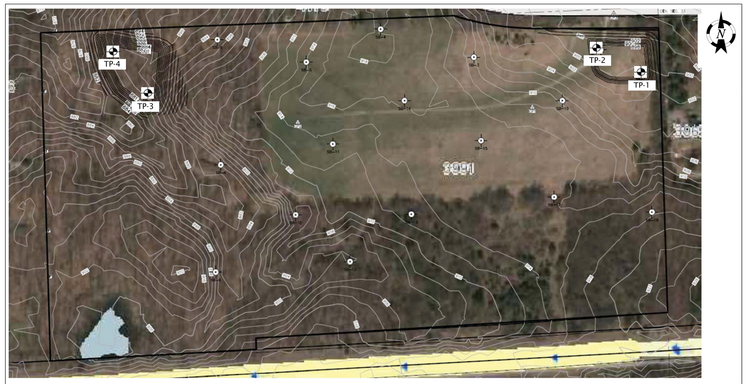
PRELIMINARY PLANNED UNIT DEVELOPMENT
STORMWATER CALCULATIONS

07

DATE: 8/27/21
SHEET 07 OF 13
CADD: RML
ENG: RML2
PM: TJC
TECH:
17310DR1

REV. DATE

JOB No. 17310
REVISIONS:



Legend

Test Pit Locations

Test Pit Location Plan
Knights of Columbus
3991 Dexter Ann Arbor Road
Scio Township, Michigan

Project No. 183022	
Drawn by: RRK	
Date: 1/26/18	Plate No. 1
Scale: NTS	

CONSULTING GROUP

Project Name: Dexter-Ann Arbor Road Infiltration Testing
Project Location: Scio Township, Michigan
G2 Project No. 183022
Latitude: N/A Longitude: N/A

Test Pit No. TP-1

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 900.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (15 inches) 1.3		S-01				
		Brown Silty Sand with trace gravel 3.5		S-02				
895.0		Brown Sand with trace silt and gravel, occasional cobbles and boulders (Infiltration Rate = 13.38 iph) 5.0	5	S-03				
890.0		End of Test Pit @ 5 ft	10					
885.0			15					

Total Depth: 5 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

Figure No. 1

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

Project Name: Dexter-Ann Arbor Road Infiltration Testing
Project Location: Scio Township, Michigan
G2 Project No. 183022
Latitude: N/A Longitude: N/A

Test Pit No. TP-3

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 891.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (12 inches) 1.0		S-01				
		Brown Sandy Silt with trace gravel 3.0		S-02				
886.0		Brown Silty Sand with trace gravel (Infiltration Rate = 0.19 iph) Percent Finer Than No. 200 Sieve - 34.2% 9.0	5	S-03				
881.0		End of Test Pit @ 9 ft	10					
876.0			15					

Total Depth: 9 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

Figure No. 3

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

Project Name: Dexter-Ann Arbor Road Infiltration Testing
Project Location: Scio Township, Michigan
G2 Project No. 183022
Latitude: N/A Longitude: N/A

Test Pit No. TP-2

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 899.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (23 inches) 1.9		S-01				
		Brown Silty Sand with trace gravel 4.0		S-02				
894.0		Brown Sand and Gravel with trace silt, occasional cobbles and boulders (Infiltration Rate = 42.19 iph) 5.0	5	S-03				
889.0		End of Test Pit @ 5 ft	10					
884.0			15					

Total Depth: 5 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

Figure No. 2

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

Project Name: Dexter-Ann Arbor Road Infiltration Testing
Project Location: Scio Township, Michigan
G2 Project No. 183022
Latitude: N/A Longitude: N/A

Test Pit No. TP-4

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA				
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 889.0 ft ±	DEPTH (ft)	SAMPLE TYPE/NO.	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	PERCENT COMPACTION	UNCOF. COMP. ST. (PSF)
		Topsoil: Dark Brown Silty Sand (11 inches) 0.9		S-01				
		Brown Sandy Silt with trace gravel 4.0		S-02				
884.0		Brown Sand and Silt with trace gravel (Infiltration Rate = 0.0 iph) 9.0	5	S-03				
879.0		End of Test Pit @ 9 ft	10					
874.0			15					

Total Depth: 9 ft
Excavation Date: January 25, 2018
Inspector: R. Kurdyla
Contractor: Nixon Services
Operator: Ryan Nixon

Excavation Equipment:
Backhoe

Water Level Observation:
Dry during and upon completion of excavation operations

Excavation Backfilling Procedure:
Excavation backfilled with excavated soils

Figure No. 4

TEST PIT 183022.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 2/6/18

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M:\Civil3d_Proj\17310\Plan Pkg\17310DR1.dwg, 8/27/2021 1:01 PM, Chris T. Somers, 08 TEST PIT LOGS, MCLLC PDF.pc3
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PRELIMINARY PLANNED UNIT DEVELOPMENT
TEST PIT LOGS

08

JOB No. 17310
REVISIONS:
REV. DATE

DATE: 8/27/21
SHEET 08 OF 13
CADD: RWL
ENG: RWL2
PM: TJC
TECH:
/17310DR1

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M:\Civil3d_Proj\17310\Prelim PUD\17310EX2.dwg, 8/27/2021 1:01 PM, Chris T. Somers, 09 TREE REMOVAL PLAN 1 OF 2, MCLLC PDF.pc3
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PRELIMINARY PLANNED UNIT DEVELOPMENT
TREE REMOVAL PLAN 1 OF 2

09

JOB No. 17310

REVISIONS: REV. DATE:

DATE: 8/27/21
SHEET 09 OF 13
CADD: RML
ENG: RML2
PM: TJC
TECH:
/17310EX2

M:\Civil3d_Proj\17310\Prelim Pkg\17310EX2.dwg, 8/27/2021 1:01 PM, Chris T. Somers, 10 TREE REMOVAL PLAN 2 OF 2, MCLLC PDF.pc3
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LEGEND

827	EXIST. CONTOUR
×827.2	EXIST. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
	GUY WIRE
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. GAS VALVE
	CULVERT
	C/L OF DITCH
	SIGN
	MAILBOX
catv	TELEPHONE RISER
catv	CABLE TELEVISION RISER
fiber	FIBER OPTIC MARKER
	POST
	FENCE
	OPEN WATER BOUNDARY
	OPEN WATER SETBACK
	SINGLE TREE
	LANDMARK TREE
	TREE OR BRUSH LIMIT
O F	FOUND IRON PIPE
	CONTROL PT.
TP-1	INFILTRATION TEST PITS
SB-1	SOIL BORINGS
	EXISTING TREE TO BE REMOVED
	LIMITS OF DISTURBANCE
	PROPOSED MOWED PATH

Know what's **below.** **Call** before you dig. 811

The underground utilities shown have been located from field survey information and existing records. 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 the information available.

MIDWESTERN CONSULTING
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ANN ARBOR, MI 48106
JIM HAEUSSLER
(734) 260-9678

3991 DEXTER-ANN ARBOR RD

PRELIMINARY PLANNED UNIT DEVELOPMENT
TREE REMOVAL PLAN 2 OF 2

10

JOB No. 17310
REVISIONS:

REV.	DATE

DATE: 8/27/21
SHEET 10 OF 13
CADD: RML
ENG: RWL2
PM: TJC
TECH:
17310EX2

TAG	DBH	COMMON NAME	GENUS/SPECIES	STEMS	HEALTH	INV	LM	PROTECTED	REMOVAL
1	38"	Red Oak	Quercus rubra				X		
2	43"	White Oak	Quercus alba				X		
3	14"	Sweet Cherry	Prunus avuim			X			
4	6"	Sassafras	Sassafras albidum		fair			X	
5	10"	Sassafras	Sassafras albidum					X	
6	13"	Red Oak	Quercus rubra					X	
7	14"	Black Cherry	Prunus serotina					X	
8	12"	Sassafras	Sassafras albidum				X		
9	9"	Black Cherry	Prunus serotina					X	
10	7"	Sassafras	Sassafras albidum					X	
11	9"	Sassafras	Sassafras albidum					X	
12	7"	Sassafras	Sassafras albidum					X	
13	8"	Black Cherry	Prunus serotina					X	
14	10"	Pignut Hickory	Carya glabra					X	
15	7"	Sassafras	Sassafras albidum					X	
16	6"	Sassafras	Sassafras albidum					X	
17	6"	Sassafras	Sassafras albidum					X	
18	7"	Red Oak	Quercus rubra					X	
19	9"	Red Oak	Quercus rubra					X	
20	8"	Red Oak	Quercus rubra					X	
21	30"	Red Oak	Quercus rubra				X		
22	30"	White Oak	Quercus alba				X		
23	6"	Sassafras	Sassafras albidum					X	
24	20"	White Oak	Quercus alba				X		
25	10"	Linden	Tilia americana					X	
26	9"	Sassafras	Sassafras albidum					X	
27	6"	Shagbark Hickory	Carya ovata					X	
28	7"	Sassafras	Sassafras albidum					X	
29	7"	Black Cherry	Prunus serotina	twin				X	
30	7"	Black Cherry	Prunus serotina					X	
31	6"	Red Oak	Quercus rubra					X	
32	12"	Red Oak	Quercus rubra					X	
33	9"	Scotch Pine	Pinus sylvestris				X		
34	9"	Scotch Pine	Pinus sylvestris	twin			X		
35	40"	Red Oak	Quercus rubra				X		
36	10"	Sweet Cherry	Prunus avuim				X		
37	7"	Sweet Cherry	Prunus avuim				X		
38	9"	Sweet Cherry	Prunus avuim				X		
39	33"	White Oak	Quercus alba				X		
40	21"	Red Oak	Quercus rubra		FAIR		X		
41	36"	Red Oak	Quercus rubra				X		
42	9"	Black Cherry	Prunus serotina					X	
43	6"	Black Cherry	Prunus serotina					X	
44	8"	Box Elder	Acer negundo				X		
45	7"	American Elm	Ulmus americana					X	
46	7"	Swamp White Oak	Quercus bicolor					X	
47	7"	Swamp White Oak	Quercus bicolor					X	
48	27"	Red Oak	Quercus rubra				X		X
49	29"	Red Oak	Quercus rubra				X		X
50	11"	American Elm	Ulmus americana					X	X
51	26"	Black Cherry	Prunus serotina				X		X
52	10"	White Mulberry	Morus alba					X	X
53	7"	Scotch Pine	Pinus sylvestris				X		
54	10"	Black Cherry	Prunus serotina					X	X
55	32"	Red Oak	Quercus rubra					X	X
56	6"	Shagbark Hickory	Carya ovata					X	
57	14"	Norway Maple	Acer platanoides				X		
58	17"	White Oak	Quercus alba					X	
59	13"	Scotch Pine	Pinus sylvestris				X		
60	15"	Black Cherry	Prunus serotina					X	
61	17"	Red Oak	Quercus rubra					X	
62	10"	Scotch Pine	Pinus sylvestris				X		X
63	7"	Red Oak	Quercus rubra					X	
64	12"	Scotch Pine	Pinus sylvestris				X		
65	16"	Black Cherry	Prunus serotina					X	
66	12"	Black Cherry	Prunus serotina					X	
67	6"	Black Cherry	Prunus serotina					X	
68	8"	Black Cherry	Prunus serotina					X	
69	11"	Black Cherry	Prunus serotina					X	
70	6"	Shagbark Hickory	Carya ovata					X	
71	14"	Black Cherry	Prunus serotina					X	
72	13"	Black Cherry	Prunus serotina					X	
73	7"	Black Cherry	Prunus serotina					X	
74	19"	Black Cherry	Prunus serotina					X	
75	8"	Black Cherry	Prunus serotina					X	
76	15"	Red Oak	Quercus rubra				X		
77	12"	Red Oak	Quercus rubra					X	
78	19"	Black Cherry	Prunus serotina					X	
79	26"	Black Cherry	Prunus serotina		POOR		X		
80	16"	Black Cherry	Prunus serotina					X	
81	9"	Sugar Maple	Acer nigrum					X	
82	10"	Sugar Maple	Acer saccharum					X	
83	8"	Black Cherry	Acer nigrum					X	
84	12"	Red Oak	Quercus rubra					X	
85	7"	Shagbark Hickory	Carya ovata					X	
86	21"	Black Cherry	Prunus serotina				X		
87	9"	Black Maple	Acer nigrum					X	
88	13"	Red Oak	Quercus rubra					X	
89	23"	Black Cherry	Prunus serotina		POOR		X		
90	8"	Red Oak	Quercus rubra					X	
91	9"	Black Cherry	Prunus serotina					X	
92	28"	Pignut Hickory	Carya glabra				X		
93	7"	Pignut Hickory	Carya glabra					X	
94	14"	White Oak	Quercus alba					X	
95	7"	American Elm	Ulmus americana					X	
96	12"	Red Oak	Quercus rubra					X	
97	11"	Red Oak	Quercus rubra					X	
98	30"	Black Cherry	Prunus serotina		POOR		X		
99	7"	Red Oak	Quercus rubra					X	
100	18"	Red Oak	Quercus rubra					X	
101	7"	Black Cherry	Prunus serotina					X	
102	7"	Black Cherry	Prunus serotina					X	
103	6"	Black Cherry	Prunus serotina					X	
104	6"	Black Cherry	Prunus serotina					X	
105	10"	Red Oak	Quercus rubra					X	
106	7"	Black Cherry	Prunus serotina					X	
107	9"	Black Cherry	Prunus serotina					X	
108	7"	Black Cherry	Prunus serotina					X	
109	6"	Black Cherry	Prunus serotina					X	
110	13"	Black Cherry	Prunus serotina					X	
111	17"	Red Oak	Quercus rubra					X	
112	11"	Black Cherry	Prunus serotina					X	
113	7"	Black Cherry	Prunus serotina					X	
114	11"	Common Apple	Malus pumila					X	
115	10"	Red Oak	Quercus rubra					X	
116	9"	Black Cherry	Prunus serotina					X	
117	8"	Black Cherry	Prunus serotina					X	
118	7"	Black Cherry	Prunus serotina					X	
119	13"	Black Cherry	Prunus serotina					X	
120	9"	Red Oak	Quercus rubra					X	
121	10"	Scotch Pine	Pinus sylvestris				X		
122	9"	Red Oak	Quercus rubra	twin				X	
123	8"	Red Oak	Quercus rubra					X	
124	9"	Scotch Pine	Pinus sylvestris				X		
125	10"	Red Oak	Quercus rubra					X	
126	8"	Red Oak	Quercus rubra	twin				X	
127	10"	Scotch Pine	Pinus sylvestris				X		X
128	12"	Red Oak	Quercus rubra					X	
129	10"	Red Oak	Quercus rubra	twin				X	
130	10"	Scotch Pine	Pinus sylvestris				X		
131	10"	Scotch Pine	Pinus sylvestris				X		
132	7"	Red Oak	Quercus rubra					X	
133	10"	Black Cherry	Prunus serotina					X	
134	6"	Black Cherry	Prunus serotina					X	
135	13"	Black Cherry	Prunus serotina					X	
136	34"	Red Oak	Quercus rubra					X	
137	20"	Red Oak	Quercus rubra					X	
138	10"	White Oak	Quercus alba					X	
139	13"	White Oak	Quercus alba	triple				X	
140	16"	White Oak	Quercus alba					X	
141	6"	Pignut Hickory	Carya glabra	twin				X	
142	26"	White Oak	Quercus alba		POOR			X	
143	18"	White Oak	Quercus alba					X	
144	13"	White Oak	Quercus alba					X	
145	23"	Pignut Hickory	Carya glabra					X	
146	9"	Sweet Cherry	Prunus avuim				X		
147	6"	Sweet Cherry	Prunus avuim				X		
148	23"	White Oak	Quercus alba					X	
149	30"	Red Oak	Quercus rubra					X	
150	9"	Black Cherry	Prunus serotina					X	
151	8"	American Elm	Ulmus americana					X	
152	6"	Shagbark Hickory	Carya ovata					X	
153	8"	Shagbark Hickory	Carya ovata					X	
154	7"	Sweet Cherry	Prunus avuim				X		
155	8"	Black Cherry	Prunus serotina					X	
156	7"	Black Cherry	Prunus serotina					X	
157	10"	Black Cherry	Prunus serotina					X	
158	9"	Shagbark Hickory	Carya ovata					X	
159	10"	Red Oak	Quercus rubra					X	
160	6"	Red Oak	Quercus rubra					X	
161	17"	Red Oak	Quercus rubra					X	
162	8"	Black Cherry	Prunus serotina					X	
163	9"	Black Cherry	Prunus serotina					X	
164	20"	Red Oak	Quercus rubra				X		X
165	7"	White Oak	Quercus alba					X	X
166	9"	Shagbark Hickory	Carya ovata					X	X
167	12"	Scotch Pine	Pinus sylvestris				X		X
168	8"	Shagbark Hickory	Carya ovata					X	X
169	16"	Red Oak	Quercus rubra					X	X
170	17"	Red Oak	Quercus rubra					X	X
171	7"	White Oak	Quercus alba					X	X
172	7"	Shagbark Hickory	Carya ovata					X	X
173	14"	Black Cherry	Prunus serotina	twin				X	X
174	15"	Black Cherry	Prunus serotina	triple				X	X
175	7"	White Mulberry	Morus alba				X		X
176	8"	Black Cherry	Prunus serotina					X	X
177	6"	Red Maple	Acer rubrum					X	X
178	8"	Black Cherry	Prunus serotina					X	X
179	20"	Red Oak	Quercus rubra					X	X
180	13"	Red Oak	Quercus rubra					X	X
181	16"	Black Cherry	Prunus serotina					X	X
182	10"	Black Cherry	Prunus serotina	twin				X	X
183	19"	Black Cherry	Prunus serotina					X	X
184	19"	Red Oak	Quercus rubra				X		X

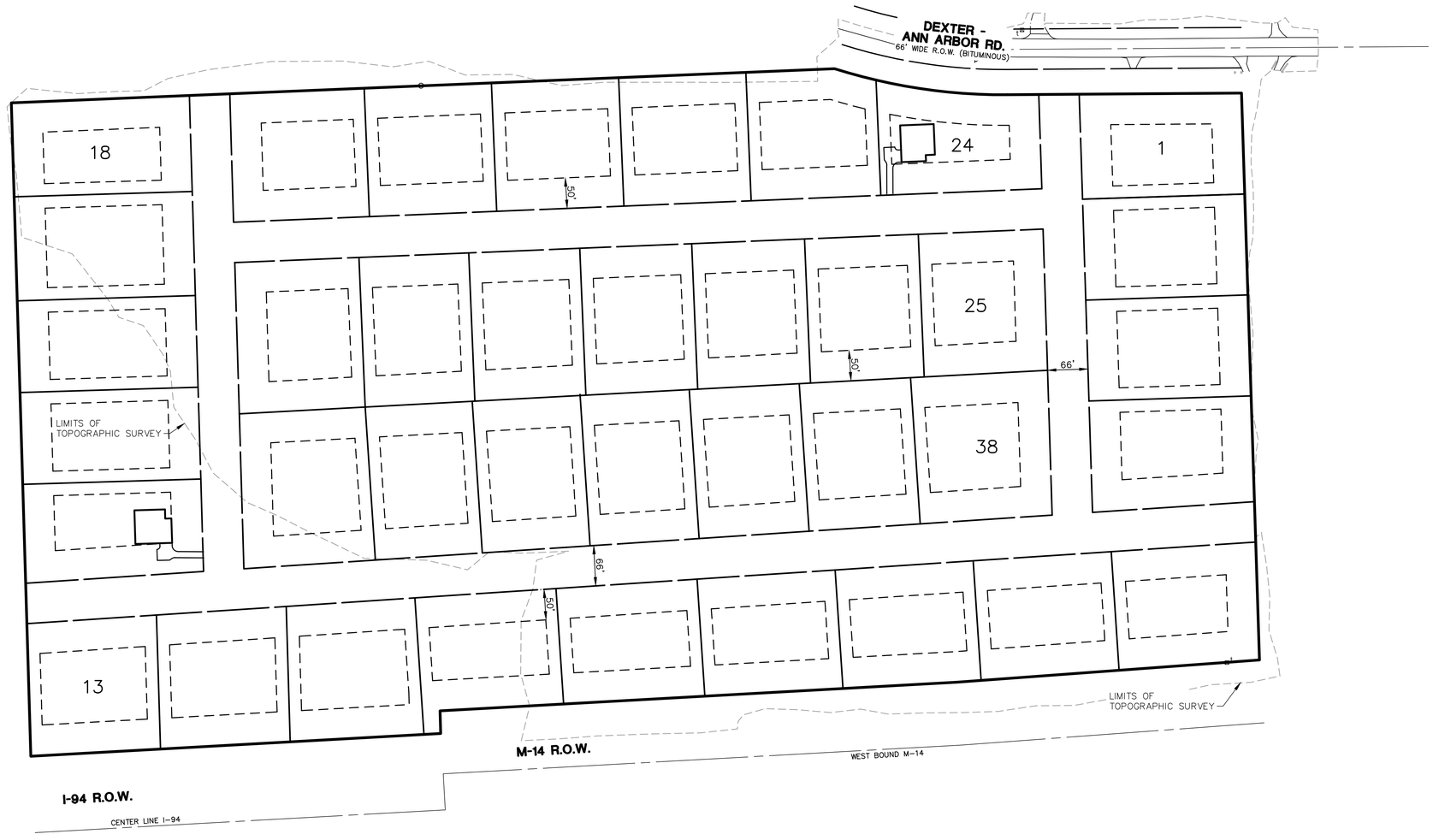
TAG	DBH	COMMON NAME	GENUS/SPECIES	STEMS	HEALTH	INV	LM	PROTECTED	REMOVAL
185	13"	Black Cherry	Prunus serotina	twin	FAIR			X	X
186	17"	Black Cherry	Prunus serotina					X	X
187	14"	Black Cherry	Prunus serotina					X	X
188	11"	Black Cherry	Prunus serotina					X	X
189	14"	Black Cherry	Prunus serotina	triple	FAIR			X	X
190	11"	Black Cherry	Prunus serotina	twin				X	X
191	14"	Black Cherry	Prunus serotina	twin				X	X
192	17"	Black Cherry	Prunus serotina					X	X
193	15"	Black Cherry	Prunus serotina					X	X
194	11"	Black Cherry	Prunus serotina	twin				X	X
195	22"	Red Oak	Quercus rubra				X		X
196	17"	Red Oak	Quercus rubra					X	X
197	13"	Black Cherry	Prunus serotina					X	X
198	8"	Common Apple	Malus pumila					X	X
199	9"	Common Apple	Malus pumila					X	
200	7"	Common Apple	Malus pumila	twin				X	
201	7"	Common Apple	Malus pumila	twin				X	X
202	8"	Common Apple	Malus pumila					X	
203	7"	Black Cherry	Prunus serotina					X	
204	6"	Black Cherry	Prunus serotina					X	
205	10"	Black Cherry	Prunus serotina					X	
206	7"	Black Cherry	Prunus serotina					X	
207	9"	Common Apple	Malus pumila					X	
208	14"	Black Cherry	Prunus serotina					X	
209	6"	Black Cherry	Prunus serotina					X	
210	13"	Black Cherry	Prunus serotina					X	
211	17"	Red Oak	Quercus rubra					X	X
212	11"	Black Cherry	Prunus serotina					X	
213	7"	Black Cherry	Prunus serotina					X	
214	11"	Common Apple	Malus pumila					X	
215	10"	Black Cherry	Prunus serotina					X	
216	9"	Black Cherry	Prunus serotina					X	
217	8"	Black Cherry	Prunus serotina					X	X
218	9"	Scotch Pine	Pinus sylvestris					X	X
219	13"	Black Cherry	Prunus serotina					X	X
220	15"	Red Oak	Quercus rubra					X	X
221	14"	Red Oak	Quercus rubra					X	
222	7"	Red Oak	Quercus rubra					X	
223	6"	Black Cherry	Prunus serotina					X	
224	7"	Shagbark Hickory	Carya ovata					X	
225	15"	Red Oak	Quercus rubra					X	
226	18"	Red Oak	Quercus rubra					X	
227	13"	Red Oak	Quercus rubra					X	
228	8"	Shagbark Hickory	Carya ovata					X	
229	23"	Shagbark Hickory	Carya ovata					X	
230	12"	Shagbark Hickory	Carya ovata					X	
231	21"	Black Cherry	Prunus serotina					X	
232	8"	Black Cherry	Prunus serotina					X	
233	20"	Pignut Hickory	Carya glabra				X		
234	26"	White Oak	Quercus alba				X		
235	14"	White Oak	Quercus alba					X	
236	24"	White Oak	Quercus alba				X		
237	17"	Shagbark Hickory	Carya ovata					X	
238	10"	Sweet Cherry	Prunus avuim				X		
239	13"	Black Cherry	Prunus serotina					X	
240	8"	Sassafras	Sassafras albidum					X	
241	18"	Red Oak	Quercus rubra				X		
242	13"	Red Oak	Quercus rubra					X	
243	7"	Shagbark Hickory	Carya ovata					X	
244	11"	Red Oak	Quercus rubra					X	
245	6"	Red Oak	Quercus rubra					X	
246	12"	Red Oak	Quercus rubra					X	
247	16"	Red Oak	Quercus rubra					X	
248	11"	Red Oak	Quercus rubra					X	
249	21"	Red Oak	Quercus rubra					X	
250	11"	Black Cherry	Prunus serotina	twin				X	
251	10"	Black Cherry	Prunus serotina					X	
252	6"	Black Cherry	Prunus serotina					X	
253	7"	Black Cherry	Prunus serotina					X	
254	12"	Black Cherry	Prunus serotina					X	
255	6"	Common Apple	Malus pumila					X	
256	13"	Black Cherry	Prunus serotina					X	
257	9"	Common Apple	Malus pumila					X	
258	10"	Black Cherry	Prunus serotina					X	
259	8"	Common Apple	Malus pumila					X	
260	8"	Common Apple	Malus pumila					X	
261	7"	Dogwood	Cornus florida	twin				X	
262	7"	Common Apple	Malus pumila	twin				X	
263	9"	Common Apple	Malus pumila	twin				X	
264	11"	Black Cherry	Prunus serotina					X	
265	8"	Common Apple	Malus pumila					X	
266	7"	Common Apple	Malus pumila					X	
267	15"	Black Cherry	Prunus serotina	twin				X	
268	9"	Common Apple	Malus pumila					X	
269	7"	Wild Plum	Prunus americana					X	
270	9"	Common Apple	Malus pumila	twin				X	
271	10"	Common Apple	Malus pumila					X	
272	9"	Black Cherry	Prunus serotina					X	
273	16"	Black Cherry	Prunus serotina					X	
274	12"	Black Cherry	Prunus serotina					X	
275	9"	Common Apple	Malus pumila	twin				X	
276	9"	Black Cherry	Prunus serotina	twin				X	
277	7"	Dogwood	Cornus florida	twin				X	
278	6"	Common Apple	Malus pumila					X	
279	8"	Common Apple	Malus pumila					X	
280	12"	Dogwood	Cornus florida				X		
281	20"	Black Cherry	Prunus serotina				X		
282	7"	Common Apple	Malus pumila					X	
283	8"	Common Apple	Malus pumila	twin				X	
284	6"	Common Apple	Malus pumila	quad				X	
285	7"	Wild Plum	Prunus americana					X	
286	8"	Common Apple	Malus pumila					X	
287	11"	Common Apple	Malus pumila					X	
288	7"	Wild Plum	Prunus americana	twin				X	
289	11"	Wild Plum	Prunus americana					X	
290	18"	Black Cherry	Prunus serotina	twin				X	
291	14"	Black Cherry	Prunus serotina	twin				X	
292	9"	Common Apple	Malus pumila					X	
293	7"	Black Cherry	Prunus serotina					X	
294	22"	Red Oak	Quercus rubra				X		
295	10"	Shagbark Hickory	Carya ovata					X	
296	10"	Shagbark Hickory	Carya ovata					X	
297	6"	Black Cherry	Prunus serotina					X	
298	7"	Common Apple	Malus pumila	twin				X	
299	11"	Red Oak	Quercus rubra					X	
300	6"	Shagbark Hickory	Carya ovata					X	
301	31"	Black Cherry	Prunus serotina		POOR		X		
302	25"	White Oak	Quercus alba				X		
303	11"	Black Cherry	Prunus serotina	twin				X	
304	29"	Red Oak	Quercus rubra				X		
305	18"	Red Oak	Quercus rubra		FAIR			X	
306	13"	Red Oak	Quercus rubra	twin				X	
307	7"	Black Cherry	Prunus serotina					X	
308	9"	Shagbark Hickory	Carya ovata					X	
309	13"	Black Cherry	Prunus serotina					X	
310	7"	Scotch Pine	Pinus sylvestris				X		
311	13"	Red Oak	Quercus rubra					X	
312	7"	Red Oak	Quercus rubra					X	
313	11"	Common Apple	Malus pumila					X	
314	8"	Common Apple	Malus pumila	twin				X	
315	8"	Common Apple	Malus pumila					X	
316	7"	Common Apple	Malus pumila					X	
317	7"	Common Apple	Malus pumila					X	
318	11"	Common Apple	Malus pumila					X	
319	8"	Common Apple	Malus pumila					X	
320	10"	Wild Plum	Prunus americana					X	
321	9"	Common Apple	Malus pumila	twin				X	
322	10"	Black Cherry	Prunus serotina					X	
323	6"	Black Cherry	Prunus serotina					X	
324	17"	Black Cherry	Prunus serotina					X	
325	22"	Black Cherry	Prunus serotina		POOR		X		
326	10"	White Mulberry	Morus alba					X	
327	10"	Scotch Pine	Pinus sylvestris	triple			X		
328	11"	Box Elder	Acer negundo				X		
329	9"	Box Elder	Acer negundo				X		
330	7"	Common Apple	Malus pumila	triple			X		
331	14"	American Elm	Ulmus americana				X		X
332	11"	Black Cherry	Prunus serotina	twin					X
333	15"	Black Cherry	Prunus serotina				X		X
334	9"	White Mulberry	Morus alba				X		X
335	8"	White Mulberry	Morus alba				X		X
336	17"	Black Cherry	Prunus serotina				X		X
337	17"	Black Cherry	Prunus serotina				X		X
338	17"	Black Cherry	Prunus serotina				X		X
339	19"	American Elm	Ulmus americana				X	X	X
340	16"	American Elm	Ulmus americana					X	
341	19"	American Elm	Ulmus americana				X		
342	12"	Scotch Pine	Pinus sylvestris	twin			X		X
343	7"	Black Cherry	Prunus serotina	twin				X	X
344	9"	Box Elder	Acer negundo				X		X
345	11"	Red Cedar	Juniperus virginiana					X	
346	17"	Black Cherry	Prunus serotina	twin				X	
347	13"	Black Cherry	Prunus serotina					X	
348	9"	Box Elder	Acer negundo				X		
349	14"	American Elm	Ulmus americana					X	
350	13"	Silver Maple	Acer saccharinum	twin				X	
351	13"	Silver Maple	Acer saccharinum					X	
352	11"	American Elm	Ulmus americana					X	
353	13"	Black Cherry	Prunus serotina	twin				X	
354	6"	Silver Maple	Acer saccharinum					X	
355	9"	Scotch Pine	Pinus sylvestris				X		
356	9"	American Elm	Ulmus americana					X	
357	6"	Red Cedar	Juniperus virginiana					X	
358	7"	Common Apple	Malus pumila	quad				X	
359	11"	Black Cherry	Prunus serotina					X	
360	16"	American Elm	Ulmus americana					X	
361	12"	Silver Maple	Acer saccharinum					X	
362	9"	Scotch Pine	Pinus sylvestris				X		
363	9"	Scotch Pine	Pinus sylvestris				X		
364	9"	Scotch Pine	Pinus sylvestris				X		
365	7"	Scotch Pine	Pinus sylvestris				X		
366	11"	Scotch Pine	Pinus sylvestris				X		
367	7"	Black Cherry	Prunus serotina					X	X
368	11"	Silver Maple	Acer saccharinum	twin				X	X

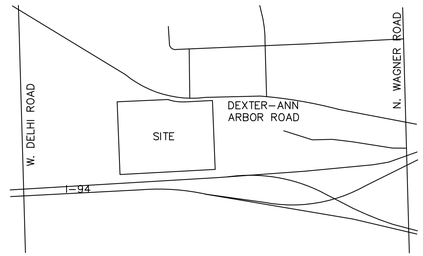
TAG	DBH	COMMON NAME	GENUS/SPECIES	STEMS	HEALTH	INV	LM	PROTECTED	REMOVAL
369	9"	Black Cherry	Prunus serotina					X	X
370	12"	Silver Maple	Acer saccharinum					X	X
371	16"	American Elm	Ulmus americana					X	X
372	9"	American Elm	Ulmus americana					X	X
373	16"	Black Cherry	Prunus serotina					X	X
374	14"	Silver Maple	Acer saccharinum	twin				X	X
375	9"	Scotch Pine	Pinus sylvestris			X			
376	10"	Scotch Pine	Pinus sylvestris			X			
377	10"	Scotch Pine	Pinus sylvestris			X			
378	10"	American Elm	Ulmus americana					X	X
379	13"	Silver Maple	Acer saccharinum	twin				X	X
380	9"	Scotch Pine	Pinus sylvestris			X			
381	9"	Black Cherry	Prunus serotina	twin	POOR			X	X
382	16"	American Elm	Ulmus americana		POOR			X	X
383	18"	Black Cherry	Prunus serotina	twin	POOR			X	X
384	8"	Box Elder	Shagbark Hickory			X			
385		Lost Tag	Lost Tag						
386	17"	American Elm	Ulmus americana		POOR			X	X
387	12"	Black Cherry	Prunus serotina					X	X
388	17"	Black Cherry	Prunus serotina					X	X
389	17"	Black Cherry	Prunus serotina					X	X
390	9"	Black Cherry	Prunus serotina					X	X
391	17"	Black Cherry	Prunus serotina					X	X
392	10"	American Elm	Ulmus americana					X	
393	10"	Silver Maple	Acer saccharinum					X	X
394	8"	Scotch Pine	Pinus sylvestris			X			
395	10"	Scotch Pine	Pinus sylvestris			X			
396	7"	Black Cherry	Prunus serotina					X	X
397	6"	Silver Maple	Acer saccharinum	twin				X	X
398	12"	Black Cherry	Prunus serotina					X	X
399	8"	Black Cherry	Prunus serotina					X	X
400	10"	American Elm	Ulmus americana					X	X
401	10"	American Elm	Ulmus americana					X	X
402	9"	Scotch Pine	Pinus sylvestris			X			
403	6"	Scotch Pine	Pinus sylvestris			X			
404	20"	American Elm	Ulmus americana				X	X	X
405	6"	Scotch Pine	Pinus sylvestris			X			
406	10"	Red Cedar	Juniperus virginiana					X	
407	11"	American Elm	Ulmus americana					X	
408	12"	Black Cherry	Prunus serotina					X	
409	8"	Scotch Pine	Pinus sylvestris			X			
410	7"	Scotch Pine	Pinus sylvestris			X			
411	8"	Scotch Pine	Pinus sylvestris			X			
412	6"	Scotch Pine	Pinus sylvestris			X			
413	9"	Scotch Pine	Pinus sylvestris			X			
414	8"	Scotch Pine	Pinus sylvestris			X			
415	8"	Scotch Pine	Pinus sylvestris			X			
416	13"	White Pine	Pinus strobus					X	
417	15"	White Pine	Pinus strobus					X	
418	7"	Black Cherry	Prunus serotina					X	
419	16"	Silver Maple	Acer saccharinum	twin				X	
420	11"	White Pine	Pinus strobus					X	
421	11"	White Pine	Pinus strobus					X	
422	17"	American Elm	Ulmus americana					X	X
423	8"	Black Cherry	Prunus serotina	triple				X	
424	8"	Scotch Pine	Pinus sylvestris			X			
425	13"	Silver Maple	Acer saccharinum					X	X
426	9"	Silver Maple	Acer saccharinum	twin				X	
427	13"	Siberian Elm	Ulmus pumila			X			
428	9"	Scotch Pine	Pinus sylvestris			X			
429	11"	Silver Maple	Acer saccharinum	twin				X	
430	7"	Scotch Pine	Pinus sylvestris			X			
431	11"	Silver Maple	Acer saccharinum	twin				X	
432	10"	Silver Maple	Acer saccharinum					X	
433	17"	Box Elder	Acer negundo			X			
434	8"	Box Elder	Acer negundo			X			
435	8"	Scotch Pine	Pinus sylvestris			X			
436	20"	Black Cherry	Prunus serotina				X	X	X
437	6"	Silver Maple	Acer saccharinum					X	X
438	14"	White Pine	Pinus strobus					X	X
439	7"	Box Elder	Acer negundo			X			
440	15"	Silver Maple	Acer saccharinum	twin				X	X
441	11"	Silver Maple	Acer saccharinum	twin				X	X
442	8"	Silver Maple	Acer saccharinum					X	X
443	12"	Silver Maple	Acer saccharinum					X	X
444	7"	Red Cedar	Juniperus virginiana					X	X
445	12"	Silver Maple	Acer saccharinum					X	X
446	8"	Silver Maple	Acer saccharinum	twin				X	X
447	18"	White Pine	Pinus strobus			X			
448	9"	Siberian Elm	Ulmus pumila			X			
449	11"	American Elm	Ulmus americana					X	X
450	8"	Siberian Elm	Ulmus pumila			X			
451	11"	Silver Maple	Acer saccharinum					X	X
452	16"	White Pine	Pinus strobus					X	X
453	13"	Silver Maple	Acer saccharinum					X	X
454	11"	Silver Maple	Acer saccharinum					X	X
455	6"	Scotch Pine	Pinus sylvestris			X			
456	14"	White Pine	Pinus strobus					X	X
457	8"	Scotch Pine	Pinus sylvestris			X			
458	6"	Scotch Pine	Pinus sylvestris			X			
459	10"	Scotch Pine	Pinus sylvestris			X			
460	9"	Scotch Pine	Pinus sylvestris			X			
461	7"	Crab Apple	Malus coronaria	twin				X	X
462	11"	Black Cherry	Prunus serotina	twin				X	X
463	14"	Black Cherry	Prunus serotina	twin				X	X
464	15"	Black Cherry	Prunus serotina	twin				X	X
465	13"	Black Cherry	Prunus serotina					X	X
466	15"	Black Cherry	Prunus serotina	triple				X	X
467	9"	Black Cherry	Prunus serotina	twin				X	X
468	7"	White Pine	Pinus strobus					X	X
469	11"	American Elm	Ulmus americana					X	X
470	10"	American Elm	Ulmus americana					X	X
471	10"	American Elm	Ulmus americana					X	
472	15"	Silver Maple	Acer saccharinum					X	X
473	9"	White Mulberry	Morus alba			X			
474	14"	Black Cherry	Prunus serotina	twin				X	X
475	29"	Black Cherry	Prunus serotina			X			
476	12"	Black Cherry	Prunus serotina					X	X
477	21"	Black Cherry	Prunus serotina		FAIR			X	X
478	9"	Black Cherry	Prunus serotina					X	X
479	6"	Crab Apple	Malus coronaria					X	
480	9"	Sassafras	Sassafras albidum					X	X
481	7"	Sassafras	Sassafras albidum					X	X
482	8"	Sassafras	Sassafras albidum					X	X
483	7"	Sassafras	Sassafras albidum					X	X
484	7"	Silver Maple	Acer saccharinum	twin				X	X
485	8"	American Elm	Ulmus americana				

TAG	DBH	COMMON NAME	GENUS/SPECIES	STEMS	HEALTH	INV	LM	PROTECTED	REMOVAL
921	10"	American Elm	Ulmus americana					X	
922	13"	Sweet Cherry	Prunus avuim			X			
923	15"	Black Cherry	Prunus serotina					X	
924	13"	Black Cherry	Prunus serotina					X	
925	13"	American Elm	Ulmus americana					X	
926	9"	Sweet Cherry	Prunus avuim			X			
927	9"	American Elm	Ulmus americana					X	
928	11"	Sweet Cherry	Prunus avuim			X			
929	11"	Sweet Cherry	Prunus avuim			X			
930	12"	Sweet Cherry	Prunus avuim			X			
931	13"	Sweet Cherry	Prunus avuim			X			
932	6"	Sweet Cherry	Prunus avuim			X			
933	9"	Sweet Cherry	Prunus avuim			X			
934	6"	American Elm	Ulmus americana					X	
935	12"	Black Walnut	Juglans nigra					X	
936	13"	American Elm	Ulmus americana					X	
937	15"	Sassafras	Sassafras albidum				X		
938	8"	Sassafras	Sassafras albidum					X	
939	9"	Black Cherry	Prunus serotina					X	
940	8"	Sassafras	Sassafras albidum					X	
941	10"	Sassafras	Sassafras albidum					X	
942	8"	Sassafras	Sassafras albidum					X	
943	8"	Sassafras	Sassafras albidum					X	
944	7"	Sassafras	Sassafras albidum					X	
945	8"	Sassafras	Sassafras albidum					X	
946	11"	Sassafras	Sassafras albidum					X	
947	11"	Black Cherry	Prunus serotina	twin	POOR			X	
948	7"	Black Cherry	Prunus serotina					X	
949	11"	Black Cherry	Prunus serotina					X	
950	8"	Black Cherry	Prunus serotina					X	
951	11"	Black Cherry	Prunus serotina					X	
952	9"	Black Cherry	Prunus serotina					X	
953	7"	Red Oak	Quercus rubra					X	
954	7"	White Oak	Quercus alba					X	
955	29"	White Oak	Quercus alba				X		
956	18"	Black Cherry	Prunus serotina					X	
957	22"	White Oak	Quercus alba				X		
958	9"	Sweet Cherry	Prunus avuim			X			
959	24"	White Oak	Quercus alba				X		
960	8"	Sweet Cherry	Prunus avuim			X			
961	21"	White Oak	Quercus alba				X		
962	9"	Black Cherry	Prunus serotina					X	
963	15"	White Oak	Quercus alba					X	
964	7"	American Elm	Ulmus americana					X	
965	19"	Pignut Hickory	Carya glabra				X		
966	9"	Sassafras	Sassafras albidum					X	
967	17"	White Oak	Quercus alba					X	
968	8"	Black Cherry	Prunus serotina					X	
969	21"	Pignut Hickory	Carya glabra				X		
970	12"	Linden	Tilia americana					X	
971	9"	Black Cherry	Prunus serotina					X	
972	10"	Black Cherry	Prunus serotina					X	
973	7"	Red Maple	Acer rubrum					X	
974	17"	White Oak	Quercus alba					X	
975	13"	White Oak	Quercus alba					X	
976	10"	Black Cherry	Prunus serotina					X	
977	15"	Black Cherry	Prunus serotina					X	
978	6"	Red Maple	Acer rubrum					X	
979	7"	Black Cherry	Prunus serotina					X	
980	21"	Pignut Hickory	Carya glabra		POOR			X	
981	15"	Pignut Hickory	Carya glabra					X	
982	13"	White Oak	Quercus alba					X	
983	10"	Silver Maple	Acer saccharinum					X	
984	15"	White Oak	Quercus alba					X	
985	10"	Black Cherry	Prunus serotina					X	
986	8"	Black Cherry	Prunus serotina					X	
987	9"	Shagbark Hickory	Carya ovata					X	
988	19"	Pignut Hickory	Carya glabra				X		
989	6"	Black Cherry	Prunus serotina					X	
990	7"	Black Cherry	Prunus serotina					X	
991	8"	Red Maple	Acer rubrum					X	
992	7"	American Elm	Ulmus americana					X	
993	8"	Red Maple	Acer rubrum					X	
994	9"	Linden	Tilia americana					X	
995	20"	Linden	Tilia americana				X		
996	8"	Linden	Tilia americana					X	
997	18"	Red Oak	Quercus rubra				X		
998	9"	American Elm	Ulmus americana					X	
999	10"	Black Cherry	Prunus serotina					X	
1000	10"	Black Cherry	Prunus serotina					X	
1401	15"	American Elm	Ulmus americana					X	
1402	11"	Silver Maple	Acer saccharinum					X	
1403	12"	Silver Maple	Acer saccharinum					X	
1404	12"	Silver Maple	Acer saccharinum					X	
1405	10"	Silver Maple	Acer saccharinum					X	
1406	6"	Silver Maple	Acer saccharinum					X	
1407	7"	Linden	Tilia americana					X	
1408	14"	Linden	Tilia americana					X	
1409	7"	Linden	Tilia americana					X	
1410	12"	Linden	Tilia americana					X	
1411	11"	Shagbark Hickory	Carya ovata					X	
1412	6"	Red Maple	Acer rubrum					X	
1413	8"	Red Maple	Acer rubrum					X	
1414	9"	Silver Maple	Acer saccharinum					X	
1415	12"	Black Cherry	Prunus serotina					X	
1416	15"	Shagbark Hickory	Carya ovata					X	
1417	15"	Black Cherry	Prunus serotina					X	
1418	8"	Shagbark Hickory	Carya ovata					X	
1419	14"	Black Cherry	Prunus serotina					X	
1420	7"	Silver Maple	Acer saccharinum					X	
1421	13"	Black Cherry	Prunus serotina					X	
1422	10"	Silver Maple	Acer saccharinum					X	
1423	17"	Silver Maple	Acer saccharinum					X	
1424	16"	Silver Maple	Acer saccharinum					X	
1425	14"	Silver Maple	Acer saccharinum					X	
1426	22"	White Oak	Quercus alba				X		
1427	8"	Silver Maple	Acer saccharinum					X	
1428	14"	Black Cherry	Prunus serotina					X	
1429	17"	Black Cherry	Prunus serotina					X	
1430	14"	Silver Maple	Acer saccharinum					X	
1431	9"	Black Cherry	Prunus serotina		POOR			X	
1432	10"	Black Cherry	Prunus serotina					X	
1433	8"	Silver Maple	Acer saccharinum					X	
1434	18"	Shagbark Hickory	Carya ovata				X		
1435	17"	Shagbark Hickory	Carya ovata					X	
1436	18"	Sweet Cherry	Prunus avuim			X			
1437	18"	Silver Maple	Acer saccharinum		POOR			X	
1438	9"	Sweet Cherry	Prunus avuim			X			
1439	14"	Shagbark Hickory	Carya ovata					X	
1440	18"	Pin Oak	Quercus palustris				X		
1441	8"	Silver Maple	Acer saccharinum					X	
1442	21"	White Oak	Quercus alba				X		
1443	6"	Pin Oak	Quercus palustris					X	
1444	7"	Sweet Cherry	Prunus avuim			X			
1445	9"	Red Maple	Acer rubrum					X	
1446	8"	Red Maple	Acer rubrum					X	
1447	15"	Black Cherry	Prunus serotina					X	
1448	6"	Silver Maple	Acer saccharinum					X	
1449	12"	Black Cherry	Prunus serotina					X	
1450	7"	Sweet Cherry	Prunus avuim			X			
1451	8"	Sweet Cherry	Prunus avuim			X			
1452	17"	Pignut Hickory	Carya glabra					X	
1453	21"	Pin Oak	Quercus palustris				X		
1454	17"	Silver Maple	Acer saccharinum					X	
1455	18"	Pin Oak	Quercus palustris				X		
1456	19"	Pin Oak	Quercus palustris				X		
1457	6"	Red Maple	Acer rubrum					X	
1458	7"	Red Maple	Acer rubrum					X	
1459	9"	Silver Maple	Acer saccharinum					X	
1460	15"	Sassafras	Sassafras albidum		POOR			X	
1461	9"	Red Maple	Acer rubrum					X	
1462	19"	White Oak	Quercus alba				X		
1463	13"	White Oak	Quercus alba					X	
1464	12"	Silver Maple	Acer saccharinum					X	
1465	12"	Pin Oak	Quercus palustris					X	
1466	18"	Pignut Hickory	Carya glabra				X		
1467	7"	Black Cherry	Prunus serotina					X	
1468	8"	Silver Maple	Acer saccharinum					X	
1469	10"	Black Cherry	Prunus serotina					X	
1470	26"	Pin Oak	Quercus palustris				X		
1471	7"	Pin Oak	Quercus palustris					X	
1472	8"	Pignut Hickory	Carya glabra					X	
1473	8"	Black Cherry	Prunus serotina					X	
1474	7"	Sassafras	Sassafras albidum					X	
1475	8"	Red Maple	Acer rubrum					X	
1476	11"	Black Cherry	Prunus serotina					X	
1477	13"	Pignut Hickory	Carya glabra					X	
1478	6"	Silver Maple	Acer saccharinum					X	
1479	15"	Pin Oak	Quercus palustris					X	
1480	9"	Black Cherry	Prunus serotina					X	
1481	14"	Pignut Hickory	Carya glabra					X	
1482	17"	Pignut Hickory	Carya glabra					X	
1483	14"	Pin Oak	Quercus palustris					X	
1484	6"	Red Maple	Acer rubrum					X	
1485	6"	Red Maple	Acer rubrum					X	
1486	15"	Black Cherry	Prunus serotina					X	
1487	14"	Shagbark Hickory	Carya ovata					X	
1488	6"	Red Maple	Acer rubrum					X	
1489	10"	Black Cherry	Prunus serotina					X	
1490	11"	Silver Maple	Acer saccharinum					X	
1491	13"	Silver Maple	Acer saccharinum					X	
1492	20"	Pignut Hickory	Carya glabra				X		
1493	11"	Black Cherry	Prunus serotina					X	
1494	12"	Silver Maple	Acer saccharinum					X	
1495	11"	Silver Maple	Acer saccharinum					X	
1496	6"	Silver Maple	Acer saccharinum					X	
1497	9"	Pin Oak	Quercus palustris					X	
1498	8"	American Elm	Ulmus americana					X	
1499	7"	Black Cherry	Prunus serotina					X	
1500	20"	Shagbark Hickory	Carya ovata				X		
1501	14"	Black Cherry	Prunus serotina					X	
1502	7"	Sweet Cherry	Prunus avuim			X			
1503	7"	Silver Maple	Acer saccharinum					X	
1504	6"	American Elm	Ulmus americana					X	

TAG	DBH	COMMON NAME	GENUS/SPECIES	STEMS	HEALTH	INV	LM	PROTECTED	REMOVAL
1505	13"	Linden	Tilia americana					X	
1506	14"	Tree-of-heaven	Ailanthus altissima			X			
1507	9"	White Oak	Quercus alba					X	
1508	15"	White Oak	Quercus alba					X	
1509	19"	Shagbark Hickory	Carya ovata				X		
1510	7"	Shagbark Hickory	Carya ovata					X	
1511	9"	Shagbark Hickory	Carya ovata					X	
1512	6"	Sugar Maple	Acer saccharum					X	
1513	6"	Sassafras	Sassafras albidum					X	
1514	13"	Shagbark Hickory	Carya ovata					X	
1515	14"	Black Cherry	Prunus serotina					X	
1516	10"	Silver Maple	Acer saccharinum					X	
1517	10"	Sassafras	Sassafras albidum					X	
1518	11"	Shagbark Hickory	Carya ovata					X	
1519	21"	Shagbark Hickory	Carya ovata				X		
1520	11"	Shagbark Hickory	Carya ovata					X	
1521	9"	Sassafras	Sassafras albidum					X	
1522	15"	White Oak	Quercus alba					X	
1523	6"	Linden	Tilia americana	twin				X	
1524	7"	Sugar Maple	Acer saccharum					X	
1525	19"	Pignut Hickory	Carya glabra				X		
1526	8"	Black Cherry	Prunus serotina					X	
1527	6"	Sugar Maple	Acer saccharum					X	
1528	19"	American Elm	Ulmus americana				X		
1529	19"	Shagbark Hickory	Carya ovata				X		
1530	12"	Sassafras	Sassafras albidum					X	
1531	15"	Shagbark Hickory	Carya ovata					X	
1532	8"	Sugar Maple	Acer saccharum					X	
1533	11"	Black Cherry	Prunus serotina					X	
1534	20"	White Oak	Quercus alba				X		
1535	8"	American Elm	Ulmus americana					X	
1536	19"	White Oak	Quercus alba		POOR		X		
1537	21"	White Oak	Quercus alba		POOR		X		
1538	16"	Black Cherry	Prunus serotina					X	
1539	6"	Shagbark Hickory	Carya ovata					X	
1540	11"	Sassafras	Sassafras albidum					X	
1541	8"	Sassafras	Sassafras albidum					X	
1542	6"	Shagbark Hickory	Carya ovata					X	
1543	8"	Sassafras	Sassafras albidum					X	
1544	19"	White Oak	Quercus alba				X		
1545	16"	Shagbark Hickory	Carya ovata					X	
1546	9"	Silver Maple	Acer saccharinum					X	
1547	7"	Sweet Cherry	Prunus avuim			X			
1548	20"	White Oak	Quercus alba		POOR		X		
1549	24"	Pin Oak	Quercus palustris				X		
1550	8"	Red Maple	Acer rubrum					X	
1551	7"	Sweet Cherry	Prunus avuim			X			
1552	10"	Black Cherry	Prunus serotina					X	
1553	7"	Red Maple	Acer rubrum					X	
1554	7"	Black Cherry	Prunus serotina					X	
1555	7"	Red Maple	Acer rubrum					X	
1556	16"	Pignut Hickory	Carya glabra					X	
1557	17"	Shagbark Hickory	Carya ovata					X	
1558	13"	Shagbark Hickory	Carya ovata					X	
1559	18"	White Oak	Quercus alba				X		
1560	16"	White Oak	Quercus alba					X	
1561	22"	White Oak	Quercus alba				X		
1562	12"	Sassafras	Sassafras albidum					X	
1563	6"	Silver Maple	Acer saccharinum					X	
1564	11"	Silver Maple	Acer saccharinum					X	
1565	7"	Sassafras	Sassafras albidum					X	
1566	11"	Sassafras	Sassafras albidum					X	
1567	13"	Silver Maple	Acer saccharinum					X	
1568	17"	Silver Maple	Acer saccharinum					X	
1569	20"	Silver Maple	Acer saccharinum					X	
1570	11"	Black Cherry	Prunus serotina					X	
1571	10"	Silver Maple	Acer saccharinum					X	
1572	16"	Pin Oak	Quercus palustris					X	
1573	6"	Black Cherry	Prunus serotina					X	
1574	7"	Shagbark Hickory	Carya ovata					X	
1575	8"	Pin Oak	Quercus palustris					X	
1576	6"	Hop-Hornbeam	Ostrya virginiana					X	
1577	13"	Silver Maple	Acer saccharinum					X	
1578	23"	Silver Maple	Acer saccharinum					X	
1579	21"	Sugar Maple	Acer saccharum				X		
1580	6"	Black Cherry	Prunus serotina					X	
1581	18"	Black Cherry	Prunus serotina					X	
1582	12"	Shagbark Hickory	Carya ovata					X	
1583	6"	Silver Maple	Acer saccharinum					X	
1584	12"	Silver Maple	Acer saccharinum					X	
1585	9"	Black Cherry	Prunus serotina					X	
1586	14"	Black Cherry	Prunus serotina					X	
1587	6"	American Elm	Ulmus americana					X	
1588	16"	Silver Maple	Acer saccharinum					X	
1589	12"	Sassafras	Sassafras albidum				X		
1590	18"	Black Cherry	Prunus serotina					X	
1591	17"	Black Cherry	Prunus serotina					X	
1592	8"	American Elm	Ulmus americana					X	
1593	10"	Sugar Maple	Acer saccharum					X	
1594	9"	Black Cherry	Prunus serotina					X	
1595	9"	Pin Oak	Quercus palustris					X	
1596	8"	Sugar Maple	Acer saccharum					X	
1597	21"	White Oak	Quercus alba				X		
1598	10"	Sugar Maple	Acer saccharum					X	
1599	15"	Linden	Tilia americana					X	
1600	17"	White Oak	Quercus alba					X	
1601	7"	Sugar Maple	Acer saccharum					X	
1602	16"	Black Cherry	Prunus serotina					X	
1603	9"	Black Cherry	Prunus serotina					X	
1604	10"	Sugar Maple	Acer saccharum					X	
1605	7"	Sugar Maple	Acer saccharum					X	
1606	9"	Black Cherry	Prunus serotina					X	
1607	16"	Pin Oak	Quercus palustris					X	
1608	21"	White Oak	Quercus alba				X		
1609	14"	Shagbark Hickory	Carya ovata					X	
1610	7"	Sugar Maple	Acer saccharum					X	
1611	10"	American Elm	Ulmus americana					X	
1612	23"	White Oak	Quercus alba				X		
1613	11"	Black Cherry	Prunus serotina					X	
1614	21"	White Oak	Quercus alba				X		
1615	9"	Pignut Hickory	Carya glabra					X	
1616	12"	Black Cherry	Prunus serotina					X	
1617	13"	Sugar Maple	Acer saccharum					X	
1618	7"	Sugar Maple	Acer saccharum					X	
1619	8"	Pin Oak	Quercus palustris					X	
1620	13"	Silver Maple	Acer saccharinum					X	
1621	15"	Sugar Maple	Acer saccharum					X	
1622	18"	White Oak	Quercus alba				X		
1623	8"	American Elm	Ulmus americana					X	
1624	18"	White Oak	Quercus alba				X		
1625	11"	Black Cherry	Prunus serotina					X	
1626	10"	Black Cherry	Prunus serotina					X	
1627	9"	Shagbark Hickory	Carya ovata					X	
1628	7"	Sugar Maple	Acer saccharum					X	
1629	13"	Black Cherry	Prunus serotina					X	
1630	10"	Pin Oak	Quercus palustris					X	
1631	13"	Black Cherry	Prunus serotina					X	
1632	12"	Black Cherry	Prunus serotina					X	
1633	8"	American Elm	Ulmus americana					X	
1634	22"	Pin Oak	Quercus palustris		POOR		X		
1635	7"	American Elm	Ulmus americana					X	
1636	18"	White Oak	Quercus alba				X		
1637	8"	Sugar Maple	Acer saccharum	twin				X	
1638	24"	Linden	Tilia americana				X		
1639	9"	Shagbark Hickory	Carya ovata					X	
1640	14"	Shagbark Hickory	Carya ovata					X	
1641	6"	American Elm	Ulmus americana					X	
1642	6"	American Elm	Ulmus americana					X	
1643	13"	Shagbark Hickory	Carya ovata					X	
1644	11"	Black Cherry	Prunus serotina					X	
1645	17"	American Elm	Ulmus americana					X	
1646	12"	Pin Oak	Quercus palustris					X	
1647	11"	Sassafras	Sassafras albidum					X	
1648	6"	Sassafras	Sassafras albidum					X	
1649	25"	Linden	Tilia americana				X		
1650	6"	Black Cherry	Prunus serotina					X	
1651	11"	Pin Oak	Quercus palustris					X	
1652	16"	Pin Oak	Quercus palustris					X	
1653	15"	Linden	Tilia americana					X	
1654	13"	Linden	Tilia americana					X	
1655	11"	Linden	Tilia americana					X	
1656	9"	Black Cherry	Prunus serotina					X	
1657	6"	American Elm	Ulmus americana					X	
1658	12"	American Elm	Ulmus americana					X	
1659	13"	American Elm	Ulmus americana					X	
1660	13"	Sassafras	Sassafras albidum				X		
1661	23"	Pignut Hickory	Carya glabra				X		
1662	9"	Silver Maple	Acer saccharinum					X	
1663	11"	Sassafras	Sassafras albidum					X	
1664	9"	Sassafras	Sassafras albidum					X	
1665	10"	Sassafras	Sassafras albidum					X	
1666	9"	Sassafras	Sassafras albidum					X	
1667	18"	Shagbark Hickory	Carya ovata				X		
1668	9"	Pin Oak	Quercus palustris					X	
1669	14"	Black Cherry	Prunus serotina					X	
1670	9"	Silver Maple	Acer saccharinum					X	
1671	8"	Sassafras	Sassafras albidum					X	
1672	10"	Sassafras	Sassafras albidum					X	
1673	6"	Sassafras	Sassafras albidum					X	
1674	12"	White Oak	Quercus alba					X	
1675	14"	White Oak	Quercus alba					X	
1676	19"	White Oak	Quercus alba				X		
1677	6"	Sassafras	Sassafras albidum					X	
1678	9"	Sassafras	Sassafras albidum					X	
1679	8"	Sassafras	Sassafras albidum					X	
1680	12"	Sassafras	Sassafras albidum				X		
1681	7"	American Elm	Ulmus americana					X	
1682	10"	White Oak	Quercus alba					X	
1683	9"	Black Cherry	Prunus serotina					X	
1684	14"	Black Cherry	Prunus serotina					X	
1685	15"	White Oak	Quercus alba					X	
1686	9"	Red Maple	Acer rubrum					X	
1687	16"	White Oak	Quercus alba					X	
1688	11"	Pignut Hickory	Carya glabra					X	

TAG	DBH	COMMON NAME	GENUS/SPECIES	STEMS	HEALTH	INV	LM	PROTECTED	REMOVAL
1689	9"	Black Cherry	Prunus serotina					X	
1690	20"	Shagbark Hickory	Carya ovata			X			
1691	14"	White Oak	Quercus alba					X	
1692	15"	White Oak	Quercus alba					X	
1693	12"	Sassafras	Sassafras albidum			X			
1694	16"	Shagbark Hickory	Carya ovata					X	
1695	8"	Black Cherry	Prunus serotina					X	
1696	8"	Silver Maple	Acer saccharinum					X	
1697	8"	Sassafras	Sassafras albidum					X	
1698	8"	Sassafras	Sassafras albidum					X	
1699	19"	Pin Oak	Quercus palustris			X			
1700	8"	Black Cherry	Prunus serotina					X	
1701	10"	Pin Oak	Quercus palustris					X	
1702	8"	Sassafras	Sassafras albidum					X	
1703	8"	Sassafras	Sassafras albidum					X	
1704	13"	Sassafras	Sassafras albidum			X			
1705	16"	Pin Oak	Quercus palustris					X	
1706	14"	White Oak	Quercus alba					X	
1707	8"	Black Cherry	Prunus serotina					X	
1708	10"	Black Cherry	Prunus serotina					X	
1709	16"	Black Cherry	Prunus serotina					X	
1710	9"	American Elm	Ulmus americana					X	
1711	12"	Pin Oak	Quercus palustris					X	
1712	7"	Pin Oak	Quercus palustris					X	
1713	7"	Pin Oak	Quercus palustris	twin				X	
1714	7"	Sassafras	Sassafras albidum					X	
1715	9"	Sassafras	Sassafras albidum					X	
1716	12"	White Oak	Quercus alba					X	
1717	16"	Black Cherry	Prunus serotina					X	
1718	8"	Black Cherry	Prunus serotina					X	
1719	13"	Pignut Hickory	Carya glabra					X	
1720	13"	White Oak	Quercus alba					X	
1721	15"	Pignut Hickory	Carya glabra					X	
1722	14"	Sassafras	Sassafras albidum			X			
1723	11"	Black Cherry	Prunus serotina					X	
1724	10"	White Oak	Quercus alba					X	
1725	6"	American Elm	Ulmus americana					X	
1726	10"	Sassafras	Sassafras albidum					X	
1727	9"	Sassafras	Sassafras albidum					X	
1728	13"	Black Cherry	Prunus serotina					X	
1729	11"	Black Cherry	Prunus serotina					X	
1730	21"	Pignut Hickory	Carya glabra			X			
1731	7"	American Elm	Ulmus americana					X	
1732	15"	Black Cherry	Prunus serotina					X	
1733	11"	Black Cherry	Prunus serotina					X	
1734	17"	White Oak	Quercus alba					X	
1735	8"	Red Maple	Acer rubrum					X	
1736	8"	Black Cherry	Prunus serotina					X	
1737	10"	White Oak	Quercus alba					X	
1738	10"	White Oak	Quercus alba					X	
1739	7"	Red Maple	Acer rubrum					X	
1740	18"	White Oak	Quercus alba			X			
1741	11"	Sassafras	Sassafras albidum					X	
1742	12"	Black Cherry	Prunus serotina					X	
1743	9"	Black Cherry	Prunus serotina					X	
1744	16"	Black Cherry	Prunus serotina					X	
1745	10"	Black Cherry	Prunus serotina					X	
1746	13"	Black Cherry	Prunus serotina					X	
1747	13"	Pignut Hickory	Carya glabra					X	
1748	8"	American Elm	Ulmus americana					X	
1749	19"	Pignut Hickory	Carya glabra			X			
1750	17"	White Oak	Quercus alba				X		
1751	20"	Pignut Hickory	Carya glabra			X			
1752	6"	Pin Oak	Quercus palustris					X	
1753	15"	Black Cherry	Prunus serotina					X	
1754	12"	Black Cherry	Prunus serotina					X	
1755	8"	Black Cherry	Prunus serotina					X	
1756	11"	Black Cherry	Prunus serotina					X	
1757	13"	Shagbark Hickory	Carya ovata					X	
1758	10"	Black Cherry	Prunus serotina					X	
1759	7"	American Elm	Ulmus americana					X	
1760	21"	Pin Oak	Quercus palustris		POOR			X	
1761	16"	Sassafras	Sassafras albidum			X			
1762	8"	Black Cherry	Prunus serotina					X	
1763	8"	Sweet Cherry	Prunus avuim			X			
1764	10"	Black Cherry	Prunus serotina					X	
1765	8"	Black Cherry	Prunus serotina					X	
1766	16"	Black Cherry	Prunus serotina					X	
1767	11"	Silver Maple	Acer saccharinum					X	
1768	8"	Silver Maple	Acer saccharinum					X	
1769	19"	Pin Oak	Quercus palustris			X			
1770	8"	Pignut Hickory	Carya glabra					X	
1771	16"	White Oak	Quercus alba					X	
1772	12"	Pignut Hickory	Carya glabra					X	
1773	11"	Pin Oak	Quercus palustris					X	
1774	23"	Pin Oak	Quercus palustris			X			
1775	21"	Pin Oak	Quercus palustris		POOR	X			
1776	10"	Pignut Hickory	Carya glabra					X	
1777	10"	Pignut Hickory	Carya glabra					X	
1778	18"	Sassafras	Sassafras albidum			X			
1779	20"	Sassafras	Sassafras albidum			X			
1780	18"	Pignut Hickory	Carya glabra			X			
1781	11"	Sassafras	Sassafras albidum					X	
1782	19"	Pignut Hickory	Carya glabra			X			
1783	8"	Sassafras	Sassafras albidum					X	
1784	8"	Sassafras	Sassafras albidum					X	
1785	7"	Silver Maple	Acer saccharinum					X	
1786	7"	American Elm	Ulmus americana					X	
1787	9"	Silver Maple	Acer saccharinum					X	
1788	18"	Pignut Hickory	Carya glabra			X			
1789	11"	Sassafras	Sassafras albidum					X	
1790	20"	Shagbark Hickory	Carya ovata			X			
1791	10"	White Oak	Quercus alba					X	
1792	11"	White Oak	Quercus alba					X	
1793	7"	Black Cherry	Prunus serotina					X	
1794	6"	Red Maple	Acer rubrum					X	
1795	6"	Black Cherry	Prunus serotina					X	
1796	9"	Red Maple	Acer rubrum					X	
1797	26"	Pin Oak	Quercus palustris			X			
1798	7"	Silver Maple	Acer saccharinum					X	
1799	16"	Silver Maple	Acer saccharinum					X	
1800	6"	Silver Maple	Acer saccharinum					X	
1801	13"	Pin Oak	Quercus palustris					X	
1802	19"	Shagbark





VICINITY MAP
NOT TO SCALE

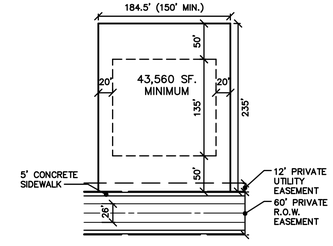
SCALE: 1" = 100'
0 100 200 300

Know what's below. Call before you dig.

SITE DATA CHART

	Proposed Underlying per Master Plan - R-1		Parallel Plan	
Zoning				
Land Use	Single Family Residential (Detached)		Single Family Residential (Detached)	
Site Area	2,033,677	sf gross/net	2,033,677	sf gross/net
	46.69	Acres Gross	46.69	Acres Gross
Dwelling Units				
Number of Units	46	Homes	38	Homes
Gross Lot Density	1.00	DU/Acre max.	0.8	DU/acre
Lots				
Min. Lot Area	1	Acres	1	acre min.
Min. Lot Width	150	ft min.	150	ft
Setl Front	50	ft	50	ft
Side	20	ft	20	ft
Corner/Side	50	ft	50	ft
Rear	50	ft	50	ft
Lot Coverage	20%	Maximum	Not determined	Max.
Max. Floor Area Coverage	20%	Maximum	Not determined	Max.

- EXISTING SITE ZONING: R-C
- MASTER PLAN FUTURE LAND USE: LOW DENSITY RESIDENTIAL 1 DU PER ACRE TO 1 DU PER 2.5 ACRES
- ASSUMES REZONING TO PUD PER MASTER PLAN DENSITY (1 DU/ACRE)
- ASSUMES UNDERGROUND STORMWATER MANAGEMENT
- POTENTIAL PUD DENSITIES
  - 38 LOTS WITH 15% DENSITY BONUS = 43 LOTS
  - 38 LOTS WITH 25% DENSITY BONUS = 47 LOTS



TYPICAL LOT DETAIL
NOT TO SCALE

The underground utilities shown have been located from field survey information and existing records. 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 the information available.

M:\Civil3d_Proj\17310\Prelim Pud\17310PP1.dwg, 8/27/2021 1:02 PM, Chris T. Somers, 13 PARALLEL PLAN - R1, MCLLC PDF.pc3
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8178 JACKSON RD., SUITE D
ANN ARBOR, MI 48108
JIM HAEUSSLER
(734) 260-9678

3991 DEXTER-ANN ARBOR RD

PRELIMINARY PLANNED UNIT DEVELOPMENT
PARALLEL PLAN - R1

13

DATE: 8/27/21
SHEET 13 OF 13
CADD: RWL
ENG: RWL2
PM: TJC
TECH:
J:\17310PP1

JOB No. 17310
REVISIONS:
REV. DATE

" DRAFT "

SCIO TOWNSHIP PLANNING COMMISSION
827 North Zeeb Road, Ann Arbor, Michigan 48l03
MEETING MINUTES OF MONDAY, SEPTEMBER 13, 2021

Meeting Conducted Via Online Format
For Complete Record of Planning Commission
Discussion, please see available video format.

1) CALL TO ORDER

Chair Culbertson called the meeting to order at 7:00 p.m.

2) ROLL CALL

Present: Holland, Sharma, Culbertson, Moore, Cheng
Absent: Courteau, Hyde

Commissioner Holland: Present
Commissioner Moore: Scio Township, Washtenaw County, MI
Commissioner Sharma: Scio Township, Washtenaw County, MI
Commissioner Cheng: Scio Township, Washtenaw County, MI
Commissioner Culbertson: Present

Others present:
Doug Lewan, AICP, CWA

3) ADOPTION OF AGENDA

MOTION BY COMMISSIONER MOORE, SUPPORTED BY COMMISSIONER SHARMA TO AMEND THE AGENDA TO ADD MARGARET ENGLE TO THE SUSTAINABILITY TASK FORCE.

YES: 5 NO: 0 MOTION CARRIED.

ROLL CALL:
HOLLAND: YES
MOORE: YES
SHARMA: YES
CHENG: YES
CULBERTSON: YES

4) COMMUNICATIONS/CORRESPONDENCE

None.

5) PRESENTATIONS REQUESTED BY THE PLANNING COMMISSION

None.

6) PUBLIC COMMENT

Chair Culbertson read the rules for public comment.

Public comment opened at 7:04 p.m.

Rob Pattinson, 500 N. Zeeb Road, Ann Arbor, MI 48103

MOTION BY COMMISSIONER HOLLAND, SUPPORTED BY COMMISSIONER MOORE TO CLOSE THE PUBLIC COMMENT.

YES: 5 NO: 0 MOTION CARRIED.

ROLL CALL:
HOLLAND: YES
MOORE: YES
SHARMA: YES
CHENG: YES
CULBERTSON: YES

Public Comment closed at 7:07 p.m.

7) BUSINESS SESSION

A) Advertised Public Hearings

None.

B) Unfinished Business

1. Item number: Scio Township
   Item name: Sign Ordinance, discussion
   Applicants: Scio Township Planning Commission

Comments by Doug Lewan.

Questions, concerns, discussion held by the Commissioners.

MOTION BY COMMISSIONER MOORE, SUPPORT BY COMMISSIONER SHARMA TO ADOPT THE REVISED SIGN ORDINANCE AS PRESENTED.

YES: 5 NO: 0 MOTION CARRIED.

ROLL CALL:
HOLLAND: YES
MOORE: YES

SHARMA: YES
CHENG: YES
CULBERTSON: YES

C) New Business

MOTION BY COMMISSIONER MOORE, SUPPORT BY COMMISSIONER CHENG TO APPROVE MARGARET ENGLE TO THE ENVIRONMENTAL SUSTAINABILITY TASK FORCE.

YES: 5 NO: 0 MOTION CARRIED.

ROLL CALL:
HOLLAND: YES
MOORE: YES
SHARMA: YES
CHENG: YES
CULBERTSON: YES

8) REPORTS/COMMISSION ACTIVITY

1. Engineering Consultant – OHM

   None.

2. Planning Consultant – CWA

   September 27th will be the joint meeting between the Township Board and the Planning Commission. The Master Plan draft should be available September 14th.

3. Chair Report – Culbertson

   The Environmental Sustainability Task Force had their second meeting. The main task force will meet on the first Thursday of every month.

4. BOT Board of Trustees Report – Courteau

   Updated emailed from Trustee Courteau read into the record by Commissioner Moore.

5. ZBA Zoning Board of Appeals – Culbertson

   None.

6. DDA – Holland

   We met today. The Road Commission has requested financing from DDA for

culverts on Parkland Plaza. The DDA expires in 2029. We need to extend the life of the DDA to extend any bonds.

7. Road Commission Advisory Committee – Sharma

None.

8. LPC Land Preservation Commission – Courteau

Updated emailed from Trustee Courteau read into the record by Commissioner Moore.

9. ZOA Zoning Ordinance Amendments – Cheng

None.

10. Parks and Rec Advisory Board – Hyde

None.

11. TAP committee – Cheng

We met last Wednesday. We welcomed a new committee member.

12. HRWC – Hyde

None.

9) APPROVAL OF MINUTES

1. Minutes of August 9, 2021

MOTION BY COMMISSIONER CHENG, SUPPORTED BY COMMISSIONER HOLLAND TO APPROVE THE MIUTES OF AUGUST 9, 2021, AS PRESENTED.

YES: 5 NO: 0 ABSTAIN: 0 MOTION CARRIED.

ROLL CALL:
HOLLAND: YES
MOORE: YES
SHARMA: YES
CHENG: YES
CULBERTSON: YES

2. Minutes of August 23, 2021

MOTION BY COMMISSIONER MOORE, SUPPORTED BY COMMISSIONER CHENG TO APPROVE THE MIUTES OF AUGUST 23, 2021, AS CORRECTED.

YES: 5 NO: 0 ABSTAIN: 0 MOTION CARRIED.

ROLL CALL:
HOLLAND: YES
MOORE: YES
SHARMA: YES
CHENG: YES
CULBERTSON: YES

9) ADJOURNMENT

MOTION BY COMMISSIONER MOORE, SUPPORT BY COMMISSIONER CHENG TO ADJOURN AT 8:48 p.m.

YES: 5 NO: 0 MOTION CARRIED

ROLL CALL:
HOLLAND: YES
MOORE: YES
SHARMA: YES
CHENG: YES
CULBERTSON: YES

Transcription by Kristy L. Aiken